

# Blue Mountain Land Exchange – Oregon

## Final Environmental Impact Statement

Malheur, Umatilla, and  
Wallowa-Whitman National Forests



United States  
Department of  
Agriculture

Forest  
Service

Pacific Northwest  
Region

September 2006



# Blue Mountain Land Exchange – Oregon Final Environmental Impact Statement

September 2006

U.S. DEPARTMENT OF AGRICULTURE

FOREST SERVICE

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File Code: 1950-3

Date: October 6, 2006

Dear Interested Party:

Enclosed is a copy of the Final Environmental Impact Statement (FEIS) for the Blue Mountain Land Exchange – Oregon.

The FEIS analyzes a proposal and alternatives to exchange land between Clearwater Land Exchange-Oregon, a third-party facilitator, and the Forest Service.

The preferred alternative identified in the FEIS is Alternative 5. A Record of Decision will be mailed separately documenting the decision made from the enclosed analysis.

For further information, please contact Alicia Glassford, Team Leader at 541-426-5689 or Linda Vore, Lands Program Manager at 541-523-1249. The FEIS is also available on the internet at [www.fs.fed.us/r6/w-w/projects/bmle](http://www.fs.fed.us/r6/w-w/projects/bmle).

Sincerely,

*Richard E. Markley*

RICHARD E. MARKLEY  
Deputy Forest Supervisor  
Wallowa-Whitman National Forest

Enclosure



# Environmental Impact Statement for the Blue Mountain Land Exchange – Oregon

## Malheur, Umatilla, and Wallowa-Whitman National Forests Oregon

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**Abstract:** This Final Environmental Impact Statement (FEIS) analyzes a Proposed Assembled Land Exchange between Clearwater Land Exchange-Oregon, facilitator, and the Forest Service, US Department of Agriculture, involving lands within the Malheur, Umatilla, and Wallowa-Whitman National Forests of Region 6. The affected counties include Baker, Grant, Morrow, Umatilla, Union and Wallowa. All forests are acquiring and conveying land parcels. The purpose of the Proposed Land Exchange is to provide for more efficient cost effective management of National Forest System lands through consolidation of existing Federal lands and to acquire and protect habitat for Threatened and Endangered species and lands within Congressionally Designated Areas. The identified significant issues include: 1) exercise of American Indian Treaty rights and cultural uses, 2) water quality, 3) fisheries, 4) old growth associated species, and 5) social and economic environment. This FEIS analyzes the Proposed Land Exchange, No Action, Purchase, Deed Restriction and Preferred Alternatives. Cause-effect relationships are disclosed so the reader can track the effects of each alternative and identify how these effects relate to the significant issues.

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# Summary

## Introduction

In compliance with the National Environmental Policy Act (NEPA) and other relevant Federal laws and regulations, the Wallowa-Whitman, Umatilla, and Malheur National Forests have prepared a Final Environmental Impact Statement (FEIS) on a Proposed Land Exchange between Clearwater Land Exchange-Oregon (Clearwater) and the Forest Service (FS), USDA.

Clearwater is acting as an independent third party facilitator for assembling numerous non-Federal parcels into a large cost efficient proposal referred to as the Blue Mountain Land Exchange.

The area affected is Federal and non-Federal lands located in Baker, Grant, Morrow, Umatilla, Union, and Wallowa counties of Oregon (refer to Figures S-1 and S-2). All Proposed Exchange parcels (Federal and non-Federal) are within the geographic area of ceded lands and/or area of interest of the Confederated Tribes of the Umatilla Reservation (CTUIR), Confederated Tribes of the Warm Springs Reservation, the Nez Perce Tribe, or the Burns Paiute Tribes.

The purpose of this Proposed Land Exchange is to provide for more efficient cost effective management of National Forest System lands (NFS) through consolidation of existing Federal lands.

## Background

The Forest Service entered into an Agreement to Initiate a land exchange with Clearwater Land Exchange, Oregon, Inc., a third party facilitator, in October 1998. This agreement proposed consideration of an exchange of approximately 29,100 acres of non-Federal lands and 19,000 acres of public lands (BLM and FS). Approximately 12,500 acres of these lands were identified as critical to the completion of a collateral BLM exchange and were included in the Triangle Land Exchange, which was legislated and completed in December of 2000. Following completion of this project, efforts were focused on evaluating the remaining lands included in the 1998 agreement but not included in the Triangle exchange. Additional landownership adjustment opportunities surfaced between October 1998 and May 2002, and additional lands were added to the proposal via an Amendment to the ATI in May 2002. The 2002 amendment identifies the 21,000 acres of Federal lands and 37,000 acres of non-Federal lands to be analyzed in this exchange proposal.

A Notice of Intent (NOI) was published in the Federal Register on August 2, 2002. During that same month, written notices describing the Proposed Exchange were sent to holders of grazing permits and special use authorizations. Letters were sent to state agencies, congressional delegations and county commissioners. A notice of the Proposed Blue Mountain Land Exchange was published in newspapers of general circulation in counties where Federal and non-Federal exchange parcels were located and a web site was created to provide additional information and allow for public comments. Scoping meetings, mass mailings, field trips and government-to-government consultation with American Indian tribes occurred.

## Summary

A Draft Environmental Impact Statement was printed in May 2005 and mailed to interested parties to allow for review and comment in compliance with the National Environmental Policy Act and agency regulations.

Comments and responses to the comments on the DEIS were included in this FEIS (Refer to Appendix E). All comments received were analyzed and considered in the preparation of this FEIS. Based upon American Indian tribal concerns, a Preferred Alternative was added to the alternatives evaluated in detail. Also, sections of this FEIS were modified to clarify and disclose additional information.

# Blue Mountain Land Exchange

## Location Map

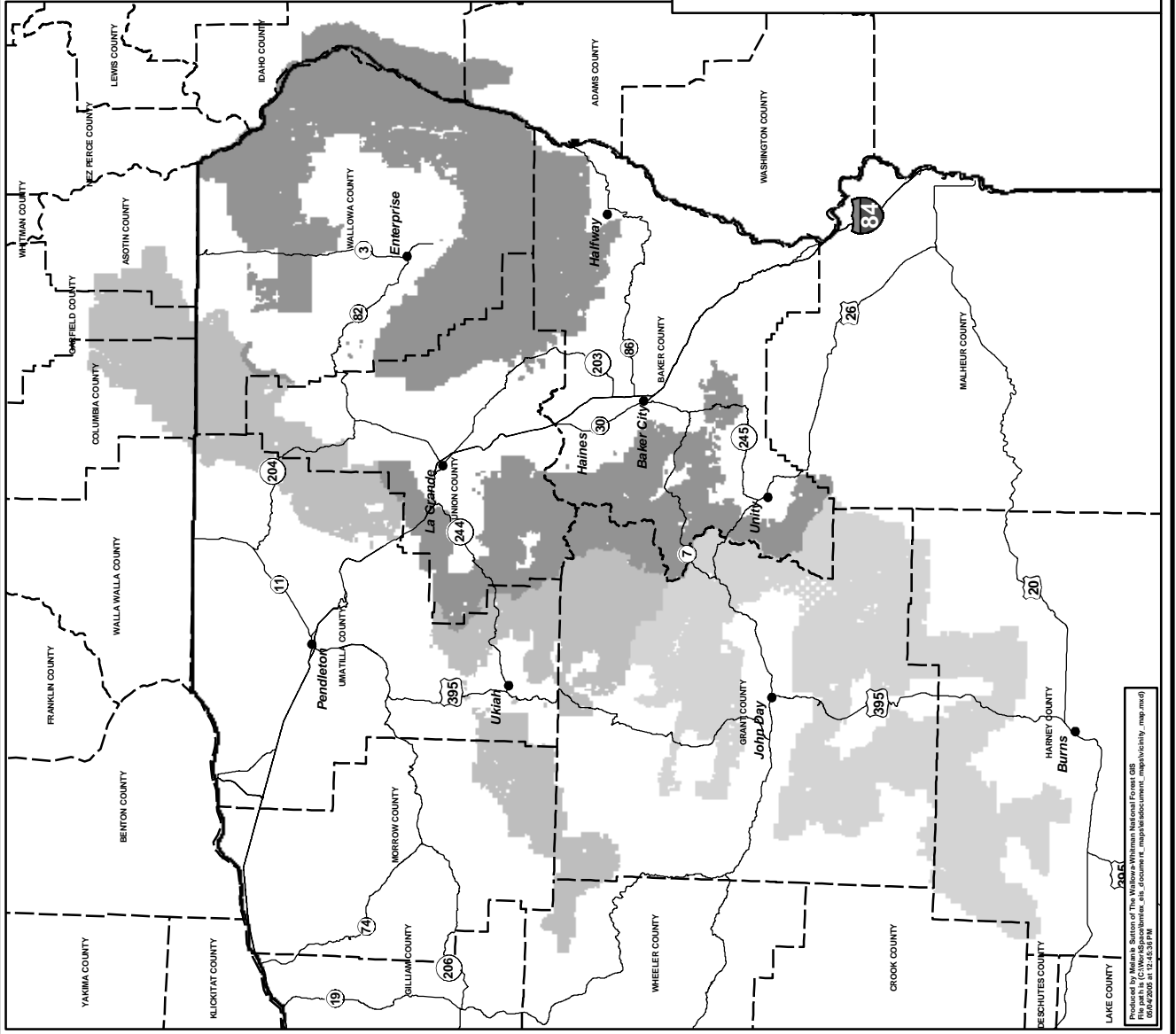
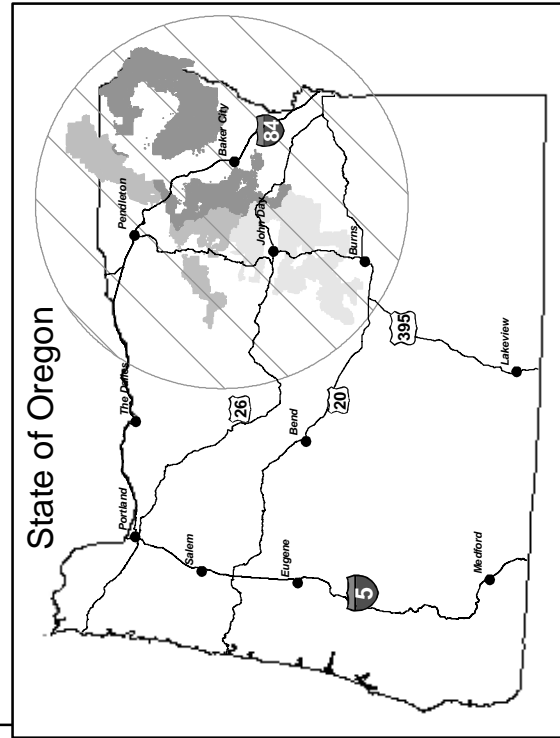
**Map Legend**

- Cities
- County Boundaries
- == Highways
- State of Oregon

**Blue Mountain Tri-Forest Area**

**National Forest Boundaries**

- Malheur
- Umatilla
- Wallowa-Whitman

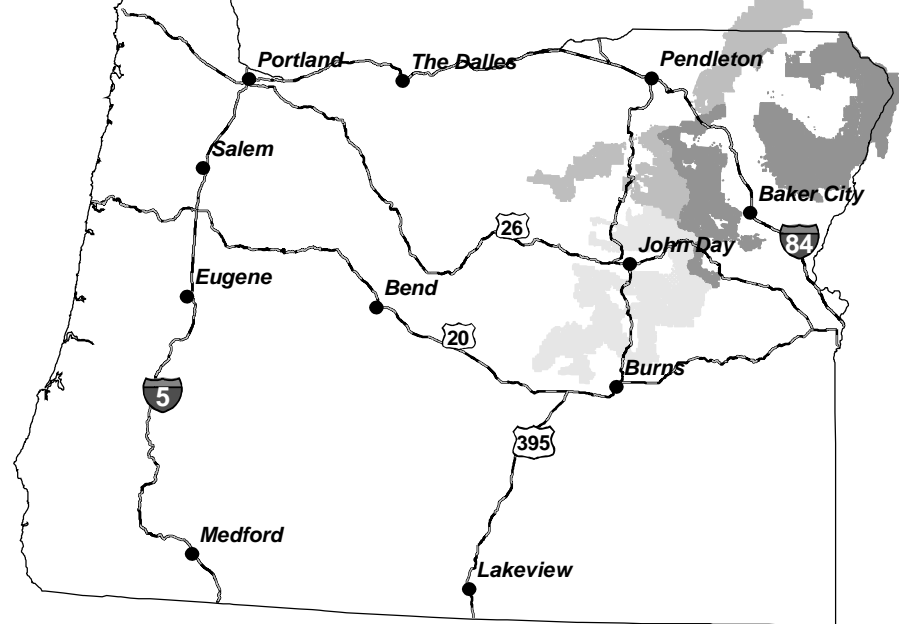


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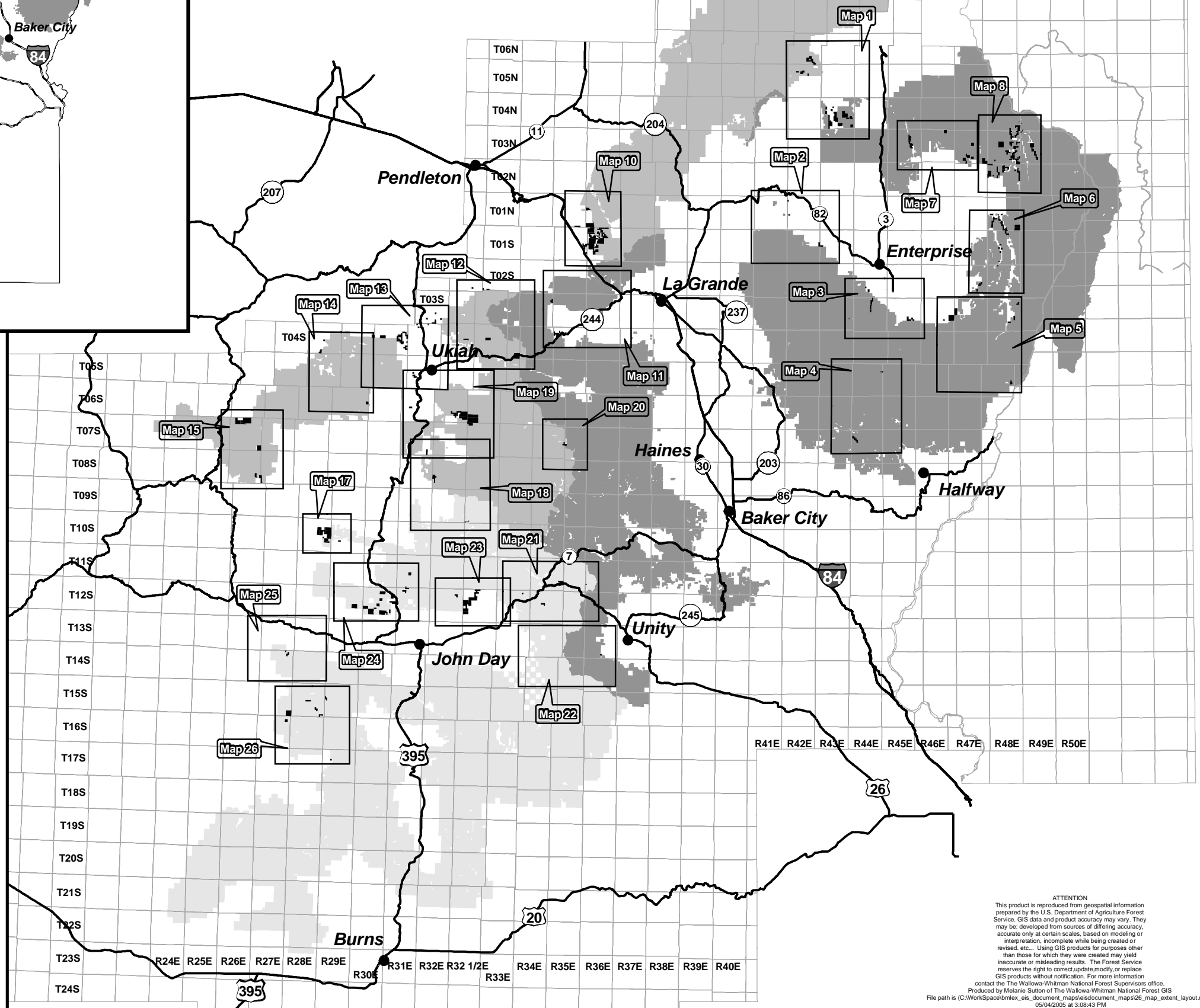
## Summary

# State of Oregon



## Blue Mountain Land Exchange Map Locator

- Cities
- ⚡ Highways
- Parcels
- National Forest Boundaries**
- Malheur
- Umatilla
- Wallowa-Whitman



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## **Issues**

Based upon ID team recommendations related to scoping comments and consultation with American Indian tribes, the Responsible Officials identified five significant issues. They include: 1) exercise of American Indian treaty rights and cultural uses, 2) water quality, 3) fisheries, 4) old growth associated species, and 5) social and economic environment. These significant issues were used to develop the alternatives to the Proposed Land Exchange, as well as to evaluate and compare all alternatives.

## **Alternatives Evaluated in Detail**

In developing the Proposed Land Exchange, the Forest Service considered the history of land acquisition and land exchanges on the three National Forests along with land ownership adjustment direction in each of the Forest's Land and Resource Management Plans. Then the lands staff in cooperation with Clearwater evaluated all opportunities to achieve the identified exchange purpose and need statements. After a conceptual land exchange was developed, the lands staff utilized the existing information on each parcel to determine if the conceptual exchange would comply with each Forest Plan's management direction. Also, Clearwater conferred with State of Oregon and private land owners to confirm that they could achieve their objectives and were willing to participate in the Proposed Land Exchange. Subsequent to the development of the Proposed Land Exchange (Alternative 1), some parcels that had been listed in the NOI were dropped due to resource issues, because private owners decided to not participate, or because parcels did not achieve the purpose and need statements.

### **Alternative 1: Proposed Exchange**

The FS proposes to exchange fee title with Clearwater Land Exchange-Oregon, a partnership in Orofino, Idaho, to approximately 18,172 acres of Federal land and 31,741 acres of non-Federal land in scattered parcels throughout the Blue Mountains Province of Northeast Oregon.

Watersheds identified in the exchange are: Imnaha River, Big Sheep Creek, Joseph Creek, Lostine River, Wallowa River, Middle Grande Ronde River, Upper Grande Ronde River, Willow Creek, Umatilla River, North Fork John Day River, Middlefork John Day River, Upper John Day River, Lower John Day River, and the Snake River.

This alternative would authorize the transfer of land ownership and management authority between the parties. The FS would manage the acquired parcels in accordance with the appropriate Forest Plans, as amended.

Dedicated old growth would be proposed for conveyance to Clearwater. In the event this occurs, other timbered stands or existing old growth would be assigned for replacement and the appropriate Forest Plans would be amended as required.

### **Alternative 2: No Action**

The Proposed Land Exchange between the FS and Clearwater would not occur. The current landownership pattern within the analysis area would remain the same.

### **Alternative 3: Purchase**

This alternative responds to considering a range of alternatives as required by FS direction and previous case law. Several individuals, including the Confederated Tribes of the Umatilla Indian Reservation requested that purchase of non-Federal parcels be evaluated in detail.

Assuming Land and Water Conservation Fund dollars are secured and based upon 2004 value estimation, the interdisciplinary team determined that approximately 4,249 acres could be purchased.

Federal parcels would not be conveyed under this alternative. Alternative 3 would not authorize site-specific management activities. The FS would manage purchased non-Federal parcels and the Federal parcels not being conveyed in Alternative 1 in accordance with the appropriate existing Forest Plans, as amended.

### **Alternative 4: Deed Restriction**

This alternative responds to considering a range of alternatives as required by FS direction and previous case law. Several respondents requested that a Deed Restriction Alternative be evaluated in detail. Deed restrictions on conveyed parcels were developed in response to four significant issues. They are: 1) the exercise of American Indian treaty rights and cultural uses, 2) water quality, 3) fisheries and, 4) old growth associated species.

The Deed Restriction Alternative acknowledges that the deed covenants would decrease the fair market value of approximately 18,172 acres of the Federal parcels to be conveyed as identified in Alternative 1, by approximately fifty percent. It was estimated that the FS would acquire approximately 17,119 acres of non-Federal parcels identified in Alternative 1.

This alternative would authorize the transfer of land ownership and management authority between the parties. It would not authorize site-specific management activities by either party. The FS would manage the acquired parcels in accordance with the appropriate Forest Plans, as amended. In addition, on conveyed parcels the FS would monitor and manage for deed restriction compliance in perpetuity.

Dedicated old growth would be proposed for conveyance to Clearwater. In the event this occurs, other timbered stands or existing old growth would be assigned for replacement and the appropriate Forest Plans would be amended as required.

### **Alternative 5: Preferred Alternative**

This alternative responds to tribal members needs by holding CTUIR lands of concern in Federal ownership. The Preferred Alternative is similar to the Proposed Exchange except that parcels FU3E, FW44A, FU4, FU21 and parcels or portions of parcels listed in Appendix D under the heading "Parcels Dropped from Action Alternatives between NOI and FEIS" were withdrawn. The watersheds identified in this alternative are similar to Alternative 1. The Preferred Alternative proposes to exchange fee title to approximately 16,473 acres of Federal land and 30,837 acres of non-Federal land in scattered parcels throughout the Blue Mountains Province of Northeast Oregon.

This alternative would authorize the transfer of land ownership and management authority between the parties. The FS would manage the acquired parcels in accordance with the appropriate Forest Plans, as amended.

Dedicated old growth would be proposed for conveyance to Clearwater. In the event this occurs, other timbered stands or existing old growth would be assigned for replacement and the appropriate Forest Plans would be amended as required.

## **Conclusions Reached by Alternative**

First, the alternatives are evaluated on their response to the purpose and need statements and Forest Plan compliance. Second, the significant issues that evolved through scoping are used to compare alternatives through defined measurement indicators. The conclusions summarized below by alternative are brief and do not include all conclusions reached in the FEIS. Detailed information concerning comparison of alternatives can be found in Chapters 2 and 3 of this FEIS.

### **Alternative 1: Proposed Exchange**

#### **Purpose and Need and Forest Plan Compliance**

This alternative was designed to be responsive to the purpose and need statements. Alternative 1 would provide for more cost efficient management of NFS lands. It would consolidate the Federal land base and provide for more effective conservation and management of natural resources. Alternative 1 attempts to achieve goals of the State of Oregon and private entities to assure willing exchange participants.

Alternative 1 was designed to follow all three Forest's landownership adjustment direction. The primary direction for land adjustment is consolidation of Federal lands. Forest Plans would be amended for mitigation of dedicated old growth. Alternative 1 would assist in moving towards the desired future condition described in the Forest Plans.

#### **Significant Issue Conclusions – Alternative 1**

- The trend of past land exchanges where upland habitat is conveyed in exchange for acquisition of stream habitat continues.
- The location of open and unclaimed lands would change and the amount of accessible open and unclaimed lands would increase. Access for traditional uses and the exercising of treaty rights would not be adversely impacted. Individuals using the parcels the Forest Service proposes to convey would be displaced and have to find another area on the Forest to exercise their treaty right or activity.
- Effects to water quality, riparian condition, and water yield would be localized, and generally too small to be measured except erosion and sedimentation in some subwatersheds would likely increase for one to two years following harvest and associated activities.
- Alternative 1 and 5 would have the greatest potential of all alternatives for improvements to steelhead, Chinook salmon and bull trout habitat.
- The loss of old growth habitat at the Blue Mountain scale is not likely to affect the viability of old growth associated species or jeopardize the continued existence of these species.
- The projected increase in average annual harvest would not be expected to substantially alter current trends in local timber harvest or existing forest-related employment levels.

## Summary

- The net reduction in private lands subject to property taxes would result in a small decrease in local property tax revenues to counties that would be partially offset by an increase in Payments in-Lieu of Taxes (PILT).
- Alternative 1 would result in a one-time administrative savings larger than the other action alternatives, but an increase in annual administrative costs would occur.
- The net effect on road access to the National Forests would be minimal in the short-term with some disruption to visitors.
- This alternative would realize a net acre increase in the developed end of the recreation opportunity spectrum (ROS) scale but would also make available recreation opportunity at the more primitive end of the scale. An additional acre increase would occur within Wild and Scenic River Corridors and Roadless Areas (within and adjacent to) as is the case with the other action alternatives. Increases in Wilderness and Hells Canyon National Recreation Area (HCNRA) acres would be equal to Alternative 4 and 5.

## **Alternative 2: No Action**

### **Purpose and Need and Forest Plan Compliance**

Alternative 2 would not be responsive to the purpose and need statements.

The No Action Alternative would not add to landownership adjustments that have occurred from previous land exchanges, therefore landownership adjustment direction in the Forest Plans would not be implemented. Natural resources and specially designated areas would continue to be managed as they have in the past.

### **Significant Issue Conclusions – Alternative 2**

- The location and acres of open and unclaimed lands would not change resulting in no changes to access for traditional uses. Fisheries habitat would continue to be impacted by private ownership and related uses.
- Merchantable stands that would not be acquired in Alternative 1 would be logged. Affects to water quality, riparian condition, and water yield would be localized, and generally too small to be measured except erosion and sedimentation in some subwatersheds would likely increase for one to two years following harvest and associated activities. Federal lands not conveyed would not be logged.
- Fish habitat would not be acquired. Opportunities to acquire and substantially restore habitat would be foregone.
- The current status of old growth and LOS would not change on NFS lands.
- Current trends in local timber harvest or existing forest-related employment levels would not change.
- Property tax revenues to counties would not change.
- There would be no one time administrative savings and no change in annual administrative costs.
- Access to Federal and non-Federal lands would remain the same. Public access to fishing on the Imnaha River would continue to be limited and some FS trails would have no public right-of-way. The current mix of ROS classes would not immediately change and specially designated areas would not acquire additional acres.

## **Alternative 3: Purchase**

### **Purpose and Need and Forest Plan Compliance**

Since this alternative would only purchase approximately 13% of the lands that would be acquired in Alternative 1, this alternative achieves very little of the purpose and need. The logistical problems associated with the Purchase Alternative further reduce the probability of achieving purpose and need statements. This alternative would not achieve State of Oregon and the vast majority of the private landowners desired management goals and objectives. Clearwater would not participate in the implementation of Alternative 3.

The Purchase Alternative would move towards compliance with the three Forest Plans landownership adjustment direction by purchasing priority parcels that further the conservation of threatened and endangered species and/or enhance wilderness, Wild and Scenic River, and National Recreation Area values. Alternative 3 would assist in moving towards the desired future condition described in the Forest Plans but only slightly because of the limited number of acres that likely would be purchased within the 10 year analysis period

### **Significant Issue Conclusions – Alternative 3**

- The purchase of parcels would not adversely impact access for traditional uses and the exercising of treaty rights but considerably fewer acres of high quality fishery habitat would become NFS lands when compared with Alternative 1.
- Alternative 3 would have less increase in open and unclaimed lands than the other action alternatives.
- Alternative 3 effects to water quality are very similar to effects of Alternative 2.
- Alternative 3 ranks below alternatives 1, 4 and 5 when considering benefits to steelhead, Chinook salmon and bull trout. The majority of the acres purchased (non-forested parcels) would be in the Imnaha drainage, resulting in added protection of riparian habitat in high priority fisheries.
- Alternative 3 effects to old growth associated species would be similar to effects of Alternative 2.
- Change in projected harvest volume is not expected to affect current trends in local timber harvest or existing forest-related employment levels.
- A small decrease in local property tax revenues would occur.
- A small one-time administrative savings would occur and the increase in annual administrative costs would be 33% of Alternative 1's cost. Land and Water Conservation Funds (LWCF) would be needed to purchase non-Federal parcels.
- Overall, access would not increase comparable to Alternative 1 because fewer net acres would become NFS land and some of the conveyed acres in Alternative 1 do not currently have public access. Alternative 3 would provide the least possible disruption to visitors and recreationists. This alternative would realize a net increase in the developed end of the ROS scale but contributes significantly less recreation opportunity at both ends of the scale than Alternative 1.



## **Alternative 4: Deed Restriction**

### **Purpose and Need and Forest Plan Compliance**

This alternative achieves more of the purpose and need statements than Alternative 3 but somewhat less than Alternative 1 and 5. Alternative 4 acquires 46% less acres than Alternative 1. The logistical problems associated with the Deed Restriction Alternative further reduce the probability of achieving purpose and need statements. This alternative would not achieve State of Oregon and the vast majority of the private landowners desired management goals and objectives. Management efficiency would be improved somewhat but off set by substantial FS costs incurred in monitoring and managing deed restriction compliance. Clearwater would not participate in the implementation of Alternative 4.

Alternative 4 would move towards compliance with the three Forest Plans landownership adjustment direction by acquiring priority parcels that further the conservation of threatened and endangered species and/or enhance wilderness, Wild and Scenic River, roadless area, and National Recreation Area values. Forest Plans would be amended for mitigation of dedicated old growth. Alternative 4 would assist in moving towards the desired future condition described in the Forest Plans more than Alternative 3 but less than Alternative 1 and 5.

### **Significant Issue Conclusions – Alternative 4**

- A net decrease of approximately 1,053 NFS acres would occur. The trend of past land exchanges where upland habitat is conveyed in exchange for acquisition of stream habitat would continue. Alternative 4 would have the highest net increase in open and unclaimed lands of all action alternatives because of retained rights on conveyed lands through deeded covenants. Access for traditional uses and the exercising of treaty rights would not be adversely impacted.
- Although more acres would be harvested in Alternative 4 than in any other alternative, the effects to water quality and riparian condition would be less than Alternative 1 and 5 due to deed restrictions, and about the same as Alternative 2. Affects to water quality, riparian condition, and water yield would be localized, and generally too small to be measured.
- Alternative 4 is a close second to both Alternative 1 and 5 when considering benefits to steelhead and Chinook salmon because Alternative 4 would have less protective management for upslope activities on parcels not acquired. Alternative 4 is equal to Alternative 1 and 5 when considering benefits to bull trout.
- Alternative 4 effects would be similar to Alternative 1 and 5 when considered in the context of species viability for old growth associated species.
- The projected increase in average annual harvest would not be expected to substantially alter current trends in local timber harvest or existing forest-related employment levels.
- The overall net increase in private lands subject to property taxes would result in an overall slight increase in property tax revenue to the six study area counties. Small reductions in tax revenues in Morrow, Umatilla and Wallowa counties would be partially offset by an increase in PILT revenues.
- Alternative 4 would result in a one-time administrative savings less than Alternative 1, but the increase in annual administrative costs would be larger than Alternative 1.

Annual administrative costs include the overseeing and monitoring of deed restrictions.

- The net effect on road access to the National Forests would be an increase but not as much as Alternative 1. Alternative 4 would result in the most disruption to visitors. This alternative would realize a net acre increase at the primitive end of the ROS scale but would result in a loss of acres at the developed end of the ROS scale. Acre increases in Wild and Scenic River Corridors and Roadless Areas (within and adjacent to) would be less than Alternative 1. Increases in Wilderness and Hells Canyon National Recreation Area (HCNRA) acres would be equal to Alternative 1 and 5.

## **Alternative 5: Preferred Alternative**

### **Purpose and Need and Forest Plan Compliance**

This alternative is similar to Alternative 1. It is responsive to the purpose and need statements and would provide for more cost efficient management of NFS lands. It would consolidate the Federal land base and provide for more effective conservation and management of natural resources. Alternative 5 responds to tribal members needs by holding CTUIR lands of concern in Federal ownership and attempts to achieve goals of State of Oregon and private entities to assure willing exchange participants.

Alternative 5 follows all three Forest's landownership adjustment direction. The primary direction for land adjustment is consolidation of Federal lands. Forest Plans would be amended for mitigation of dedicated old growth. Alternative 5 would assist in moving towards the desired future condition described in the Forest Plans.

### **Significant Issue Conclusions – Alternative 5**

- The trend of past land exchanges where upland habitat is conveyed in exchange for acquisition of stream habitat continues.
- The location of open and unclaimed lands would change and the amount of accessible open and unclaimed lands would increase. Access for traditional uses and the exercising of treaty rights would not be adversely impacted. Alternative 5 responds to tribal members needs more than Alternative 1 by holding CTUIR lands of concern in Federal ownership.
- Effects to water quality, riparian condition, and water yield would be localized, and generally too small to be measured except erosion and sedimentation in some subwatersheds would likely increase for one to two years following harvest and associated activities.
- Alternative 5 would be similar to Alternative 1 in potential for improvements of steelhead, Chinook salmon and bull trout habitat.
- The loss of old growth habitat at the Blue Mountain scale is not likely to affect the viability of old growth associated species or jeopardize the continued existence of these species.
- The projected increase in average annual harvest would not be expected to substantially alter current trends in local timber harvest or existing forest-related employment levels.

## Summary

- The net reduction in private lands subject to property taxes would result in a small decrease in local property tax revenues to counties that would be partially offset by an increase in Payments in-Lieu of Taxes (PILT).
- Alternative 5 would result in a one-time administrative savings almost as large as than under Alternative 1. Increased annual administrative costs equal to Alternative 1 would occur.
- The net effect on road access to the National Forests would be minimal in the short-term with some disruption to visitors.
- This alternative would realize a net acre increase in the developed end of the recreation opportunity spectrum (ROS) scale but would also make available recreation opportunity at the more primitive end of the scale. An additional acre increase would occur within Wild and Scenic River Corridors and Roadless Areas (within and adjacent to) similar to Alternative 1. Increases in Wilderness and Hells Canyon National Recreation Area (HCNRA) acres would be equal to Alternatives 1 and 4.

## Decisions to be Made

The Responsible Officials's decision to implement an alternative will be documented in a Record of Decision (ROD). Each Forest Supervisor would decide whether or not to:

- exchange NFS parcels for State of Oregon and private parcels of equal value
- implement one of the action alternatives evaluated in detail or a combination of those action alternatives
- amend the Forest Plans

Factors upon which the Forest Supervisors will base their decisions are:

- how the alternatives meet the purpose of and need for action
- how the alternatives respond to the significant issues
- the trade-off of environmental consequences among the alternatives
- how the alternatives respond to the public comments received on the DEIS

# Contents

## Chapters and Appendices

<b>Chapter 1. Purpose of and Need for Action</b> .....	<b>1</b>
Introduction.....	1
Background .....	2
Purpose and Need for Action .....	3
Proposed Land Exchange .....	3
Selection Criteria for Lands to Convey and Acquire.....	6
Changes from DEIS to FEIS .....	6
Land Exchange Authority and Process .....	6
Relationship to the Forest Plans .....	7
Decisions to Be Made .....	8
<b>Chapter 2. Alternatives, Including the Proposed Action</b> .....	<b>9</b>
Introduction.....	9
History of Proposed Exchange.....	9
Public Involvement .....	9
Public Scoping Input Summary .....	10
Identification of Significant Issues .....	11
Alternatives Considered in Detail .....	14
Alternatives Considered but Eliminated from Detailed Study .....	31
Comparison of Alternatives .....	32
<b>Chapter 3. Affected Environment and Environmental Consequences</b> .....	<b>49</b>
Introduction.....	49
Soils .....	49
Minerals.....	56
Hydrology, Wetlands, and Floodplains .....	68
Water Rights.....	93
Vegetation .....	105
Threatened and Endangered Vegetation Species.....	129
Noxious Weeds .....	136
Range.....	138
Transportation .....	160
Fisheries.....	170
Wildlife.....	190
Recreation .....	216
Fire and Fuels .....	241
Hazardous Materials .....	243
Land Use .....	246
Facilities .....	279
Property Boundaries.....	280
Heritage.....	281
American Indian .....	283
Social and Economic Environment.....	299
Commercial Timber .....	339
Cumulative Effects .....	341
Specifically Required Disclosures .....	363
<b>Chapter 4. List of Preparers and Commenters</b> .....	<b>367</b>
<b>Literature Citations</b>	
<b>Index</b>	
<b>Acronyms</b>	
<b>Glossary</b>	
<b>Appendix A – Legal Descriptions</b>	
<b>Appendix B – Maps</b>	
<b>Appendix C – Land Exchange Process</b>	

**Appendix D – Dropped Parcels**  
**Appendix E - Response to Comments**  
**Appendix F – Biological Assessment**

**List of Tables**

Table 1. Affected Acres by County.....	4
Table 2. Alternative 1- MA Acre Allocation for All Parcels to Convey and Acquire.....	4
Table 3. Summary of Open and Unclaimed Lands within Treaty Areas.....	15
Table 4. Proposed Exchange – Federal Parcels/GIS Acres.....	16
Table 5. Proposed Exchange – Private Parcels/GIS Acres.....	17
Table 6. Alternative 1- Affected Acres by County.....	18
Table 7. Alternative 1- MA Acre Allocation for All Parcels to Convey and Acquire.....	18
Table 8. Alternative 3- Parcels Proposed to be Purchased.....	20
Table 9. Alternative 3- County Allocations of Proposed Acres to be Purchased.....	20
Table 10. Alternative 3- Forest Plans MA Acre Allocation.....	21
Table 11. Alternative 4- Parcels Proposed to be Acquired.....	22
Table 12. Alternative 4- Parcels, Acres, MAs and Riparian Deed Restrictions.....	22
Table 13. Alternative 4- Affected Acres by County.....	26
Table 14. Alternative 4- MA Acre Allocation for all Parcels to Convey and Acquire.....	27
Table 15. Preferred Alternative – Federal Parcels/GIS Acres.....	28
Table 16. Preferred Alternative – Private Parcels/GIS Acres.....	29
Table 17. Alternative 5- Affected Acres by County.....	30
Table 18. Alternative 5- MA Acre Allocation for All Parcels to Convey and Acquire.....	30
Table 19. Comparison of Responsiveness to Purpose and Need by Alternative.....	33
Table 20. Comparison of Significant Issues by Alternative.....	47
Table 21. Alternative 1- Acreage and Percent of Acquired and Conveyed Commercial Forestland as a Surrogate for Detrimental Soil Conditions.....	51
Table 22. Alternative 1- Acreage and Percent of Acquired and Conveyed Rangelands in Allotments.....	52
Table 23. Alternative 1- Location of Known Feeding Sites and Corrals on Acquired Lands.....	52
Table 24. Alternative 3- Acreage and Percent of Acquired and Conveyed Commercial Forestland as Surrogate for Detrimental Soil Conditions.....	54
Table 25. Alternative 3- Acreage and Percent of Purchased Rangelands in Allotments.....	54
Table 26. Alternative 3- Location of Known Feeding Sites and Corrals on Purchased Lands.....	54
Table 27. Alternative 4- Acreage and Percent of Acquired and Conveyed Commercial Forestland as Surrogate for Detrimental Soil Conditions.....	55
Table 28. Alternative 4- Acreage and Percent of Acquired and Conveyed Rangelands in Allotments.....	55
Table 29. Non-Federal Parcels within Withdrawn Areas.....	64
Table 30. PACFISH and INFISH RHCA Widths.....	69
Table 31. Watersheds, Ownership, and Proposed Exchange Acres.....	70
Table 32. Wetlands and Floodplains Acres in the Proposed Exchange.....	73
Table 33. Alternative 1- Miles of Stream by Watershed and by Stream Category.....	74
Table 34. Summary of Forested Structure by Alternative (Acres).....	77
Table 35. Subwatersheds with 5% or More of Their Acres in the Land Exchange.....	79
Table 36. Summary of Wetlands, Floodplains, and Stream Channel by Alternative.....	80
Table 37. Watersheds with Water Quality Impaired Stream Segments.....	91
Table 38. Offered and Conveyed Parcels with Water Developments and/or Water Rights by Forest.....	94
Table 39. Alternative 1 and 5- Estimated Costs for Private and FS.....	98
Table 40. Alternative 3- Estimated Costs for FS.....	102
Table 41. Alternative 4- Estimated Costs for Private and FS.....	104
Table 42. FS Land Structure Stage Distribution by Potential Vegetation Group.....	108
Table 43. Non-Federal Land Structure Stage Distribution by Potential Vegetation Group.....	110
Table 44. Comparison of Existing and Historic Late and Old Structure (LOS).....	111

Table 45. Forest Plan Dedicated Old Growth by Acres and Watershed .....	112
Table 46. Alternative 1- Conveyed and Acquired Late and Old Structure (LOS) .....	119
Table 47. Percentage of (LOS) for Historic, Existing, and Proposed Exchange.....	121
Table 48. Alternative 1- LOS Replacement by Potential Vegetation in Watersheds .....	122
Table 49. Alternative 4- Gain of Late and Old Structure (LOS) .....	126
Table 50. Alternative 5 Changed Late and Old Structure (LOS) acres from Alternative 1 .....	126
Table 51. Conveyed and Acquired Late and Old Structure (LOS) for Alternative 5 .....	127
Table 52. Alternative Comparison by Net Reduction of LOS Acres .....	128
Table 53. Alternative Comparison by Acres of Old growth Conveyed.....	129
Table 54. Rare/Threatened Plant Sites on Land to Acquire/purchase .....	131
Table 55. Acres of Noxious Weeds Present in Land Exchange Parcels .....	137
Table 56. Noxious Weed Management Fiscal Liability in Land Exchange Parcels .....	137
Table 57. Alternative 1- Distribution of Acquired and Conveyed Parcels by Allotment .....	140
Table 58. Parcels Outside Allotments Either Being Grazed or Intended to be Grazed .....	145
Table 59. Alternative 1- Management Implications to Existing Allotments .....	145
Table 60. Alternative 3- Distribution of Purchased Parcels by Allotment .....	149
Table 61. Alternative 3- Management Implications to Existing Allotments .....	150
Table 62. Alternative 4 Distribution of Acquired and Conveyed Parcels by Allotment.....	152
Table 63. Parcels Outside Allotments Either Being Grazed or Intended to be Grazed .....	155
Table 64. Alternative 4- Management Implications to Existing Allotments .....	156
Table 65. Roads Summary by Alternative .....	164
Table 66. Alternative 1- R/W Acquisition Costs and Acres Accessed .....	165
Table 67. Alternative 2- R/W Acquisition Costs and Acres Accessed .....	166
Table 68. Alternative 3- R/W Acquisition Costs and Acres Accessed .....	167
Table 69. Alternative 4- R/W Acquisition Costs and Acres Accessed .....	168
Table 70. Alternative 5- R/W Acquisition Costs and Acres Accessed .....	169
Table 71. Alternative 1 and 5- Miles of Steelhead Habitat by 5th HUC Watershed.....	175
Table 72. Alternative 1, 4 and 5- Miles of Spring Chinook Habitat by 5th HUC Watershed .....	181
Table 73. Alternative 3- Miles of Spring Chinook Habitat by 5th HUC Watershed .....	183
Table 74. Alternative 1- Miles of Bull Trout FMO and SR by 5th HUC Watershed.....	184
Table 75. Miles of Bull Trout FMO and SR by Alternative .....	185
Table 76. R-6 Sensitive Fish and Amphibian Species.....	186
Table 77. R-6 Sensitive Fish and Amphibian Species Effects Analysis .....	187
Table 78. Criteria and Ratings for the Bear Creek and Beech Creek Populations of Westslope Cutthroat Trout .....	189
Table 79. LAU Acres Summary by Habitat Category and Percentage of LAU Represented in Each Category.....	198
Table 80. Parcels Containing Lynx Habitat (Alternative Comparison).....	199
Table 81. Bald Eagle Roosts and Nests within a Mile of Proposed Exchange Parcels.....	201
Table 82. Species, Groups, and Families of Old Growth Associated Wildlife Species.....	205
Table 83. Old Growth Habitat Estimates from Forest Plans, Decade 2 (Acres).....	211
Table 84. Alternative Comparison by Key Indicators.....	213
Table 85. R-6 Sensitive Reptiles, Mammals and Bird Species Effects Analysis .....	214
Table 86. Alternative 1- ROS Class Acres for Conveyed and Acquired Parcels by .....	222
Table 87. Alternative 3- ROS Class for Purchased Parcels by Forest .....	223
Table 88. Alternative 4- ROS Class for Conveyed and Acquired Parcels by Forest .....	224
Table 89. Alternative 5- ROS Class for Conveyed and Acquired Parcels by Forest .....	224
Table 90. Comparison of Net Changes in ROS Class Acres by Alternative.....	90
Table 91. Roads to Be Acquired, Conveyed, or No Change in Each Forest by Alternative .....	226
Table 92. Miles of Conveyed and Acquired Open and Closed Roads by Alternative.....	227
Table 93. Alternative 1- Acquired and Conveyed Parcels in Wild and Scenic River Corridors ...	230
Table 94. Wild and Scenic River Corridor Net Acre Change by Alternative .....	233
Table 95. Action Alternatives- Acquired Parcels in Wilderness.....	233
Table 96. Alternative 1- Parcels Adjacent to or within Inventoried Roadless Areas .....	234
Table 97. Net Change in Inventoried Roadless Areas by Alternative.....	238
Table 98. HCNRA Acres Conveyed and Acquired by Alternative .....	239
Table 99. Federal Parcel Land Use Considerations by Alternative .....	247

Table 100. Non-Federal Parcel Land Use Considerations by Alternative .....	257
Table 101. Facilities Acquisition Summary.....	279
Table 102. Property Boundary Status and Savings by Alternative .....	280
Table 103. Summary of Open and Unclaimed Lands within Treaty Areas .....	289
Table 104. Acres of Conveyed and Acquired Lands by Treaty Area.....	289
Table 105. Changes to the Amount of Open and Unclaimed Federal Lands by Treaty Area.....	289
Table 106. Conveyed and Acquired Acres by Series and Alternative .....	293
Table 107. Acres of Roadless and Wilderness Areas within Ceded Lands by Treaty or Executive Order .....	294
Table 108. Proposed Exchanged Acres within or Adjacent to Roadless Areas by Watershed ...	108
Table 109. Total Stream Type Changes by Alternative .....	109
Table 110. Total Employment by Sector and County, 2001 .....	301
Table 111. Forest Products Employment, 2002 .....	304
Table 112. Travel Related Economic Impacts, 2002.....	307
Table 113. Summary of Agriculture by County, 1997.....	307
Table 114. Agricultural Employment by County, 2001 .....	308
Table 115. Federal 25 Percent Fund Payments.....	308
Table 116. Annual PILT Payments by County, 1999 to 2003 (\$) .....	309
Table 117. Oregon Property Tax by County, Fiscal Year 2003-04.....	310
Table 118. Oregon Forest Products Harvest Tax Revenues, 1999 to 2002 (\$) .....	310
Table 119. Net Change by county in Federal Acres by Alternative .....	312
Table 120. Projected Timber Volume by County and Alternative .....	313
Table 121. Projected Annual Lumber and Wood Products Employment and Income by County and Alternative .....	314
Table 122. Estimated Property Tax Revenues by Alternative and County.....	316
Table 123. One-Time Administrative Costs and Savings by Alternative1 .....	317
Table 124. Annual Administrative Costs and Savings by Alternative1 .....	318
Table 125. Estimated Property Boundary Costs and Savings by Alternative .....	318
Table 126. Road Miles and Deferred Maintenance Costs by Alternative .....	320
Table 127. Road Miles and Annual Maintenance Costs by Alternative.....	321
Table 128. Commercial Timber Characteristics to Convey/Acquire/Purchase by Alternative .....	340
Table 129. Lands Leaving and Entering Federal Jurisdiction by County. ....	342
Table 130. Alternative 1- Subwatersheds Conveying Over 5% Acres with Over 5% in Merchantable Timber .....	345
Table 131. Alternative 1- Subwatersheds Conveying Over 5% Acres with Less Than 5% in Merchantable Timber .....	346
Table 132. Old Growth Habitat Acres Estimated from Forest Plans, Decade 2. (Acres).....	350
Table 133. Summary of Fisheries Habitat for Watersheds that include 1% or more of their Area in the Proposed Exchange .....	362

## List of Figures

Figure 1. Insert Wallowa-Whitman Old Growth Map .....	115
Figure 2. Insert Wallowa-Whitman Old Growth Map .....	116
Figure 3. Insert Umatilla Old Growth Map .....	117
Figure 4. Insert Malheur Old Growth Map .....	118
Figure 5. Net Change in Lumber and Wood Products Employment, 1990 to 2000.....	305
Figure 6. Northeast Oregon Total Timber Harvests by Ownership, 1990-2003 .....	306
Figure 7. Timber Harvest by County, 2003 .....	306

# Chapter 1. Purpose of and Need for Action

## Introduction

In compliance with the National Environmental Policy Act (NEPA) and other relevant Federal laws and regulations, the Forest Service (FS) has prepared a Final Environmental Impact Statement (FEIS) on a Proposed Land Exchange between Clearwater Land Exchange-Oregon (Clearwater) and Forest Service, U.S. Department of Agriculture. The proposal is referred to as the Blue Mountain Land Exchange-Oregon. Clearwater is acting as an independent third party facilitator for assembling numerous small non-Federal parcels into a large cost efficient proposal. Multiple owners of the non-Federal parcels have agreed to consolidate their parcels into a single package for the purpose of completing one exchange transaction. The Proposed Exchange involves lands within and in the vicinity of the Malheur, Umatilla, and Wallowa-Whitman National Forests. The Federal and non-Federal lands are located in Baker, Grant, Morrow, Umatilla, Union, and Wallowa Counties. This document is organized into four chapters:

- *Chapter 1. Purpose of and Need for Action:* This chapter includes information on the history of the project proposal, the purpose of and need for the project and the agency's proposal for achieving that purpose and need. It explains the overall scope of this FEIS, discloses other pertinent information and describes the decisions to be made by the Responsible Officials.
- *Chapter 2. Alternatives, including the Proposed Action:* This chapter describes the scoping and public involvement process, identifies the significant project issues and provides a more detailed description of the agency's Proposed Exchange and alternatives to the Proposed Exchange. These alternatives were developed based on significant issues raised by the public and other agencies. Finally, this section provides a comparison summary of the environmental effects for all alternatives considered in detail.
- *Chapter 3. Affected Environment and Environmental Consequences:* This chapter describes the existing physical, biological, economic, and social environment potentially affected by the Proposed Exchange and the alternatives to the Proposed Exchange described in Chapter 2. It also discloses the anticipated environmental consequences of implementing each alternative described in Chapter 2. Direct, indirect, and cumulative effects are disclosed, and the effectiveness of mitigation is assessed. Unavoidable adverse impacts are identified, including irreversible and irretrievable commitments of resources.
- *Chapter 4. List of Preparers/Literature Citations:* This chapter contains a listing of the individuals responsible for preparing this FEIS. It also contains literature citations.
- *Glossary:* The glossary defines terms used in this FEIS which may be unfamiliar to readers. Acronyms and abbreviations are defined prior to their first usage.
- *Appendices:* The appendices provide additional detailed information to support the analyses presented in this FEIS.
- *Index:* The index provides page numbers by document topic.



Parcel numbering system is as follows:

- FW parcels are Federal parcels on the Wallowa-Whitman NF potentially to be conveyed to private ownership.
- PW parcels are private parcels that would possibly become part of the Wallowa-Whitman NF.
- FU parcels are Federal parcels on the Umatilla National Forest potentially to be conveyed to private ownership.
- PU parcels are private parcels that would possibly become part of the Umatilla NF.
- FM parcels are Federal parcels on the Malheur NF potentially to be conveyed to private ownership.
- PM parcels are private parcels that would possibly become part of the Malheur NF.

State of Oregon parcels that would possibly be acquired include:

- PU21, PM25, PM26, PM27, PM 28, PM29, PM30, PM31, PU1A, PU1B, PU2, PU3 and PU4

Additional documentation, including, the development of this FEIS, background information such as public scoping, specialist reports, anticipated management plans, documentation of meetings and gathered resource information on the project analysis area may be found in the Project Record (PR) located at the Wallowa-Whitman National Forest Supervisor's Office in Baker City, Oregon.

## **Background**

Prior to the Agreement to Initiate (ATI) the Proposed Blue Mountain Land Exchange, the FS had completed two exchanges with Clearwater in the early 1990's. The successful completion of these land exchanges prompted numerous private parties to approach Clearwater about additional land adjustment opportunities. Clearwater had proposed the previous exchanges, which were designed in consultation with the FS to meet landownership adjustment goals and objectives identified in the Land and Resource Management Plans (Forest Plans) for the Malheur, Umatilla, and Wallowa-Whitman National Forests. In response to a third Clearwater proposal, the FS entered into an ATI for another land exchange in October 1998. This agreement identified a large pool of both Federal (BLM and FS) and non-Federal lands to be considered for exchange.

The 1998 ATI included approximately 29,100 acres of non-Federal and approximately 19,000 acres of Federal lands (BLM and FS). Of these acres, 4,460 acres of Federal land and 7,861 acres of non-Federal land were identified as priority for exchange to facilitate the closure of the BLM NOELE exchange. On August 8, 2000, President Clinton signed into law the Oregon Land Exchange Act of 2000 (P.L. 106-257). This Act authorized the exchange of the priority lands in the Triangle Land Exchange between the Forest Service and Clearwater, the third party facilitator.

The Triangle Land Exchange Final Environmental Impact Statement (FEIS) analyzed seven alternatives and discussed the environmental effects of each alternative. Alternative 2 was the preferred and legislated alternative. Following completion of the Triangle exchange, efforts were focused on evaluation and analysis of the remaining lands included in the 1998 ATI, but not included in the Triangle Exchange. Additional landownership adjustments opportunities surfaced

between October 1998 and May 2002, and additional lands were added to the proposal via an Amendment to the ATI in May 2002. The 2002 amendment identifies the 21,000 acres of Federal lands and 37,000 acres of non-Federal lands to be analyzed in the Proposed Blue Mountain Land Exchange. To avoid confusion with the Blue Mountain Land Exchange in Washington in 2004 this land exchange changed its name to Blue Mountain Land Exchange – Oregon. After the Notice of Intent was published throughout the process parcels have dropped out for various reasons. These parcels are displayed in Appendix D.

## **Purpose and Need for Action**

The purpose of and need for action is for (1) more consolidated Federal and private ownership that reduces costs of both Federal and private management and (2) additional Federal jurisdiction within Congressionally Designated Areas or other parcels, such as wetlands, floodplains, and riparian areas that provide habitat for threatened or endangered species.

Currently the ownership pattern has some isolated Federal parcels surrounded by private, State, or other Federal jurisdictions as well as isolated non-Federal (privately owned) parcels surrounded by National Forest System lands. Isolated land parcels are difficult and more expensive to access and manage. There is a need to consolidate ownership to improve access, reduce management costs, and provide improved opportunities to meet FS, State of Oregon, and private management objectives for these lands.

Some current private parcels are surrounded by or substantially adjacent to congressionally designated areas or areas that provide habitat for threatened or endangered species. These designated areas or special habitats include the Hells Canyon National Recreation Area, Eagle Cap Wilderness, Hells Canyon Wilderness, Imnaha Wild and Scenic River, Wenaha-Tucannon Wild and Scenic River, Eagle Creek Wild and Scenic River, and North Fork John Day Wild and Scenic River. Management direction for these congressionally designated areas is to work with willing landowners to acquire private parcels. Management direction for threatened or endangered species is to work with willing landowners to acquire habitat important for conservation and recovery of the species. With Federal jurisdiction, there is an opportunity to manage congressionally designated areas consistent with Congress' intent for the areas and to manage habitat for threatened or endangered species, (such as Chinook salmon, steelhead trout and bull trout) consistent with the Endangered Species Act.

## **Proposed Land Exchange**

The FS proposes to exchange fee title with Clearwater Land Exchange-Oregon to approximately 18,172 acres of Federal land and 31,741 acres of non-Federal land in scattered parcels throughout the Blue Mountains Province of Northeast Oregon.

Affected FS management units include:

- Malheur National Forest: Blue Mountain and Prairie City Ranger Districts
- Umatilla National Forest: Heppner, North Fork John Day, Pomeroy, and Walla Walla Ranger Districts
- Wallowa-Whitman National Forest: Eagle Cap, La Grande, Baker, Pine, Unity, and Wallowa Valley Ranger Districts and the Hells Canyon National Recreation Area

Watersheds identified in the exchange are: Imnaha River, Big Sheep Creek, Joseph Creek, Lostine River, Wallowa River, Middle Grande Ronde River, Upper Grande Ronde River, Willow Creek, Umatilla River, North Fork John Day River, Middlefork John Day River, Upper John Day River, Lower John Day River, and the Snake River.

All parcels proposed for exchange (Federal and non-Federal) are within the geographic area of ceded lands and/or area of interest of the Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation, the Nez Perce Tribe, or the Burns Paiute Tribe. Affected acres by county are shown in Table 1 below.

**Table 1. Affected Acres by County**

County	FS Acres to Convey	Private and State Acres to Acquire
Baker County	42	311
Grant County	6,065	9,559
Morrow County	390	159
Umatilla County	6,677	7,768
Union County	388	309
Wallowa County	4,610	13,635
<b>Totals</b>	<b>18,172</b>	<b>31,741</b>

The Proposed Exchange Alternative would authorize the transfer of land ownership and management authority between the parties. The FS would manage the acquired parcels in accordance with the appropriate Forest Plans, as amended.

Rights previously conveyed or permitted by the United States on NF (National Forest) parcels would remain. For example, Oregon Trail Electric Cooperative, Inc. has a special use permit for a powerline across parcel FM12. The deed transferring title to this property would be conveyed subject to this continued use. These rights include easements, reservations, special use authorizations, term grazing permits, existing allotments, and water rights.

The legal description and acreage of each parcel are found in Appendix A, and maps are displayed in Appendix B. Existing management area (MA) acre allocation of all parcels proposed for conveyance and proposed MA acre allocation of all parcels proposed for acquisition are displayed in Table 2.

**Table 2. Alternative 1 – MA Acre Allocation for All Parcels to Convey and Acquire**

MA	Management Area Descriptions	FS Acres to Convey	Private and State Acres to Acquire	Acres Net Change
<b>Malheur National Forest</b>				
1-2	General Forest & Rangeland	463	1775	1312
3A	Non-Anadromous Riparian Area	4	0	-4
3B	Anadromous Riparian Area	0	0	0
4A	Big-Game Winter Range	3408	3874	466

MA	Management Area Descriptions	FS Acres to Convey	Private and State Acres to Acquire	Acres Net Change
10	Semi-Primitive Non-Motorized Recreation Areas	0	185	185
13	Old Growth	385	0	-385
14F	Visual Corridors Foreground	668	0	-668
14M	Visual Corridors Middle ground	79	224	145
RHCA	Riparian Habitat Conservation Area	758	89	-669
<b>Totals</b>		<b>5765</b>	<b>6147</b>	<b>382</b>
<b>Umatilla National Forest</b>				
A1	Dispersed Recreation (Non-Motorized)	42	0	-42
A3	Viewshed 1	0	583	583
A4	Viewshed 2	41	80	39
A7	Wild & Scenic Rivers	0	251	251
B1	Wilderness	0	42	42
C1	Dedicated Old Growth Forest Habitat	75	200	125
C3	Big Game Winter Range	2488	1104	-1384
C4	Wildlife Habitat	1605	3718	2113
C5	Riparian (Fish & Wildlife Habitat)	97	437	340
C7	Water Quality (Anadromous Fish)	0	1328	1328
C8	Grass-Tree Mosaic (GTM)	2558	2016	-542
E1	Timber & Forage	0	2193	2193
E2	Timber & Big Game	461	454	-7
<b>Totals</b>		<b>7367</b>	<b>12406</b>	<b>5039</b>
<b>Wallowa-Whitman National Forest</b>				
1	Timber Production Emphasis	439	1666	1227
1W	Timber Production/Winter Range	219	253	34
3	Wildlife/Timber Winter Range	3524	2492	-1032
4	Wilderness	0	205	205
6	Backcountry	118	885	767
7	Wild & Scenic Rivers	51	2624	2573
9	HCNRA Dispersed Recreation/Native Vegetation	0	365	365
10	HCNRA Forage Emphasis	656	4330	3674
11	HCNRA Dispersed Recreation/Timber Emphasis	0	309	309
15	Old growth Preserve	33	0	-33
18	Anadromous Fish Emphasis	0	59	59
<b>Totals</b>		<b>5040</b>	<b>13188</b>	<b>8148</b>

Dedicated old growth has been proposed for conveyance to Clearwater. In the event this occurs, other timbered stands or existing old growth would be assigned for replacement and the appropriate Forest Plans would be amended as required.

## **Selection Criteria for Lands to Convey and Acquire**

Because of the pattern of land ownership within and around the National Forests in the Blue Mountain Province of Northeast Oregon, there is a need for ownership adjustment to improve National Forest administration and to improve the effectiveness of State of Oregon and private land management. The Wallowa-Whitman, Umatilla, and Malheur Forest Plans, as amended, each provide management direction for consolidation of ownership. These plans identify land exchange as the primary tool for land adjustment. NFS lands and certain lands in other ownerships within and surrounding each Forest have been classified and prioritized for acquisition or conveyance. The intent of this management direction is to eventually achieve the best land ownership pattern for Forest Plan implementation. All lands so classified have been placed in one of five groups defined in Landownership Plans located in each of the Forest Plan appendices. This direction combined with the facilitator identifying opportunities for desirable acquisition provided the basis for identifying the NF parcels to convey and acquire in the Proposed Exchange Alternative.

The interdisciplinary team and district rangers have developed a draft parcel prioritization list of lands to acquire. Parcels are prioritized for acquisition on the basis of how well they addressed significant issues and to what degree each parcel contributed towards achieving the purpose and need. Those parcels located within congressionally designated areas and/or providing habitat for threatened and endangered plant, animal and fish species were listed as the highest priority for acquisition. Priority listings and public comments received during the DEIS scoping, along with comments on the DEIS (Appendix E), were used to identify the Preferred Alternative. This information would eventually be used to assist in equalizing Federal and non-Federal land values.

## **Changes from DEIS to FEIS**

The Draft Environmental Impact Statement (DEIS) for the Blue Mountain Land Exchange – Oregon was distributed to the public for comment in May 2005. Comments on the document were reviewed by the Interdisciplinary Team and are addressed in detail in Appendix E of this FEIS. A summary of changes made to the DEIS to respond to public comments or to correct errors are:

- A new alternative, Alternative 5, was developed and analyzed in detail.
- Additional information was provided in Chapter 3 to respond to public comments. Refer to Appendix E for specific comments and added information.
- Analysis regarding the Wenaha-Tucannon Wilderness and Parcel PU1A was added.
- Edits were made throughout the document to correct errors and clarify statements.

## **Land Exchange Authority and Process**

Clearwater Land Exchange-Oregon (Clearwater) and FS, U.S. Department of Agriculture, acting through their authorized representatives, are jointly proposing to exchange lands under the authority of:

- The General Exchange Act of March 20, 1922, as amended
- The Federal Land Policy Management Act of October 21, 1976, as amended

- The Federal Land Exchange Facilitation Act of August 20, 1988
- The Weeks Law Act of March 1, 1911, as amended

Private and State of Oregon parcels proposed for acquisition have been assigned various MAs which are identified in Table 2. Land exchange regulations (36 CFR 254.3(f) state: “Lands acquired by exchange that are located within areas having an administrative designation established through the land management planning process shall automatically become part of the area within which they are located without further action by the FS, and shall be managed in accordance with the laws, rules, and regulations and land and resource management plan applicable to such area.”

The land exchange process includes some procedures that are open for public review and others that are confidential. See Appendix C for a brief summary on the land exchange process.

## Relationship to the Forest Plans

This document is tiered to:

- Record of Decision. Land and Resource Management Plan, as amended and FEIS, Malheur National Forest – May 25, 1990
- Record of Decision, Land and Resource Management Plan, as amended and FEIS, Umatilla National Forest – June 11, 1990
- Record of Decision, Land and Resource Management Plan, as amended and FEIS, Wallowa-Whitman National Forest – April 23, 1990
- The Interim Strategies for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California, PACFISH – February 24, 1995
- The Inland Native Fish Strategy, INFISH – July 28, 1995
- Interim Management Direction Establishing Riparian Ecosystem and Wildlife Standards for Timber Sales. Regional Forester’s Amendment #2 – June 5, 1995.
- Hells Canyon Comprehensive Management Plan
- Wild and Scenic Rivers Management Plans for affected rivers

The above are incorporated by reference at the appropriate places throughout this FEIS.

The parcels identified for acquisition in the Proposed Exchange Alternative are suitable and desirable 36 CFR 245.4(b) (1) for inclusion in the National Forest System (NFS). Consolidation of acquired lands with existing NFS lands would enhance the FS’s ability to manage lands and resources consistent with Forest Plans, as amended.

In accordance with Land Ownership Adjustment direction (36 CFR 254.3(b):

The resource intrinsic values and the public objectives served by the non-Federal parcels and interests to be acquired are equal or exceed the resource intrinsic values of the public objectives served by the Federal parcels to be conveyed.

The intended use of the conveyed Federal parcels will not substantially conflict with established management objectives on adjacent Federal lands, including Indian Trust lands.

## **Decisions to be Made**

The Responsible Officials’s decision to implement an alternative will be documented in a Record of Decision (ROD). Each Forest Supervisor would decide whether or not to:

- exchange NFS parcels for State of Oregon and private parcels of equal value
- implement one of the action alternatives evaluated in detail or a combination of those action alternatives
- amend the Forest Plans

Factors upon which the Forest Supervisors will base their decisions are:

- how the alternatives meet the purpose of and need for action
- how the alternatives respond to the significant issues
- the trade-off of environmental consequences among the alternatives
- how the alternatives respond to the public comments received on the DEIS

# **Chapter 2. Alternatives, Including the Proposed Action Introduction**

## **Introduction**

This chapter describes and compares the alternatives considered for the Proposed Blue Mountain Land Exchange. It includes a complete description of each alternative to be evaluated in detail. This section also presents these alternatives in comparative form, sharply defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public. Some of the information used to compare the alternatives is based upon the design of the alternative and other information is based upon the environmental, social and economic effects of implementing each alternative.

## **History of Proposed Exchange**

The concept of the Proposed Blue Mountain Land Exchange was initiated in October 1998. Work on the Proposed Exchange was postponed to allow FS personnel to concentrate on completing the August 2000 legislated Triangle Land Exchange. Some of the Blue Mountain Land Exchange parcels were originally considered in the March 2000 Triangle DEIS.

In May 2002, the FS and Clearwater signed an ATI the Blue Mountain Land Exchange. This ATI was an amendment to the October 1998 ATI. It included additional lands and involved approximately 37,000 acres of non-Federal lands and 21,000 acres of Federal lands. Subsequent ATI amendments resulted in an agreement to consider exchanging approximately 28,200 acres of Federal lands for approximately 31,900 acres of non-Federal lands in the vicinity of the Blue Mountains Province of Northeast Oregon.

## **Public Involvement**

A Notice of Intent (NOI) was published in the Federal Register on August 2, 2002. During that same month, written notices describing the Proposed Exchange were sent to holders of grazing permits and special use authorizations. Notices were also sent to state agencies, congressional delegations, and county commissioners.

A notice of the proposed Blue Mountain Land Exchange was published in newspapers of general circulation in counties where Federal and non-Federal exchange parcels were located. This publication occurred during the period of November 18 through December 9, 2002. Publications were in the East Oregonian (Umatilla, Wheeler and Morrow Counties), Wallowa County Chieftain (Wallowa County), Baker City Herald (Baker County) La Grande Observer (Union County), and Blue Mountain Eagle (Grant County). Legal descriptions of parcels proposed to convey and acquire were posted to the Wallowa-Whitman NF Web Site, per newspaper publication notices. This web site was updated to provide additional information to interested parties and to allow public comments to be submitted electronically.

Scoping meetings from January through March 2003 with county commissioners, environmental organizations, stakeholders, and other interested parties provided the forum to share talking points, provide additional information, answer questions, and respond to concerns. Scoping



meetings were designed to document input, to ensure that meeting participants understood the exchange proposal and to identify significant issues and eliminate other issues. The PR has documentation of all public meetings for the period beginning October 2002 through when the DEIS was released for public review.

On May 28, 2003, a mass mailing of scoping letters (1,500+) were sent to organizations and individuals on NEPA mailing lists for each forest. Also, scoping letters were sent to adjacent landowners, potentially affected parties, those organizations and individuals known to disagree with the proposal, participants in the exchange, elected and other public officials, and other interested parties.

Commensurate with FS authority and responsibility to manage NFS lands is the obligation to consult, cooperate, and coordinate with Federally recognized American Indian tribes in developing and planning management decisions regarding resources that may affect tribal rights established by treaty or Executive Order. The FS complied with this shared responsibility by working with the Tribes on a government-to-government basis and in a manner that attempts a reasonable accommodation of their needs, without compromising the legal positions of the Tribes or the Federal government.

The initiation of consultation with potentially affected Tribes began in the winter of 2001. The initial contact with the Confederated Tribes of Umatilla Indian Reservation (CTUIR) occurred by an email. It explained the Proposed Land Exchange and requested a meeting. Nine meetings and three field trips with various tribal officials were documented in the year 2002. Additional correspondence occurred from letters and email. The Proposed Exchange Alternative was explained, information was provided as requested and sensitive American Indian documents were shared with the FS on a formal government-to-government consultation/relations basis. Year 2003 resulted in additional government-to-government consultation on the Proposed Land Exchange. Tribal representatives submitted scoping comments in meetings and documented concerns and recommendations in several letters. The CTUIR recommended that purchase of lands and/or easements/covenants be applied to conveyed parcels to maintain tribal access and requested that the DEIS include a wide range of alternatives. The FS provided the most recent maps of the Proposed Exchange and cultural resource site forms as requested. Year 2004 resulted in sixteen meetings, emails, phone calls and one field trip to Horseshoe Ridge. Discussions centered on access for traditional uses, the exercise of treaty rights, the impact on the amount and location of open and unclaimed lands, traditional culturally significant areas, protecting the resources in the treaties, cultural resources, resource issues, specific place concerns, effects analysis in specialist reports and status of the project.

Year 2005 involved the release of the DEIS. The FS met with CTUIR and the Nez Perce Tribe to deliver copies and discuss the DEIS prior to the release of the DEIS. The contacts and discussions totaled 17 meetings, letters and government to government negotiations. Comments on the DEIS were received and incorporated into the formulation of the Preferred Alternative. Refer to Appendix E for the comments and responses to these comments.

## **Public Scoping Input Summary**

The purpose of scoping is to determine the scope of the issues to be addressed and to identify significant issues relative to the Proposed Action. Scoping also helps to identify other alternatives

to evaluate in detail, assists in determining data needs, provides input to formulate analysis/decision criteria and helps suggest feedback to those providing input.

The Blue Mountain Land Exchange Scoping Content Analysis (February 2004) evaluated 44 communications involving letters, emails, comment forms, questionnaires and public meeting notes. Oregon state individuals and organizations submitted 42 communications and the remaining two came from Washington State. One letter from the CTUIR was included in this content analysis. The communications were separated into 23 categories. Individual comments and categories are documented in the Scoping Content Analysis filed in the PR. Public comments received after the completion of the Content Analysis continues to be considered. All American Indian government-to-government consultation/relations throughout this NEPA process will be incorporated into the decision making process.

The Blue Mountain Land Exchange Response to the DEIS Content Analysis (September 2005) evaluated 24 communications involving letters and emails. Oregon state individuals and organizations submitted 21 communications; two came from Washington State and one from Idaho State. The communications were separated into 19 categories. Individual comments and categories are documented in the DEIS Content Analysis filed in the PR.

## Identification of Significant Issues

The definition of a significant issue is a clear disagreement with the Proposed Action Alternative based on some anticipated effect. Issues are identified through the scoping process with the public, other agencies, and internal FS reviews. Also, issues are identified through government-to-government consultation/relations with affected Indian Tribes.

The scoping process is used not only to identify significant environmental issues deserving of analysis, but also to de-emphasize insignificant issues, thereby narrowing the scope of the environmental impact statement process accordingly (40 CFR 1500.4g). Therefore, impacts are discussed in proportion to their significance. An important component of the significant issue identification process is to describe cause-and-effect relationships between actions and effects.

Some issues were considered, but dropped from further analysis because they are outside the scope of the Proposed Exchange Alternative and its purpose and need; have already been decided by law; are irrelevant to the decision to be made; or are limited in extent, duration and intensity.

Based upon ID team recommendations on scoping comments and consultation with American Indian tribes, the Responsible Officials identified five significant issues. They include: 1) exercise of American Indian treaty rights and cultural uses, 2) water quality, 3) fisheries, 4) old growth associated species and, 5) social and economic environment. These significant issues were used to develop the alternatives to the Proposed Exchange, as well as to evaluate and compare all alternatives.

### 1) Exercise of American Indian Reserved Treaty Rights and Cultural Uses

The Proposed Exchange Alternative and subsequent planned private management activities may adversely affect treaty rights and the exercise of these rights. Also, the Proposed Exchange may adversely affect the tribal social fabric, cultural uses, and religious practices.

*Indicator measures:* 1) Impacts to traditional uses and the exercising of Treaty rights; 2) Percent change in open and unclaimed lands by Treaty area and; 3) Net change of plant association group acres within CTUIR ceded territory.

All tribes with areas of interest in the Blue Mountain Land Exchange project area have a concern related to the effect of action alternatives on Treaty rights, the exercise of the rights, and how an action may affect the tribal social fabric or religious practices. The Confederated Tribes of the Warm Springs Reservation, and the Burns Paiute Tribe expressed this concern during government-to-government discussions but provided no specific recommendations related to the Proposed Exchange Alternative.

All of the Tribes went on record of not favoring land exchanges as they would prefer acquisition but not conveyance. The Nez Perce tribal representatives expressed concerns about the Proposed Exchange because of effects on gathering, traditional tribal access and the parcels near Wallowa Lake and a sacred landscape. The CTUIR designated representatives did not favor the Proposed Exchange. The CTUIR submitted three letters to the FS that identified specific concerns and recommendations. Cultural concerns regarding parcels in the Meacham area were identified because this area has traditionally been used for hunting and various other activities. Other parcels they expressed concerns about were near a traditional fishing area and traditional berry and root gathering grounds. The CTUIR is significantly concerned that there would be a net loss of the Tribe's cultural resources under the Proposed Exchange Alternative. The CTUIR's unclaimed land within its treaty area would lose approximately 2,069 acres under the Proposed Exchange. Another fundamental concern of CTUIR is the harvesting of conveyed timberlands (some of which are in pristine condition) and the acquisition of private timberlands that have been harvested. Other concerns on the Proposed Exchange disclosed by CTUIR included effects on anadromous fish, effects on wildlife, water rights, water quality, traditional tribal access, properties of cultural significance, and the DEIS process.

## **2) Water Quality**

The Proposed Exchange Alternative and subsequent planned private road construction, logging, grazing, and other developmental activities have a potential to increase water temperatures and introduce sediment into streams. These activities may also cause resource damage to riparian areas and floodplains, resulting in the potential reduction of wildlife and fishery numbers.

*Indicator measures:* 1) Acre net change of acquired and conveyed wetlands, floodplains, and miles of stream by category and; 2) acre net change in forest structure.

This issue includes concerns about the effects the Proposed Exchange Alternative may have on water quality, quantity, riparian areas, and flood plains. The Environmental Protection Agency's (EPA) primary concern is degradation of water quality, because of the presence of T&E fisheries. EPA stated there are four 303D listed streams within the project area. They include Eagle Creek, Imnaha, and the North Fork of John Day, all listed for temperature and Lostine for sediment. Concern was expressed about logging roads that would be acquired in the land exchange. The agency recommended the DEIS detail how the FS would address forest road maintenance and management as it relates to water quality issues. The EPA discussed process for evaluating how the water quality situation might change with the Proposed Land Exchange.

One organization emphasized the NEPA process by stating the DEIS should analyze the cumulative impacts of road construction, logging, grazing, mining, and development that are likely to occur on the parcels acquired by the private sector. CTUIR mentioned concerns related to further aggravating water quality violations and concerns about contribution to lethal increases in water temperature. The Tribe also expressed concerns related to the effects of disturbance

activities on riparian conditions. The office of the Governor expressed concern related to water quality from logging and development on two parcels.

### **3) Fisheries**

The Proposed Exchange Alternative and subsequent planned grazing, road construction and maintenance, logging, and resolution of water rights have a potential to cumulatively degrade the quality of fish habitat for spawning, foraging, migration and rearing and may result in a decrease of fish populations.

*Indicator measures:* 1) Net stream mile change of conveyed and acquired steelhead, Chinook salmon, bull trout, and cutthroat trout habitat.

This issue relates to concerns expressed about Threatened and Endangered anadromous fisheries and bull trout. EPA expressed a concern about bull trout, Chinook, and steelhead because of the indirect effects of the Proposed Exchange to impact habitat. The CTUIR expressed specific concerns related to the effects of the Proposed Exchange on anadromous fish and water quality. They stated they wanted forest lands to be managed to maintain viable populations of existing and desired fish... and ideally, they would like to see an option that is consistent with CTUIR'S fish restoration plan: *Wy-Kan-Ush-Mi Wa-Kish, Spirit of the Salmon, the Columbia River Anadromous Fish Restoration Plan of the Nez Perce, Umatilla, Warm Springs and the Yakima Tribes (Spirit of the Salmon)*. The CTUIR recommended the DEIS identify the current status and trend of fish populations along with describing potential cumulative effects from land management activities. The Tribe further recommended procedures for disclosing a cumulative effects analysis in the DEIS.

### **4) Old Growth Associated Species**

The Proposed Exchange Alternative and subsequent planned private logging and road construction in conveyed allocated old growth management areas may reduce the populations of old growth associated wildlife species.

*Indicator measure:* 1) Net change Late and old structure acres by forest (includes dedicated old growth) and; 2) acres of conveyed dedicated old growth by forest.

This issue relates to the achievement of Forest Plans goals and objectives as applied to old growth associated species. Old growth habitat is a key habitat component to several sensitive and management indicator species. Six of the NF parcels to convey in the Proposed Land Exchange have dedicated old growth stands, for a total of 493 acres. A Forest Plan amendment would be required to designate the best adjacent replacement stands before conveying these Federal parcels.

Several comments were received on concerns for old growth. One organization is concerned about the loss of old growth and “naturally regenerated habitat” in relation to the extent of native forests remaining in eastside Oregon National Forests. A group of citizens from Long Creek and the Monument area expressed a concern about the loss of 1500 acres of what was referred to as “dedicated old growth” in the Exchange Proposal.

### **5) Social and Economic Environment**

The Proposed Exchange Alternative may have the potential to change employment, income, government taxes and revenues, and NFS land management and administration costs. The Proposed Exchange also has the potential to affect traditional land uses and lifestyles.

*Indicator measures:* From the Social and Economic Environment section, 1) Net change in available timber volume and associated employment and income; 2) Net changes in government taxes and revenues, including net changes in property tax revenues; 3) One-time administrative cost savings; and 4) net change in annual administrative costs. From the Recreation section, 1) Net change in ROS class acres and a professional opinion narrative; 2) net change of open and closed roads miles and a professional opinion narrative; 3) acre net change of wild and scenic river corridors, wilderness areas, inventoried roadless areas and Hells Canyon National Recreation Area (HCNRA).

Many individuals and organizations throughout the scoping process expressed this issue as a concern. Several respondents expressed their concerns related to recreational preferences and resource values regarding National Forest management and desired resource conditions. The office of the Governor and another individual stated that parcel FU26 has very high recreational value, particularly for big game hunting and upland bird hunting. A business owner is concerned about the loss of public access to the Imnaha River on the Lewis property. One individual emphasized the importance of access to public lands. Another individual expressed concern about the loss of snowmobile trails. An organization has concerns about Federal lands within congressionally designated areas, such as wilderness or national recreation areas being conveyed to the public. Several individuals believe the Wood Butte area has a significant historical importance and recreational value to the citizens of northern Wallowa County.

Several comments expressed concern about the economics associated with the Proposed Land Exchange. An organization is concerned about the restoration costs associated with past damage to private parcels the FS would acquire. Two individuals have a concern about the full disclosure of the economic costs to the public. Receipts to local/county/and states are a concern to another individual. The loss of property tax revenues because of the net loss of private land in the Proposed Exchange is also a concern to county commissioners and others.

## **Alternatives Considered in Detail**

The process used in developing alternatives to evaluate in detail involved bringing together a considerable amount of information. First, the ID team and lands staff considered the history of land acquisition and land exchanges on the three National Forests along with land ownership adjustment direction in each of the Forest's Land and Resource Management Plans. Second, the lands staff in cooperation with Clearwater, the proponent facilitator, evaluated all opportunities to achieve the identified purpose and need statements listed in Chapter one. After a conceptual Proposed Action Alternative was developed, the lands staff utilized the existing information on each parcel to convey to determine if the proposal would comply with each Forest Plan's management direction. Clearwater conferred with the State of Oregon and private owners of parcels to convey to confirm that they could achieve their objectives and were willing to participate in the Proposed Exchange. It is important to note that the dropping of one party's parcel has a potential to affect whether the other party's parcels remain in the Proposed Exchange.

The results of public scoping helped identify the significant issues used to formulate other alternatives to be evaluated in detail and to prescribe mitigation measures that would address concerns. The comments on the DEIS provided information for the formulation of the Preferred Alternative, Alternative 5 (Refer to Appendix E for comments and the response to comments on the DEIS). Based on ID team input, Tribal input and public involvement the Responsible Officials have selected the following alternatives to analyze.

Affected FS management units include:

- Malheur National Forest: Blue Mountain and Prairie City Ranger Districts
- Umatilla National Forest: Heppner, North Fork John Day, Pomeroy, and Walla Walla Ranger Districts
- Wallowa-Whitman National Forest: Eagle Cap, La Grande, Baker, Pine, Unity, and Wallowa Valley Ranger Districts; and the HCNRA

Watersheds identified in the exchange are: Imnaha River, Big Sheep Creek, Joseph Creek, Lostine River, Wallowa River, Middle Grande Ronde River, Upper Grande Ronde River, Willow Creek, Umatilla River, North Fork John Day River, Middlefork John Day River, Upper John Day River, Lower John Day River, and the Snake River.

All parcels proposed for exchange (Federal and non-Federal) are within the geographic area of ceded lands and/or area of interest of the Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation, the Nez Perce Tribe, or the Burns Paiute Tribes.

Open and unclaimed lands are public lands that the treaties state the tribes have “the privilege of hunting, gathering roots and berries, and pasturing their stock on open and unclaimed lands, in common with citizens” (Treaties). The action alternatives would impact the amount and location of open and unclaimed lands within treaty areas (Table 3).

The Proposed Exchange Alternative would authorize the transfer of land ownership and management authority between the parties. The FS would manage the acquired parcels in accordance with the appropriate Forest Plans, as amended.

Rights previously conveyed or permitted by the United States on NF parcels to convey would be eliminated or protected by Clearwater. These rights include easements, reservations, special use authorizations, term grazing permits, existing allotments, and water rights.

The legal description and acreage of each parcel are found in Appendix A and maps are displayed in Appendix B. Tables 3 and 4 give information for counties and Management Areas.

**Table 3. Summary of Open and Unclaimed Lands within Treaty Areas**

Treaty Area	Total Ceded Lands (Acres)	Lands Held by States (Acres)	Federal Lands <sup>1</sup> (Acres)	County and Other Lands <sup>2</sup> (Acres)	Reservation Lands (Acres)
Nez Perce	8,278,359	35,194	1,983,089	389	750,000
Umatilla	6,522,211	18,012	1,552,669	2,517	172,000
Middle Oregon	4,007,410	44,496	1,823,776	0	650,000
Burns Paiute	0	31,064	1,798,552	1,704	500
<b>Total</b>	<b>18,807,980</b>	<b>128,766</b>	<b>7,158,086</b>	<b>4,610</b>	<b>1,572,500</b>

1) Federal jurisdiction includes major agencies including FS, BLM, Park Service, and Bureau of Reclamation

2) County and Other (includes minor Federal lands)

Taken from GIS information about ownership

## Alternative 1: Proposed Exchange

The FS proposes to exchange fee title with Clearwater Land Exchange-Oregon to approximately 18,172 acres of Federal land and 31,741 acres of non-Federal land in scattered parcels throughout the Blue Mountains Province of Northeast Oregon. This alternative reflects the federal proposal to exchange land as facilitated by Clearwater Land Exchange-Oregon (Chapter 1, Background).

Federal Parcels to convey and private parcels to acquire for Alternative 1 are listed below in Tables 4 and 5, respectively. Affected acres by county in the Preferred Alternative are shown in Table 6. The legal descriptions for the parcels are found in Appendix A, and maps display the parcels in Appendix B. Refer to Appendix D for a list of parcels dropped between the NOI and the DEIS. Existing MA acre allocation of all parcels proposed for conveyance and proposed MA acre allocation of all parcels proposed for acquisition are displayed in Table 7.

**Table 4 Proposed Exchange – Federal Parcels/GIS Acres**

Parcel	Acres	Parcel	Acres	Parcel	Acres	Parcel	Acres
FM10	314	FU15	39	FU6B	45	FW5	39
FM11	64	FU16	164	FU7	35	FW6A	42
FM12	236	FU17	80	FU8	40	FW6B	38
FM13	317	FU18	160	FU9	39	FW6C	43
FM14	80	FU19A	158	FW10	640	FW6D	43
FM15	325	FU19B	157	FW11	41	FW6E	38
FM16A	246	FU2	160	FW12	291	FW6F	41
FM16B	82	FU20A	403	FW13	118	FW7	121
FM17	596	FU20B	408	FW14A	125	FW8	83
FM18	480	FU20C	40	FW14B	81	FW9	422
FM19	309	FU20D	41	FW15	31	<b>TOTAL</b>	<b>18,172</b>
FM2	16	FU21	319	FW16	39		
FM20	41	FU22	37	FW17A	10		
FM21	241	FU23	242	FW17C	2		
FM3	121	FU24	162	FW18	388		
FM4	368	FU25	39	FW19	42		
FM5	326	FU26	189	FW1D	325		
FM6	302	FU27	102	FW1E	127		
FM7	322	FU28	38	FW2	82		
FM8	581	FU30	49	FW20	79		
FM9	398	FU3A	710	FW21	83		
FU1	5	FU3B	658	FW22	40		
FU10A	198	FU3C	557	FW23	40		
FU10B	11	FU3D	874	FW24	663		
FU11	39	FU3E	643	FW25A	576		
FU12	11	FU4	321	FW25B	59		
FU13	41	FU5	57	FW26	247		
FU14	39	FU6A	57	FW30	1		

**Table 5 Proposed Exchange – Private Parcels/GIS Acres**

Parcel	Acres	Parcel	Acres	Parcel	Acres	Parcel	Acres
PM1	33	PU16E	456	PW16D	80	PW32	78
PM11	328	PU16F	343	PW16E	162	PW33	161
PM12	161	PU16G	31	PW17A	118	PW34A	237
PM13	161	PU16H	424	PW17B	399	PW34B	279
PM14	314	PU19	152	PW18	41	PW34C	142
PM15	80	PU1A	230	PW19A	21	PW35A	229
PM16	124	PU1B	521	PW19B	201	PW35B	153
PM17	162	PU2	78	PW19C	162	PW35C	76
PM18	481	PU20	390	PW20A	159	PW37	4
PM19	623	PU21	159	PW20B	224	PW38	311
PM2	280	PU22A	1080	PW20C	151	PW39A	77
PM20	483	PU22B	545	PW21A	81	PW39B	572
PM21	146	PU22C	157	PW21B	76	PW39C	141
PM22	41	PU23	465	PW21C	75	PW39D	83
PM23	241	PU24	161	PW21D	151	PW4	40
PM24	159	PU26A	40	PW22	41	PW40	163
PM25	161	PU26B	122	PW23A	39	PW42	21
PM26	160	PU3	238	PW23B	75	PW44A	70
PM27	159	PU4	59	PW24A	67	PW44B	12
PM28	161	PU5	202	PW24B	53	PW45	59
PM29	44	PU6	14	PW24C	31	PW46	159
PM3	160	PU7A	85	PW24D	41	PW47A	11
PM30	641	PU7B	359	PW24E	39	PW47B	47
PM31	160	PU7C	42	PW24F	88	PW48	233
PM4	40	PU8A	40	PW24G	24	PW5	40
PM5	51	PU8B	40	PW24H	98	PW50	464
PM6	124	PU8C	81	PW25A	186	PW51A	244
PM7	163	PU9A	63	PW25B	65	PW51C	79
PM8A	39	PU9B	32	PW25C	180	PW51D	78
PM8B	109	PW1	11	PW25D	175	PW52	253
PM9	158	PW10A	63	PW25E	74	PW6	9
PU10A	247	PW10B	101	PW26A	315	PW7A	83
PU10B	240	PW11	41	PW26B	157	PW7B	244
PU11	745	PW12	257	PW26C	155	PW7C	118
PU11A	200	PW13A	43	PW27A	80	PW8A	429
PU11B	404	PW13B	83	PW27C	127	PW8B	258
PU12	84	PW13C	63	PW28	119	PW8C	39
PU13	108	PW13D	8	PW29	143	<b>Total</b>	<b>31,741</b>
PU14	640	PW14	649	PW2A	22		
PU15	319	PW15A	187	PW2B	37		
PU16A	624	PW15B	87	PW2C	2		
PU16B	1271	PW16A	39	PW3	564		
PU16C	285	PW16B	115	PW30	162		
PU16D	630	PW16C	302	PW31	183		



**Table 6. Alternative 1 – Affected Acres by County**

County	FS Acres to Convey	Private and State Acres to Acquire
Baker County	42	311
Grant County	6,065	9,559
Morrow County	390	159
Umatilla County	6,677	7,768
Union County	388	309
Wallowa County	4,610	13,635
<b>Totals</b>	<b>18,172</b>	<b>31,741</b>

**Table 7. Alternative 1 – MA Acre Allocation for All Parcels to Convey and Acquire**

MA	Management Area Descriptions	FS Acres to Convey	Private and State Acres to Acquire	Acres Net Change
<b>Malheur National Forest</b>				
1-2	General Forest & Rangeland	463	1775	1312
3A	Non-Anadromous Riparian Area	4	0	-4
3B	Anadromous Riparian Area	0	0	0
4A	Big-Game Winter Range	3408	3874	466
10	Semi-Primitive Non-Motorized Recreation Areas	0	185	185
13	Old Growth	385	0	-385
14F	Visual Corridors Foreground	668	0	-668
14M	Visual Corridors Middle ground	79	224	145
RHCA	Riparian Habitat Conservation Area	758	89	-669
<b>Totals</b>		<b>5765</b>	<b>6147</b>	<b>382</b>
<b>Umatilla National Forest</b>				
A1	Dispersed Recreation (Non-Motorized)	42	0	-42
A3	Viewshed 1	0	583	583
A4	Viewshed 2	41	80	39
A7	Wild & Scenic Rivers	0	251	251
B1	Wilderness	0	42	42
C1	Dedicated Old Growth Forest Habitat	75	200	125
C3	Big Game Winter Range	2488	1104	-1384
C4	Wildlife Habitat	1605	3718	2113
C5	Riparian (Fish & Wildlife Habitat)	97	437	340
C7	Water Quality (Anadromous Fish)	0	1328	1328
C8	Grass-Tree Mosaic (GTM)	2558	2016	-542
E1	Timber & Forage	0	2193	2193
E2	Timber & Big Game	461	454	-7
<b>Totals</b>		<b>7367</b>	<b>12406</b>	<b>5039</b>

MA	Management Area Descriptions	FS Acres to Convey	Private and State Acres to Acquire	Acres Net Change
<b>Wallowa-Whitman National Forest</b>				
1	Timber Production Emphasis	439	1666	1227
1W	Timber Production/Winter Range	219	253	34
3	Wildlife/Timber Winter Range	3524	2492	-1032
4	Wilderness	0	205	205
6	Backcountry	118	885	767
7	Wild & Scenic Rivers	51	2624	2573
9	HCNRA Dispersed Recreation/Native Vegetation	0	365	365
10	HCNRA Forage Emphasis	656	4330	3674
11	HCNRA Dispersed Recreation/Timber Emphasis	0	309	309
15	Old Growth Preserve	33	0	-33
18	Anadromous Fish Emphasis	0	59	59
	<b>Totals</b>	<b>5040</b>	<b>13188</b>	<b>8148</b>

Dedicated old growth has been proposed for conveyance to Clearwater and other timbered stands or existing old growth would be assigned for replacement. The appropriate Forest Plans would be amended as required.

### **Alternative 2: No Action**

Alternative 2 addresses the requirement of the National Environmental Policy Act to take no action.

Under this alternative, the Proposed Land Exchange between the FS and Clearwater would not occur. The current landownership pattern within the project area would remain the same.

Rights previously conveyed or permitted by the United States on NF parcels to convey in Alternative 1 would remain the same. These rights include easements, reservations, special use authorizations, term grazing permits, and existing allotments and water rights.

### **Alternative 3: Purchase**

Alternative 3 responds to comments received by individuals and tribes as well as Forest Service direction to consider a “purchase alternative”. These respondents felt the U.S. government should not convey any of its lands to private ownership. The intent would be to accomplish Forest Service resource management objectives only by acquiring lands with desired resources. Several individuals, including the CTUIR requested that purchase of non-Federal parcels be evaluated in detail.

A Purchase Alternative must consider available funding from congressional Land and Water Conservation Funds (LWCF). An evaluation of LWCF dollars received for land purchase by the Malheur, Umatilla, and Wallowa-Whitman National Forests during the last five years revealed that funding has been declining, and this decline is expected to continue (PR). Only private and State of Oregon properties with very high public resource values would successfully compete nation-wide for LWCF land purchase dollars. By using the criteria necessary to assume

qualification for LWCF, the ID team developed a list of priority parcels to purchase that address the significant issues and further the conservation of threatened and endangered species and/or enhance wilderness, Wild and Scenic River, and National Recreation Area values. The purchase qualification methodology is filed in the PR.

Assuming LWCF dollars are secured and based upon 2004 value estimation (PR), the ID team has determined that approximately 4,249 acres could be purchased. Table 8 displays the parcels listed by priority for purchase. Table 9 lists parcel acres and acres purchased by county. Table 10 displays the three proposed Forest Plans MA acre allocation of private parcels and one State of Oregon parcel purchased under this alternative.

Federal parcels would not be conveyed under this alternative. The FS would manage purchased parcels and the Federal parcels not being conveyed in Alternative 1 in accordance with the appropriate existing Forest Plans, as amended.

**Table 8. Alternative 3 – Parcels Proposed to be Purchased**

Parcel	Acres	Parcel	Acres	Parcel	Acres	Parcel	Acres
PU16F	343	PW16C	302	PW2A	22	PW37	4
PU1A	230	PW16E	162	PW2B	37	PW39C	141
PW1	11	PW19B	201	PW23A	39	PW45	59
PW10A	63	PW19C	162	PW23B	75	PW47A	11
PW10B	101	PW20A	159	PW25A	186	PW47B	47
PW11	41	PW20C	151	PW25B	65	PW48	233
PW13A	43	PW21A	81	PW25C	180	<b>TOTAL</b>	<b>4249</b>
PW13B	83	PW21B	76	PW25D	175		
PW13C	63	PW21C	75	PW27C	127		
PW13D	8	PW21D	151	PW28	119		
PW16A	39	PW22	41	PW29	143		

**Table 9. Alternative 3 – County Allocations of Proposed Acres to be Purchased**

County	FS Acres to Convey	Private and State Acres to Purchase
Baker County	-0-	-0-
Grant County	-0-	59
Morrow County	-0-	-0-
Umatilla County	-0-	343
Union County	-0-	47
Wallowa County	-0-	3,800
Totals	-0-	4,249

**Table 10. Alternative 3 – Forest Plans MA Acre Allocation**

MA	Management Area Descriptions	Private and State Acres to Purchase
<b>Umatilla National Forest</b>		
A7	Wild & Scenic Rivers	213
B1	Wilderness	42
C3	Big Game Winter Range	153
C4	Wildlife Habitat	130
C5	Riparian (Fish & Wildlife Habitat)	35
<b>Total</b>		<b>573</b>
<b>Wallowa-Whitman National Forest</b>		
1	Timber Production Emphasis	2
3	Wildlife/Timber Winter Range	140
4	Wilderness	205
7	Wild & Scenic Rivers	1753
9	HCNRA Dispersed Recreation/Native Vegetation	322
10	HCNRA Forage Emphasis	1079
11	HCNRA Dispersed Recreation/Timber Emphasis	116
18	Anadromous Fish Emphasis	59
<b>Total</b>		<b>3676</b>

#### Alternative 4: Deed Restriction

Alternative 4 responds to comments received by individuals and tribes as well as Forest Service policy requirements to consider a “deed restriction alternative”. These respondents felt the U.S. government should attach restrictions to each deed for all lands conveyed to private ownership. The intent would be to assure the natural resources would be protected in perpetuity. Deed restrictions on conveyed parcels in this alternative were developed in response to four significant issues. They are: 1) the exercise of American Indian treaty rights and cultural uses, 2) water quality, 3) fisheries and, 4) old growth associated species.

This Deed Restriction Alternative acknowledges that the deed covenants would decrease the fair market value of approximately 18,172 acres of the Federal parcels to be conveyed as identified in Alternative 1, by approximately fifty percent (PR). It is estimated that the FS under this alternative could acquire approximately 17,119 acres of non-Federal parcels identified in Alternative 1. The FS would manage acquired parcels in accordance with the appropriate existing Forest Plans, as amended. The PR documents the assumptions and analysis used to identify the parcels for acquisition. Table 11 displays the parcels and their acres to be acquired.

Table 12 displays the parcels listed by priority to be conveyed, their acres, MAs and other information pertinent to the deed restrictions. Affected acres by county for the Deed Restriction Alternative are shown in Table 13. Existing MA acre allocation of all parcels proposed for conveyance and proposed MA acre allocation of all parcels proposed for acquisition are displayed in Table 14. The NF parcels to convey, which are the same as the Proposed Exchange Alternative, are listed in previous Table 4. For the conveyed parcels, the FS would monitor and manage for

deed restriction compliance in perpetuity. Rights previously conveyed or permitted by the United States on NF parcels to convey in this alternative would be eliminated or protected by Clearwater. These rights include easements, reservations, special use authorizations, term grazing permits, existing allotments, and water rights.

**Table 11. Alternative 4 – Parcels Proposed to be Acquired**

Parcel	Acres	Parcel	Acres	Parcel	Acres	Parcel	Acres
PM2	280	PW15A	187	PW24H	98	PW44A	70
PU11	745	PW15B	87	PW25A	186	PW44B	12
PU13	108	PW16A	39	PW25B	65	PW45	59
PU15	319	PW16B	115	PW25C	180	PW46	159
PU16B	1271	PW16C	302	PW25D	175	PW47A	11
PU16C	285	PW16D	80	PW25E	74	PW47B	47
PU16D	630	PW16E	162	PW26A	315	PW48	233
PU16E	456	PW17A	118	PW26B	157	PW5	40
PU16F	343	PW17B	399	PW26C	155	PW51A	244
PU16G	31	PW18	41	PW27A	80	PW51C	79
PU16H	424	PW19A	21	PW27C	127	PW51D	78
PU1A	230	PW19B	201	PW28	119	PW6	9
PU20	390	PW19C	162	PW29	143	PW7A	83
PU21	159	PW20A	159	PW2A	22	PW7B	244
PU22B	545	PW20B	224	PW2B	37	PW7C	118
PU6	14	PW20C	151	PW2C	2	PW8A	429
PU9A	63	PW21A	81	PW3	564	PW8B	258
PU9B	32	PW21B	76	PW31	183	PW8C	39
PW1	11	PW21C	75	PW32	78	<b>TOTAL</b>	<b>19,647</b>
PW10A	63	PW21D	151	PW34A	237		
PW10B	101	PW22	41	PW34B	279		
PW11	41	PW23A	39	PW34C	142		
PW12	257	PW23B	75	PW35A	229		
PW13A	43	PW24A	67	PW35B	153		
PW13B	83	PW24B	53	PW35C	76		
PW13C	63	PW24C	31	PW37	4		
PW13D	8	PW24D	41	PW39C	141		
PW14	649	PW24G	24	PW4	40		

**Table 12. Alternative 4 – Parcels, Acres, MAs and Riparian Deed Restrictions**

Parcel	Acres	MAs	Affected Species <sup>3</sup>	Season Grazing Restrictions (not permitted) <sup>1</sup>	Stream Class <sup>2</sup>
FM10	314	1-2, 4A, 14F, RHCA	BT		Cat 2
FM11	64	14F, RHCA	SH	April 15-June 15	Cat 1
FM12	236	14F, RHCA	SH	April 15-June 15	Cat 1
FM13	317	1-2, 4A, 14F, 14M, RHCA			Cat 2
FM14	80	1-2, RHCA			Cat 4
FM15	325	4A, RHCA	BT		Cat 4

Parcel	Acres	MAs	Affected Species <sup>3</sup>	Season Grazing Restrictions (not permitted) <sup>1</sup>	Stream Class <sup>2</sup>
FM16A	246	4A, 13	BT		n/a
FM16B	82	4A	BT		n/a
FM17	596	4A, RHCA	BT		Cat 4
FM18	480	4A, 13, RHCA	BT, SH	Sept 1-Nov 30; April 15-June 15	Cat 1
FM19	309	4A, 13, RHCA	BT		Cat 1
FM2	16	14M	BT,SC	Aug 15-Nov 30;	
FM20	41	4A, RHCA	BT		Cat 2
FM21	241	4A, RHCA	BT		Cat 2
FM3	121	4A, 14F, 14M	BT		
FM4	368	1-2, 4A, RHCA	BT,SH	Sept 1-Nov 30; April 15-June 15	Cat 1
FM5	326	1-2, 4A, RHCA	BT		Cat 4
FM6	302	4A, RHCA	BT,SH	Sept 1-Nov 30; April 15-June 15	Cat 1
FM7	322	1-2, 4A, RHCA	BT,SH,	Sept 1-Nov 30; April 15-June 15	Cat 1
FM8	581	1-2, 4A, 14F, RHCA	BT,SH	Sept 1-Nov 30; April 15-June 15	Cat 1
FM9	398	1-2, 4A, 14F, RHCA	BT		Cat 2
FU1	5	C8	<b>BT</b>	Sept 1-Nov 30	Cat 2
FU10A	198	E2			Cat 4
FU10B	11	E2			Cat 4
FU11	39	C3			Cat 4
FU12	11	C3			Cat 4
FU13	41	C3			Cat 4
FU14	39	C3			Cat 4
FU15	39	C3			Cat 4
FU16	164	C3			Cat 2
FU17	80	C3	BT		Cat 4
FU18	160	C3, C5	BT		Cat 2
FU19A	158	C3			Cat 4
FU19B	157	C3			Cat 4
FU2	160	C4, C5	BT,SH	Sept 1-Nov 30; April 15-June 15	Cat 1
FU20A	403	C3			Cat 2
FU20B	408	C3			Cat 4
FU20C	40	C3			Cat 4
FU20D	41	C3			Cat 4
FU21	319	C3, C4			Cat 2
FU22	37	C3			
FU23	242	C3, E2			Cat 2
FU24	162	C1, C3, C4			Cat 2
FU25	39	A4, C4			Cat 1
FU26	189	A1, C4			Cat 2
FU27	102	C3	BT		Cat 4
FU28	38	C3	BT		Cat 4
FU30	49	E2			Cat 4

Parcel	Acres	MAs	Affected Species <sup>3</sup>	Season Grazing Restrictions (not permitted) <sup>1</sup>	Stream Class <sup>2</sup>
FU3A	710	C4, C8	BT,SH	Sept 1-Nov 30; April 15-June 15	Cat 1
FU3B	658	C4, C8	BT,SH	Sept 1-Nov 30; April 15-June 15	Cat 1
FU3C	557	C4, C8	BT		Cat 1
FU3D	874	C4, C8	BT		Cat 2
FU3E	643	C4, C8	BT		Cat 1
FU4	321	C8	BT		Cat 1
FU5	57	C4	BT		
FU6A	57	C4			Cat 2
FU6B	45	A4, C3			Cat 4
FU7	35	C3			
FU8	40	C3			Cat 4
FU9	39	E2			
FW10	640	1, 3, 15	BT,SH	Sept 1-Nov 30; April 15-June 15	Cat 1
FW11	41	1	BT		Cat 4
FW12	291	1	BT		Cat 2
FW13	118	4, 6			Cat 2
FW14A	125	1W	BT		Cat 4
FW14B	81	1, 1W	BT		Cat 4
FW15	31	1W	BT		Cat 4
FW16	39	1W	BT		Cat 4
FW17A	10	7	BT		n/a
FW17C	2	7	BT		n/a
FW18	388	3	SH	April 15-June 15	Cat 1
FW19	42	1			
FW1D	325	10	BT		Cat 4
FW1E	127	10	BT		Cat 1
FW2	82	3	BT		Cat 4
FW20	79	3	BT		Cat 4
FW21	83	3	BT		Cat 4
FW22	40	3	BT		Cat 4
FW23	40	3	BT		n/a
FW24	663	1, 3	BT		Cat 2
FW25A	576	1, 3	BT		Cat 4
FW25B	59	1, 3	BT		n/a
FW26	247	1, 3	BT,SH	Sept 1-Nov 30; April 15-June 15	Cat 1
FW30	1	1	BT		N/a
FW5	39	10	BT		Cat 4
FW6A	42	3	BT		Cat 4
FW6B	38	3	BT		Cat 4
FW6C	43	3	BT,SC,SH	Aug 15-Nov 30; April 15-June 15	Cat 1
FW6D	43	3	BT		Cat 4
FW6E	38	3			Cat 4
FW6F	41	3	BT		Cat 4

Parcel	Acres	MAs	Affected Species <sup>3</sup>	Season Grazing Restrictions (not permitted) <sup>1</sup>	Stream Class <sup>2</sup>
FW7	121	10	BT		Cat 4
FW8	83	7, 10	BT		Cat 4
FW9	422	3	BT		n/a

1) If riparian areas were fenced to exclude livestock, grazing restrictions do not apply. Specific seasonal restrictions for Bull trout- September 1 – November 30; Spring Chinook - August 15 – September 30; Steelhead - April 15 – June 15.

2) Stream Class – Category 1 Fish Bearing intermittent and perennial streams; Category 2 Perennial non fish bearing streams; Category 4 Intermittent non fish bearing streams; n/a = no stream class on parcel.

3) Bolded BT denotes occupied habitat, not bold are parcels within Bull trout systems covered during consultation, but not occupied. SH=Steelhead, SC= Spring Chinook

The following deed restrictions would apply to all conveyed Federal parcels: Harvest of trees over twenty-one (21) inches is prohibited.

The following deed restrictions would apply to all conveyed Federal parcels containing riparian habitat. The parcels included in this alternative are listed in the above Table 12 with the assigned stream category.

Harvest of trees within:

*Category 1* – Three hundred (300) feet slope distance from the high water line of a fish bearing perennial or intermittent stream is prohibited.

*Category 2* – One hundred and fifty (150) feet slope distance from the high water line of a perennial stream is prohibited.

*Category 4* – One hundred (100) feet slope distance from the high water line of an intermittent stream is prohibited.

Salting of livestock within three hundred (300) feet slope distance from the high water line of perennial or intermittent streams is prohibited.

The maximum annual utilization of range forage will not exceed forty five (45) percent of available forage for grasses and forbs and thirty (30) percent for shrubs.

Confinement of livestock for feeding or other livestock operations within three hundred (300) feet slope distance from the high water line of a perennial or intermittent stream is prohibited.

Construction of new livestock handling and/or management facilities within three hundred (300) feet slope distance from the high water line of a perennial or intermittent streams is prohibited.

New road construction within three hundred (300) feet of the high water line of a perennial or intermittent stream is prohibited.

Road drainage systems for new road construction and/or reconstruction of existing roads will be designed in such a manner that they will not interfere with the passage of fish. The structures will be of adequate size to pass a one hundred (100) year flood event or will be designed with adequate overflow capacity so as not to impact fish viability.

Fish passage will be provided and maintained at all road crossings of fish bearing and potential fish bearing streams.



Grazing, trailing, bedding, watering, and loading of livestock within three hundred (300) feet slope distance from the high water line of the creek will be prohibited seasonally as shown in Table 12 above. This deed restriction would apply to the following nineteen (19) parcel numbers: FM11, FM12, FM18, FM19, FM4, FM6, FM7, FM8, FU2, FU3A, FU3B, FU3C, FU3E, FU4, FU25, FW10, FW18, FW26, and FW6C (for a total of approximately 7,068 acres).

The following deed restriction would apply to (13) parcels: FU2, FU3A, FU3B, FU3C, FU3D, FU3E, FU4, FU5, FU10A, FU11, FU12, FU13, and FU14.

Traditional uses of these lands for hunting, fishing, and gathering by members of the Confederated Tribes of the Umatilla, as defined in the Umatilla Treaty of 1855, will be maintained in trust to Tribal members in perpetuity.

This deed restriction would apply to two (2) parcels: FW17A, FW17C lying within the boundaries of the Wild and Scenic Lostine River Corridor.

Changes to existing uses or proposal for new uses and/or development must be in compliance with standards and guidelines as documented in the Wild and Scenic River Management Plan, dated June 1993. Where these standards and guides are in conflict with other land use restrictions, the most restrictive standards and guides will be followed. Commercial and/or residential development is specifically prohibited.

This deed restriction would apply to parcel FW8 lying within the boundaries of the Wild and Scenic Imnaha River Corridor.

Land use and development will be in accordance with 36 CFR 292.20 through 292.25, Private Land Use Regulations, HCNRA. Any changes to existing uses or proposals for new uses and/or development will required a “Certificate of Compliance” as defined in 36 CFR292.24. Additionally, all existing and proposed uses and/or development will be in compliance with the standards and guides for Federal lands as documented in the Imnaha River Wild and Scenic River Management Plan, dated January 1993.

**Table 13. Alternative 4 – Affected Acres by County**

<b>County</b>	<b>FS Acres to Conveyed</b>	<b>Private and State Acres to Acquired</b>
Baker	42	0
Grant	6,065	1,667
Morrow	390	159
Umatilla	6,677	4,328
Union	388	288
Wallowa	4,610	10,677
<b>Totals</b>	<b>18,172</b>	<b>17,119</b>

**Table 14. Alternative 4 – MA Acre Allocation for all Parcels to Convey and Acquire**

<b>MA</b>	<b>Management Area Descriptions</b>	<b>FS Acres to Convey</b>	<b>Private and State Acres to Acquire</b>	<b>Acres Net Change</b>
<b>Malheur National Forest</b>				
1-2	General Forest & Rangeland	463	0	-463
3	Non-Anadromous Riparian Area	4	0	-4
3B	Anadromous Riparian Area	0	0	0
4A	Big-Game Winter Range	3408	0	-3408
13	Old Growth	385	0	-385
14	Visual Corridors	0	224	224
14F	Visual Corridors Foreground	668	0	-668
14M	Visual Corridors Middle ground	79	0	-79
RHCA	Riparian Habitat Conservation Area	758	56	-702
<b>Totals</b>		<b>5765</b>	<b>280</b>	<b>-5485</b>
<b>Umatilla National Forest</b>				
A1	Dispersed Recreation (Non-Motorized)	42	0	-42
A3	Viewshed 1	0	183	183
A4	Viewshed 2	41	80	39
A7	Wild & Scenic Rivers	0	251	251
B1	Wilderness	0	42	42
C1	Dedicated Old Growth Forest Habitat	75	0	-75
C3	Big Game Winter Range	2488	761	-1727
C4	Wildlife Habitat	1605	1790	185
C5	Riparian (Fish & Wildlife Habitat)	97	352	255
C7	Water Quality (Anadromous Fish)	0	1094	1094
C8	Grass-Tree Mosaic (GTM)	2588	854	-1704
E1	Timber & Forage	0	545	545
E2	Timber & Big Game	461	93	-368
<b>Totals</b>		<b>7367</b>	<b>6045</b>	<b>-1322</b>
<b>Wallowa-Whitman National Forest</b>				
1	Timber Production Emphasis	439	404	-35
1W	Timber Production/Winter Range	219	0	-219
3	Wildlife/Timber Winter Range	3524	1612	-1912
4	Wilderness	01	205	205
6	Backcountry	118	885	767
7	Wild & Scenic Rivers	51	2624	2573
9	HCNRA Dispersed Recreation/Native Vegetation	0	365	365
10	HCNRA Forage Emphasis	656	4330	3674
11	HCNRA Dispersed Recreation/Timber Emphasis	0	309	309
15	Old Growth Preserve	33	1	-32
18	Anadromous Fish Emphasis	0	59	59
<b>Totals</b>		<b>5040</b>	<b>10794</b>	<b>5754</b>

## Alternative 5: Preferred Alternative

Alternative 5 responds to comments received by individuals and tribes. Between release of the draft EIS and this final EIS some landowners withdrew their interest in participating in a land exchange and other parcels were dropped from the exchange to address resource concerns and to respond to concerns raised by the CTUIR. Alternative 5 reflects these changes to the proposed action.

Open and unclaimed lands are public lands that the treaties state the tribes have “the privilege of hunting, gathering roots and berries, and pasturing their stock on open and unclaimed lands, in common with citizens” (Treaties). Alternative 5 responds to tribal members needs by holding CTUIR lands of concern in Federal ownership.

Federal parcels to convey and private parcels to acquire for Alternative 5 are listed below in Tables 15 and 16, respectively. Affected acres by county in the Preferred Alternative are shown in Table 17. The legal descriptions for parcels are found in Appendix A and maps display the parcels in Appendix B. Refer to Appendix D for a list of parcels dropped between the NOI and the DEIS. Existing MA acre allocation of all parcels proposed for conveyance and proposed MA acre allocation of all parcels proposed for acquisition are displayed in Table 18.

**Table 15 Preferred Alternative – Federal Parcels/GIS Acres**

Parcel	Acres	Parcel	Acres	Parcel	Acres	Parcel	Acres
FM10	314	FU15	39	FW12	291	FW8	83
FM11	64	FU16	164	FW13	118	FW9	422
FM12	236	FU17	80	FW14A	125	<b>TOTAL</b>	<b>16,473</b>
FM13	317	FU18	160	FW14B	81		
FM14	80	FU19B	157	FW15	31		
FM15	325	FU2	160	FW16	39		
FM16A	246	FU20A	403	FW18	279		
FM16B	82	FU20B	408	FW19	42		
FM17	596	FU20D	40	FW1D	325		
FM18	480	FU22	37	FW1E	127		
FM19	309	FU23	242	FW2	82		
FM2	16	FU24	162	FW20	79		
FM20	41	FU25	39	FW21	83		
FM21	241	FU26	189	FW22	40		
FM3	121	FU27	102	FW23	40		
FM4	368	FU30	49	FW24	663		
FM5	326	FU3A	680	FW25A	576		
FM6	302	FU3B	630	FW25B	59		
FM7	322	FU3C	557	FW26	247		
FM8	581	FU3D	874	FW30	1		
FM9	398	FU5	57	FW5	39		
FU1	5	FU6A	57	FW6A	42		
FU10A	198	FU6B	45	FW6B	38		
FU10B	11	FU7	35	FW6C	43		
FU11	39	FU8	40	FW6D	43		
FU12	11	FU9	39	FW6E	38		
FU13	41	FW10	640	FW6F	41		
FU14	39	FW11	41	FW7	121		

**Table 16 Preferred Alternative – Private Parcels/GIS Acres**

Parcel	Acres	Parcel	Acres	Parcel	Acres	Parcel	Acres
PM1	33	PU16D	630	PW16C	282	PW3	564
PM11	328	PU16E	456	PW16D	80	PW30	162
PM12	161	PU16F	343	PW16E	162	PW31	183
PM13	161	PU16G	31	PW17A	118	PW32	78
PM14	314	PU16H	424	PW17B	399	PW34A	152
PM15	80	PU19	152	PW18	41	PW34B	117
PM16	124	PU1A	230	PW19A	21	PW34C	142
PM17	162	PU1B	521	PW19B	201	PW35A	229
PM18	481	PU2	78	PW19C	162	PW35B	153
PM19	628	PU20	390	PW20A	159	PW35C	76
PM2	280	PU21	159	PW20B	224	PW38	311
PM20	483	PU22A	1080	PW20C	151	PW39A	77
PM21	146	PU22B	545	PW21A	81	PW39B	572
PM22	41	PU22C	157	PW21B	76	PW39C	141
PM23	241	PU23	465	PW21C	75	PW39D	83
PM24	159	PU24	161	PW21D	151	PW4	40
PM25	161	PU3	238	PW22	41	PW40	163
PM26	160	PU4	59	PW23A	39	PW42	21
PM27	159	PU5	156	PW23B	75	PW44B	12
PM28	161	PU6	14	PW24A	70	PW45	59
PM29	44	PU7A	85	PW24B	53	PW46	159
PM30	641	PU7B	359	PW24C	31	PW47A	11
PM31	160	PU7C	42	PW24D	41	PW47B	47
PM4	40	PU8A	40	PW24E	39	PW48	233
PM5	51	PU8B	40	PW24F	88	PW5	40
PM6	124	PU8C	81	PW24G	24	PW50	464
PM7	163	PU9A	63	PW24H	98	PW51A	244
PM8A	39	PU9B	32	PW25A	186	PW51C	79
PM8B	109	PW1	11	PW25B	62	PW51D	78
PM9	158	PW10A	63	PW25C	180	PW52	253
PU10A	247	PW10B	101	PW25D	140	PW6	9
PU10B	240	PW11	41	PW25E	72	PW7A	83
PU11	745	PW12	257	PW26A	315	PW7B	244
PU11A	200	PW13A	43	PW26B	157	PW7C	118
PU11B	404	PW13B	83	PW26C	155	PW8A	429
PU12	84	PW13C	63	PW27A	80	PW8B	258
PU13	108	PW13D	8	PW27C	125	PW8C	39
PU14	640	PW14	649	PW28	119	<b>TOTAL</b>	<b>30,837</b>
PU15	319	PW15A	187	PW29	143		
PU16A	624	PW15B	87	PW2A	22		
PU16B	1271	PW16A	39	PW2B	37		
PU16C	285	PW16B	115	PW2C	2		

**Table 17. Alternative 5 – Affected Acres by County**

County	FS Acres to Conveyed	Private and State Acres to Acquired
Baker	42	311
Grant	6027	9242
Morrow	390	159
Umatilla	5137	7722
Union	279	239
Wallowa	4598	13164
<b>Totals</b>	<b>16473</b>	<b>30837</b>

**Table 18. Alternative 5 – MA Acre Allocation for All Parcels to Convey and Acquire**

MA	Management Area Descriptions	FS Acres to Convey	Private and State Acres to Acquire	Acres Net Change
<b>Malheur National Forest</b>				
1-2	General Forest & Rangeland	463	1615	1152
3A	Non-Anadromous Riparian Area	4	0	-4
4A	Big-Game Winter Range	3408	3879	471
10	Semi-Primitive Non-Motorized Recreation Areas	0	185	185
13	Old Growth	385	0	-385
14F	Visual Corridors Foreground	668	0	-668
14M	Visual Corridors Middle ground	79	224	145
RHCA	Riparian Habitat Conservation Area	758	89	-669
	<b>Totals</b>	<b>5765</b>	<b>5992</b>	<b>227</b>
<b>Umatilla National Forest</b>				
A1	Dispersed Recreation (Non-Motorized)	42	0	-42
A3	Viewshed 1	0	583	583
A4	Viewshed 2	41	80	39
A7	Wild & Scenic Rivers	0	251	251
B1	Wilderness	0	42	42
C1	Dedicated Old Growth Forest Habitat	75	200	125
C3	Big Game Winter Range	1938	942	-996
C4	Wildlife Habitat	1422	3672	2250
C5	Riparian (Fish & Wildlife Habitat)	97	437	340
C7	Water Quality (Anadromous Fish)	0	1328	1328
C8	Grass-Tree Mosaic (GTM)	1713	2016	303
E1	Timber & Forage	0	2193	2193
E2	Timber & Big Game	461	454	-7
	<b>Totals</b>	<b>5789</b>	<b>12198</b>	<b>6409</b>

MA	Management Area Descriptions	FS Acres to Convey	Private and State Acres to Acquire	Acres Net Change
<b>Wallowa-Whitman National Forest</b>				
1	Timber Production Emphasis	439	1505	1066
1W	Timber Production/Winter Range	219	253	34
3	Wildlife/Timber Winter Range	3415	2177	-1238
4	Wilderness	0	201	201
6	Backcountry	118	458	340
7	Wild & Scenic Rivers	40	1640	1600
9	HCNRA Dispersed Recreation/Native Vegetation	0	365	365
10	HCNRA Forage Emphasis	655	5680	5025
11	HCNRA Dispersed Recreation/Timber Emphasis	0	309	309
15	Old Growth Preserve	33	0	-33
18	Anadromous Fish Emphasis	0	59	59
<b>Totals</b>		<b>4919</b>	<b>12647</b>	<b>7728</b>

Dedicated old growth has been proposed for conveyance to Clearwater and other timbered stands or existing old growth would be assigned for replacement. The appropriate Forest Plans would be amended as required.

## Alternatives Considered but Eliminated from Detailed Study

### Exchange All Parcels Identified in the Notice of Intent to Exchange

This alternative was dropped from further consideration because, in some cases, both parties agreed to drop parcels for mitigation, as previously explained. Other parcels were dropped because a private entity chose to withdraw their lands from further consideration, irresolvable title issues became apparent, or the Forest Service withdrew parcels that could have been exchanged for withdrawn private parcels.

### Exchange Selected Federal Parcels and Pay Cash to the Facilitator up to 25% of the Appraised Value of the Federal Parcels to Achieve Equal Value

This alternative was dropped from further consideration for several reasons. First, it is the policy of the Forest Service to minimize, to the greatest extent possible, equalization payments. Inclusion or exclusion of lands is the preferred methods to equalize. It is also unlikely that the FS could get the funding needed for such an equalization payment. Additionally, it is possible that the FS would not achieve its purpose and need goals to the greatest extent. Isolated Federal parcels that could have been exchanged, if lands rather than cash were used to equalize values, might remain in Federal ownership. Lastly, this alternative would not be responsive to public scoping concerns related to the net reduction in private lands. Private land reduction would likely result in a loss of property tax revenues in the six county study area. Compared to the Proposed Exchange Alternative, less Federal lands would enter private ownership to offset revenues being lost by the counties for those private lands entering Federal ownership.

### **Acquire Non-Federal Parcels from the Facilitator in Exchange for National Forest Timber or Receipts for National Forest Timber**

This alternative is similar to the Purchase Alternative except funds for payment of private parcels would come from receipts for National Forest timber rather than LWCF land purchase money. It is the policy (FSM 5430) to use land-for-timber authority only in high-priority cases that cannot be postponed, and/or meet the following criteria: 1) acquisition of inholdings, valued at 250,000, or less when public benefits are clearly evident; 2) if unsuccessful attempts to complete land-for-land exchanges are documented in the case file; and 3) if the public has been notified and there are no objections to the exchange. This alternative would not meet criteria 1 and 2. Land-for-timber exchanges always reduce receipts to counties because of the loss of the 25% share of timber receipts to counties, in addition to the loss of tax base. This alternative would prevent loggers and other sawmills from competing for Federal timber volume that is in high demand. The acquisition of private inholdings without conveying Federal parcels would not achieve the purpose and need for the FS or the vast majority of private entities participating in the exchange.

### **Comparison of Alternatives**

This section compares the alternatives considered in detail. It is based on the presentation of alternatives earlier in this chapter and the resource effects in Chapter 3. First, the alternatives are evaluated on their response to the purpose and need (Table 19). Second, the significant issues that evolved through scoping are used to compare alternatives through defined measurement indicators. Environmental effects narratives are limited to concise descriptive summaries in bullet comparative form. The information in the bullet statements and Table 20 display comparative effects by aiding in defining the issues and providing a clear basis for choice among options. The bullet statements and Table 20 are intended to help the reader and Responsible Officials compare how the alternatives respond to the significant issues. The environmental effects for many resources varied little or in minor ways. These resources are addressed in Chapter 3 but are not presented in comparative form.

### **Design Criteria Built into All Action Alternatives**

- All lands conveyed or acquired by the United States will be free of hazardous wastes or materials.
- All structures, except those with historic significance, will be removed from private lands prior to transfer of title to the United States.
- Any federal lands that contain cultural resources have been removed from further conveyance consideration.
- Good and sufficient title, free from objectionable encumbrances, will be in furnished on all lands to be acquired by the United States.
- Disposition of grazing permits on conveyed NF parcels will be in accordance with regulations at 36 CFR 222.4(a)(1).
- Rights previously conveyed or permitted by the United States on NF parcels to convey will be protected by Clearwater or via deed provisions. These include easements, reservations, and special use authorizations.
- The alternative complies with, or has the potential to comply with, management direction in the three forest plans, other Federal management direction, Federal laws and regulations, and executive orders.

**Table 19. Comparison of Responsiveness to Purpose and Need by Alternative**

<b>Alternative 1 Responsiveness to Purpose and Need</b>
The Proposed Exchange Alternative was designed to be responsive to the purpose and need statements documented in Chapter 1 page 2. This alternative would provide for more cost efficient management of NFS lands. It would consolidate the Federal land base and provide for more effective conservation and management of natural resources. Acres of wetlands, floodplains and riparian areas would be increased. Federal land ownership would be consolidated in special areas such as wilderness (2,043 acre net increase), wild and scenic river management areas (2,132 acre net increase), and the HCNRA (7,304 acre net increase). These lands would be managed to Federal standards into the future. The design of this alternative emphasized acquisition and protection of important habitat for threatened and endangered species (net gain of habitat: 29.2 miles steelhead, 15.6 miles Chinook, 14.0 miles bull trout).
<b>Alternative 2 Responsiveness to Purpose and Need</b>
The No Action Alternative would not be responsive to the purpose and need statements. Management efficiency on NFS lands would not change. Management of NFS lands would continue as they are now. Private entities involved in the Proposed Land Exchange and the State of Oregon would not realize their goals. This alternative does not consolidate lands for the FS, State of Oregon or the private parties.
<b>Alternative 3 Responsiveness to Purpose and Need</b>
The Purchase Alternative achieves few of the purpose and need statements. Since this alternative would purchase approximately 13% of the lands that would be acquired in Alternative 1, it would provide for improved management efficiency, improved resource management, protection of special areas and acquisition and protection of threatened and endangered species habitat to a lesser degree than Alternative 1 (acre net increase: 243 wilderness, 1,694 wild and scenic river management areas, 3,529 NRA; miles net gain of habitat: 9.27 steelhead, 9.85 Chinook, 8.7 bull trout). The higher priority lands would be designated for purchase however the facilitator states that many of the private entities participating in the Proposed Exchange and the State of Oregon want to acquire Federal property to achieve their individual goals. Clearwater Land Exchange, Oregon would not participate in the purchase of lands under this alternative.
<b>Alternative 4 Responsiveness to Purpose and Need</b>
The Deed Restriction Alternative achieves more of the purpose and need statements than the Purchase Alternative but somewhat less than the Proposed Exchange Alternative. The Deed Restriction Alternative would acquire approximately 46% less acres than the Proposed Exchange Alternative. The FS would convey more lands than it would acquire because the deed covenants would decrease the value of the Federal lands to convey. Alternative 4 would provide for improved resource management, protection of special areas and acquisition and protection of threatened and endangered species habitat but to a lesser degree than Alternative 1 (acre net increase: 243 wilderness, 1,180 wild and scenic river management areas, 7,504 NRA; miles net gain of habitat: 26.0 steelhead, 15.6 Chinook, 14.0 bull trout). Management efficiency would be improved somewhat but off set by substantial FS costs incurred in monitoring and managing deed restriction compliance. This alternative would likely result in many lands being withdrawn from the exchange. Clearwater Land Exchange, Oregon would not participate in the exchange under this alternative.
<b>Alternative 5 Responsiveness to Purpose and Need</b>
The Preferred Alternative is responsive to the purpose and need statements. This alternative would provide for more cost efficient management of NFS lands. It would consolidate the Federal land base and provide for more effective conservation and management of natural resources. Acres of wetlands, floodplains and riparian areas would be increased. Federal land ownership would be consolidated in special areas such as wilderness (243 acre net increase), wild and scenic river management areas (2,097 acre net increase), and the HCNRA (7,442 acre net increase). These lands would be managed to Federal standards into the future. This alternative emphasizes acquisition and protection of important habitat for threatened and endangered species (miles net gain of habitat: 29.2 steelhead, 15.6 Chinook, 14.0 bull trout) along with responding to tribal members needs by holding CTUIR lands of concern in Federal ownership.



## **Significant Issue Narrative Comparison by Alternatives**

### **Issue - American Indian Treaty Rights and Cultural Uses**

#### ***Access for Traditional Uses and the Exercising of Treaty Rights***

##### **Alternative 1**

- Continues the trend of past land exchanges where upland habitat is conveyed in exchange for acquisition of stream habitat.
- NFS Lands would not have reduced access.
- Most watersheds would have a net gain of acres available for exercising treaty rights.
- The Umatilla Watershed and the Upper Grande Ronde would have a net loss of NFS lands.
- Meacham and Butcher Creeks would have a net loss of approximately 1300 acres.
- Horseshoe Ridge and in the lower portions of Meacham and Butcher Creeks would have Federal ownership blocked up.

##### **Alternative 2**

- No changes to access for traditional uses and the exercising of treaty rights.

##### **Alternative 3**

- Continues the trend of adding protection of riparian habitat in high priority fisheries habitat but less than Alternative 1 and 4.
- 3,180 acres of the 4,250 acres would be purchased in the Imnaha drainage; no acres purchased in the Umatilla drainage.
- Purchased parcels would not adversely impact access for traditional uses and the exercising of treaty rights.

##### **Alternative 4**

- Continues the trend of past land exchanges where upland habitat is conveyed in exchange for acquisition of stream habitat.
- Would result in a net decrease of approximately 1,050 acres of NFS lands.
- Access for traditional uses and the exercising of treaty rights would not be adversely impacted because of deed covenants on conveyed lands.
- Would not block up the NFS lands on Horseshoe Ridge, resulting in limiting access to gathering sites in this area when compared to Alternative 1.

##### **Alternative 5**

- Continues the trend of past land exchanges where upland habitat is conveyed in exchange for acquisition of stream habitat.
- NFS Lands would not have reduced access.
- Most watersheds would have a net gain of acres available for exercising treaty rights.
- The Upper Grande Ronde watershed would have a net loss of NFS lands but the Umatilla watershed retains the NFS lands in the Upper Meacham and Butcher Creek area. Also, riparian habitat along Meacham Creek is retained.

- Meacham and Butcher Creeks would have a net loss of approximately 340 acres.
- There is a potential for the FS to not block up lands on Horseshoe Ridge because of the retention of Federal parcels in the Meacham and Butcher Creek area.

### ***Open and Unclaimed Lands***

#### **Alternative 1**

- Would have third highest net increase in open and unclaimed lands with 13,569 acres.
- The location of open and unclaimed lands would change.
- Increases the open and unclaimed lands available for exercising treaty rights by approximately 0.2 percent.
- CTUIR open and unclaimed lands would have a loss of 0.13 percent of unclaimed treaty lands ceded by the CTUIR Treaty.

#### **Alternative 2**

- No change in acres or location of open and unclaimed lands ceded by treaties. CTUIR open and unclaimed lands would not change.

#### **Alternative 3**

- Would have the least net increase in open and unclaimed lands with 4,250 acres.
- Increases the open and unclaimed lands by approximately 0.06 percent.
- No change in CTUIR open and unclaimed lands.

#### **Alternative 4**

- Would have the highest net increase in open and unclaimed lands with 17,120 acres, because of deed covenants on conveyed lands.
- Increases the open and unclaimed lands by approximately 0.24 percent.
- CTUIR open and unclaimed lands would increase by 0.13 percent.

#### **Alternative 5**

- Would have the second highest net increase in open and unclaimed lands with 14,364 acres.
- The location of open and unclaimed lands would change.
- Increases the open and unclaimed lands available for exercising treaty rights by approximately 0.18 to 0.2 percent; the range being the result of private parcels potentially dropped due to withdrawal of Federal parcels.
- CTUIR open and unclaimed lands would potentially lose 0.04 percent of unclaimed treaty lands ceded by the CTUIR treaty.

### ***Cultural Resources***

#### **Alternative 1**

- No effect on any National Register listed or eligible cultural resources.

**Alternative 2**

- No effect to cultural resources; no Federal parcels would be conveyed.

**Alternative 3**

- No effect to cultural resources; no Federal parcels would be conveyed.

**Alternative 4**

- No effect on any National Register listed or eligible cultural resources.

**Alternative 5**

- No effect on any National Register listed or eligible cultural resources.

***Protecting the Resources in the Treaties***

**Alternative 1**

- Places a strong focus on acquiring lands with potential for high quality fisheries habitat.
- Approximately 31 percent of all acquired acres would be within or adjacent to roadless and wilderness areas.
- Would result in a net gain of 40 miles of fish bearing, 10 miles of perennial, and 96 miles of intermittent streams.
- Would help facilitate reaching population goals for the Columbia River Basin Fish and Wildlife Program.

**Alternative 2**

- Fisheries habitat would continue to be impacted by private ownership and related uses.
- The ability to hunt, gather roots and berries, and pasture livestock would not change.
- Working towards reaching population goals for the Columbia River Basin Fish and Wildlife Program would continue but Alternatives 1, 3 and 4 would better facilitate this objective.

**Alternative 3**

- Places a strong focus on acquiring lands with potential for high quality fisheries habitat but not to the extent of Alternatives 1 and 4.
- Approximately 81 percent of all purchased acres would be within or adjacent to roadless and wilderness areas.
- Would result in a net gain of 14 miles of fish bearing, 2 miles of perennial, and 33 miles of intermittent streams.  
Would help facilitate reaching population goals for the Columbia River Basin Fish and Wildlife Program, but not to the extent of Alternatives 1 and 4.

#### **Alternative 4**

- Places a strong focus on acquiring lands with potential for high quality fisheries habitat.
- Approximately 52 percent of all the acquired acres in Alternative 4 would be within or adjacent to roadless and wilderness areas.
- Would result in a net gain of 27 miles of fish bearing, net loss of 5 miles of perennial, and a net gain of 43 miles of intermittent streams.
- Retains protection on parcels conveyed as a deed covenant.
- Results in a net increase in miles of riparian areas protected by Federal standards within ceded lands; approximately 39 miles of fish bearing streams, 14 miles of perennial, and 117 miles of intermittent.
- Would help facilitate reaching population goals for the Columbia River Basin Fish and Wildlife Program.

#### **Alternative 5**

- Places a strong focus on acquiring lands with potential for high quality fisheries habitat.
- Approximately 34 percent of all acquired acres would be within or adjacent to roadless and wilderness areas.
- Would result in a net gain of 40 miles of fish bearing, 13 miles of perennial, and 95 miles of intermittent streams.
- Would help facilitate reaching population goals for the Columbia River Basin Fish and Wildlife Program.

### **Issue - Water Quality**

#### **Alternative 1**

- Acquires 60 times more acres of wetlands and 16 times more acres of floodplains than it would convey.
- Affects to water quality, riparian condition, and water yield would be localized, and generally too small to be measured.
- Erosion and sedimentation would likely increase for one to two years following harvest and associated activities in Butcher Creek, Bear Creek and Upper Dry Gulch.

#### **Alternative 2**

- No change in wetlands and floodplain acres.
- The opportunity to acquire substantial acres of wetlands and floodplain would be forgone.
- Commercially timbered non-acquired parcels would likely be harvested.
- Effects to water quality, riparian condition, and water yield would be localized and generally too small to be measured.

- Logging related sedimentation affects to water quality and reduced recruitment of woody material would increase in Texas Bar subwatershed and decrease in Butcher Creek subwatershed compared to Alternative 1.

#### **Alternative 3**

- Would acquire about 1% of the acres of wetlands and 33% of floodplains acres when compared to Alternative 1.
- Effects to water quality, riparian condition, and water yield would be localized and generally too small to be measured.
- Cumulative water quality effects would be similar to Alternative 2

#### **Alternative 4**

- Would acquire about 50% of the acres of wetlands and 80% of floodplains acres when compared to Alternative 1.
- Deed restrictions on conveyed parcels would maintain water quality and riparian condition at its current level and allow recovery of their components.
- More acres would be harvested than the other action alternatives; less effect to water quality and riparian condition would occur than in Alternative 1
- Only Butcher Creek Subwatershed would see more acres harvested than in Alternative 1.
- Effects to water quality would be about the same as Alternative 2 and 3.

#### **Alternative 5**

- Acquires 55 times more acres of wetlands and 15 times more acres of floodplains than it would convey.
- Affects to water quality, riparian condition, and water yield would be localized, and generally too small to be measured.
- Erosion and sedimentation would likely increase for one to two years following harvest and associated activities in Butcher Creek, Bear Creek and Upper Dry Gulch; although Butcher Creek Subwatershed would not see increases as high as Alternative 1 due to withdrawal of two Federal parcels.

### **Issue – Fisheries**

#### ***Steelhead trout***

##### **Alternative 1**

- Would represent the greatest potential benefit to steelhead trout based on the amount of habitat that would be acquired.
- The majority of harvest and road construction effects to steelhead would be upslope and pose minor indirect effects.

##### **Alternative 2**

- Represents the least benefit to steelhead trout since no habitat would be acquired.
- Opportunities to acquire and substantially restore habitat would be foregone.

**Alternative 3**

- Would rank below alternatives 1 and 4 when considering benefits to steelhead trout since minor amounts of habitat would be purchased.

**Alternative 4**

- Would rank a close second to Alternative 1 when considering benefits to steelhead trout since it acquires slightly fewer miles of steelhead habitat.
- Would provide the same protections to riparian habitat on conveyed lands as on FS lands due to deed covenants.
- Non-acquired commercial parcels when logged would pose an indirect effect to steelhead trout when logged.

**Alternative 5**

- Would be similar to Alternative 1 in potential benefit to steelhead trout based on the amount of habitat that would be acquired.
- The majority of harvest and road construction effects to steelhead would be upslope and pose minor indirect effects.

***Chinook salmon***

**Alternative 1**

- Would represent the greatest potential benefit to Chinook salmon based on the amount of habitat that would be acquired.
- The majority of harvest and road construction effects to Chinook salmon would be upslope and pose minor indirect.

**Alternative 2**

- Represents the least benefit to Chinook salmon since no habitat would be acquired.
- Opportunities to acquire and substantially restore habitat would be foregone.

**Alternative 3**

- Would rank below alternatives 1 and 4 when considering benefits to Chinook salmon since minor amounts of habitat would be purchased.

**Alternative 4**

- Would rank a close second to Alternative 1 when considering benefits to Chinook salmon because of less protective management for upslope activities on parcels not acquired. Would provide the same protections to riparian habitat on conveyed lands as on FS lands due to deed covenants.
- Non-acquired commercial parcels when logged would pose an indirect effect to Chinook salmon when logged.

**Alternative 5**

- Would be similar to Alternative 1 in potential benefit to Chinook salmon based on the amount of habitat that would be acquired.

- The majority of harvest and road construction effects to Chinook salmon would be upslope and pose minor indirect.

### ***Bull trout***

#### **Alternative 1**

- The minor amount of habitat protection would likely not be great enough to increase fish production or survival of juvenile fish.
- Effects to bull trout habitat would be similar to Alternative 4 and 5.

#### **Alternative 2**

- Would forego opportunities to improve management on nearly 13.1 miles of bull trout habitat.
- Merchantable timber would likely be logged on private parcels in Dry Gulch, Butcher Creek, Bark Cabin Creek, and Texas Bar; erosion and sedimentation would likely increase for one to two years following harvest.

#### **Alternative 3**

- The minor amount of habitat protection would likely not be great enough to increase fish production or survival of juvenile fish.
- Beneficial effects are greater than Alternative 2, but less than Alternatives 1 and 4.

#### **Alternative 4**

- Deed restrictions would apply to 0.14 miles of foraging/migratory/over wintering habitat.
- The minor amount of habitat protection would likely not be great enough to increase fish production or survival of juvenile fish.
- Effects to bull trout habitat would be similar to Alternative 1.

#### **Alternative 5**

- The minor amount of habitat protection would likely not be great enough to increase fish production or survival of juvenile fish.
- Effects to bull trout habitat would be similar to Alternative 1 and 4.

### **Issue - Old Growth Associated Species**

#### **Alternative 1**

- Conveyance and subsequent logging of parcels with old growth habitat would have localized negative effects by displacing individual old growth associated species at the subwatershed scale.
- Loss of old growth habitat at the Blue Mountain scale would not likely to affect the viability of old growth associated species or jeopardize the continued existence of these species.

- All three National Forests would require a Forest Plan amendment to convey dedicated old growth.

#### **Alternative 2**

- Current status of old growth and LOS would not change on NFS lands.
- Old growth habitat on NFS lands would likely not be logged and continue to function as old growth.
- LOS on private lands would likely be logged within the next 10 years, resulting in localized effects to old growth associated species.
- No Forest Plan amendment would be required.

#### **Alternative 3**

- Current status of old growth and LOS would not change on NFS lands.
- Effects to old growth associate species would be similar to Alternative 2 since four acres of LOS and no dedicated old growth would be purchased.
- LOS on private lands not purchased would likely be logged within the next 10 years, resulting in localized effects to old growth associated species.
- No Forest Plan amendment would be required.

#### **Alternative 4**

- Conveyance and subsequent logging of parcels with old growth habitat would have localized negative effects by displacing individual old growth associated species at the subwatershed scale.
- Negligible difference would occur between Alternative 1 and 4 when considered in the context of species viability for old growth associated species.
- Conveyed dedicated old growth would be the same and the net loss of LOS would be slightly more than Alternative 1 because of harvesting LOS on non-acquired parcels.
- Deed restrictions would not provide suitable habitat for old growth associated species on areas with LOS.
- All three National Forests would require a Forest Plan amendment to convey dedicated old growth.

#### **Alternative 5**

- Conveyance and subsequent logging of parcels with old growth habitat would have localized negative effects by displacing individual old growth associated species at the subwatershed scale.
- Loss of old growth habitat at the Blue Mountain scale would not likely to affect the viability of old growth associated species or jeopardize the continued existence of these species.
- All three National Forests would require a Forest Plan amendment to convey dedicated old growth.

### **Issue - Social and Economic Environment**

#### ***Lumber and Wood Products, Associated Employment and Income***



### **Alternative 1**

- Results in a net loss of private acres, but would likely result in an annual increase in the supply of timber available for harvest.
- The projected increase in average annual harvest would not be expected to substantially alter current trends in local timber harvest or existing forest-related employment levels.
- Conveyed parcels would include approximately 82.9 MMBF of harvestable timber resources that would be available for harvest.
- Harvestable volume would be equivalent to 42 percent of total harvest in the six-county analysis area in 2003.
- Would support approximately 43 additional FTE jobs and approximately \$1.2 million in additional income each year for the 10 year planning period, when compared to Alternative 2. Employment estimates include direct, indirect, and induced employment.

### **Alternative 2**

- Results in no change of private acres and continuation of private harvesting trends.
- Continuing trends in projected harvest volume would not be expected to affect current trends in local timber harvest and existing forest-related employment levels.
- Private parcels would include approximately 35.5 MMBF of harvestable timber resources that would be available for harvest.
- Harvestable volume would be equivalent to 18 percent of total harvest in the six-county analysis area in 2003.
- Estimated annual harvest would support approximately 32 FTE direct, indirect, and induced jobs and approximately \$0.9 million in income. This alternative is base line when comparing the action alternatives.

### **Alternative 3**

- Results in a net loss of private acres and a small reduction in average annual timber available for harvest.
- The change in projected harvest volume would not be expected to affect current trends in local timber harvest and existing forest-related employment levels.
- Private parcels not purchased would include approximately 35.1 MMBF of harvestable timber resources that would be available for harvest.
- Harvestable volume would be equivalent to 18 percent of total harvest in the six-county analysis area in 2003.
- The small reduction in available volume would equate to less than one job and result in a small loss in income each year for the 10-year planning period, when compared to Alternative 2.

### **Alternative 4**

- Results in a net increase in private acres and an annual increase in the supply of timber available for harvest.

- The projected increase in average annual harvest would not be expected to substantially alter current trends in local timber harvest or existing forest-related employment levels.
- Conveyed parcels plus the private parcels not acquired would include approximately 52.8 MMBF of harvestable timber resources that would be available for harvest. The same parcels would be conveyed as Alternative 1 but deed restrictions result in lower harvestable volume than Alternative 1.
- Harvestable volume would be equivalent to 27 percent of total harvest in the six-county analysis area in 2003.
- Would support approximately 16 additional FTE jobs and approximately \$146,000 in additional income each year for the 10-year planning period, when compared to Alternative 2. Employment estimates include direct, indirect, and induced employment.

#### **Alternative 5**

- Results in a net loss of private acres, but would likely result in an annual increase in the supply of timber available for harvest.
- The projected increase in average annual harvest would not be expected to substantially alter current trends in local timber harvest or existing forest-related employment levels.
- Conveyed parcels plus the private parcels not acquired would include approximately 75.6 MMBF of harvestable timber resources that would be available for harvest.
- Harvestable volume would be equivalent to 38 percent of total harvest in the six-county analysis area in 2003.
- Would support approximately 36 additional FTE jobs and approximately \$1 million in additional income each year for the 10 year planning period, when compared to Alternative 2. Employment estimates include direct, indirect, and induced employment.

#### ***Government Taxes and Revenues***

##### **Alternative 1**

- Results in a net reduction in private lands subject to Oregon property taxes.
- Results in a small decrease in local property tax revenues that would be partially offset by an increase in PILT payments.
- Majority of property tax revenue reduction occurs in Wallowa County.
- Net reduction in private acres in Wallowa County would result in estimated property tax net reduction revenue of approximately \$3,000, less than 0.1 percent of total property taxes imposed in this county (FY2004-05).

##### **Alternative 2**

- Government taxes and revenues would remain the same for all six counties.

##### **Alternative 3**

- The purchase of 4,249 acres results in a commensurate net reduction in the number of acres subject to Oregon property taxes.

- Results in a small decrease in local property tax revenues (less than Alternative 1) that would be partially offset by an increase in PILT payments.
- Majority of property tax revenue reduction would occur in Wallowa County.
- Net reduction in private acres in Wallowa County would result in estimated property tax net reduction revenue of approximately \$1,300, less than 0.1 percent of total property taxes imposed in this county (FY2004-05).

#### **Alternative 4**

- Results in a net loss of 1,053 Federal acres and an increase of private lands when compared to Alternative 2.
- Results in a slight overall net increase in property tax revenues that would be partially offset by a small decrease in PILT payments.
- Majority of property tax revenue reduction would occur in Wallowa County.
- Net reduction in private acres in Wallowa County would result in estimated property tax net reduction revenue of approximately \$2,000, less than 0.1 percent of total property taxes imposed in this county (FY2004-05).

#### **Alternative 5**

- Results in a net reduction in private lands subject to Oregon property taxes.
- Results in a small decrease in local property tax revenues that would be partially offset by an increase in PILT payments.
- Majority of property tax revenue reduction occurs in Wallowa County.
- Net reduction in private acres in Wallowa County would result in estimated property tax net reduction revenue of approximately \$2,600, less than 0.1 percent of total property taxes imposed in this county (FY2004-05).

#### **ROS Class**

##### **Alternative 1**

- Results in a net increase of 13,532 acres in all ROS classes.
- Would realize a net acre increase in the developed end of the ROS scale by adding 8,050 acres and would also make available an additional 5,482 acres at the primitive end of the scale.
- After increased regulation of OHV use begins, the cumulative effect trend towards changes in ROS classes would likely stop.

##### **Alternative 2**

- Current mix of ROS classes would not immediately change.
- After increased regulation of OHV use begins, the cumulative effect trend towards changes in ROS classes would likely stop.

##### **Alternative 3**

- Results in a net increase of 4,225 acres in all ROS classes.

- Would realize a net acre increase in the developed end of the ROS scale by adding 2,571 acres and would also make available an additional 1,653 acres at the primitive end of the scale.
- After increased regulation of OHV use begins, the cumulative effect trend towards changes in ROS classes would likely stop.

#### **Alternative 4**

- Results in a net decrease of 1,073 acres in all ROS classes.
- Would realize a net acre decrease in the developed end of the ROS scale by losing 3,582 acres and would make available an additional 2,509 acres at the primitive end of the scale.
- After increased regulation of OHV use begins, the cumulative effect trend towards changes in ROS classes would likely stop.

#### **Alternative 5**

- Results in a net increase of 14,364 acres in all ROS classes.
- Would realize a net acre increase in the developed end of the ROS scale by adding 8,874 acres and would also make available an additional 5,490 acres at the primitive end of the scale.
- After increased regulation of OHV use begins, the cumulative effect trend towards changes in ROS classes would likely stop.

### **Access**

#### **Alternative 1**

- Net effect on road access to NFS lands would be an increase associated with 101 miles of open roads on acquired parcels accompanied by a decrease associated with 59.5 miles of open roads on conveyed parcels.
- None of the 59.5 miles of conveyed open roads provide access to NFS lands; these roads would be subject to landowner permission for access.
- Routes that provide access to NFS lands would have a right-of-way retained as a condition of conveyance.
- Long time users would lose recreation opportunities on conveyed parcels if private owners restricted access.
- Resolves trail right-of-way issues on approximately 7.3 miles of trail within the Wallowa-Whitman, Malheur and Umatilla forests.

#### **Alternative 2**

- Access to Federal and private lands would remain the same.
- Changes to public access would evolve from projects (i.e., timber sales, etc.).
- Access to private lands could be altered if lands were sold or if current owners changed access policies.
- Public access to the Imnaha River would continue to be limited.
- Use of approximately 7.3 miles of trail with no public right-of-way could lead to inadvertent or deliberate trespass on private property.

### **Alternative 3**

- Net effect on road access to NFS lands would be an increase associated with 8.5 miles of open roads on purchased parcels.
- No conveyance of roads.
- Least possible disruption to visitors and recreationists because access would only increase.
- Resolves trail right-of-way issues on approximately 2.8 miles of trail within the Wallowa-Whitman forest.

### **Alternative 4**

- Net effect on road access to NFS lands would be an increase associated with 53 miles of open roads on acquired parcels accompanied by a decrease associated with 59.5 miles of open roads on conveyed parcels.
- None of the 59.5 miles of conveyed open roads provide access to NFS lands; these roads would be subject to landowner permission for access.
- Routes that provide access to NFS lands would have a right-of-way retained as a condition of conveyance.
- Most disruption to visitors and recreationists. Replacement of dispersed hunting camps and other sites lost to private lands would likely be more difficult to find since there would be a net loss of Federal acres.
- Resolves trail right-of-way issues on approximately 5.7 miles of trail within the Wallowa-Whitman and Malheur forests.

### **Alternative 5**

- Net effect on road access to NFS lands would be an increase associated with 101 miles of open roads on acquired parcels accompanied by a decrease associated with 59.5 miles of open roads on conveyed parcels.
- None of the 59.5 miles of conveyed open roads provide access to NFS lands; these roads would be subject to landowner permission for access.
- Routes that provide access to NFS lands would have a right-of-way retained as a condition of conveyance.
- Long time users would lose recreation opportunities on conveyed parcels if private owners restricted access.
- Resolves trail right-of-way issues on approximately 7.3 miles of trail within the Wallowa-Whitman, Malheur and Umatilla forests.

**Table 20. Comparison of Significant Issues by Alternative**

Significant Issue <sup>1</sup>	Alternative				
	1	2	3	4	5
<b>American Indian Treaty Rights and Cultural Uses</b>					
Net change open and unclaimed Nez Perce Treaty Area acres	+9,351	0	+3,819	+15,104	+9,169
% Net change to total open and unclaimed Nez Perce Treaty Area acres	+0.47	0	+0.19	+0.76	+0.46
Net change open and unclaimed Umatilla Treaty Area acres	-2,069	0	+87	-1,002	-574
% Net change to total open and unclaimed Umatilla Treaty Area acres	-0.13	0	+0.006	-0.07	-0.04
Net change open and unclaimed Middle Oregon Treaty Area acres	+6,329	0	+343	-1,772	+6,052
% Net change to total open and unclaimed Middle Oregon Treaty Area acres	+0.35	0	+0.02	-0.10	+0.33
Net change open and unclaimed Burns Paiute Treaty Area acres	-42	0	0	-42	-42
% Net change to total open and unclaimed Burns Paiute Treaty Area acres	-0.002	0	0	-0.002	-0.002
Net change plant association Black Cottonwood group acres within CTUIR ceded territory	-26	0	0	-26	-27
Net change plant association Douglas Fir group acres within CTUIR ceded territory	-953	0	0	-1,364	-660
Net change plant association Ponderosa Pine group acres within CTUIR ceded territory	-365	0	0	-879	-276
Net change plant association Sub Alpine Fir group acres within CTUIR ceded territory	0	0	0	0	0
Net change plant association White Fir group acres within CTUIR ceded territory	-723	0	+12	-1,777	-157
Net change plant association Lodgepole Pine group acres within CTUIR ceded territory	-23	0	0	-23	-46
Net change plant association Western Juniper group acres within CTUIR ceded territory	+7	0	0	0	+7
<b>Water Quality</b>					
Net change wetland acres	+648	0	+7	+336	+597
Net change floodplain acres	+195	0	+67	+155	+186
Net change miles of fish bearing streams	+41	0	+14	+29	+40
Net change miles of perennial streams	+9	0	+2	-5	+12
Net change of intermittent streams	+96	0	+33	+43	+94
Net change mid-structure acres	+6,043	0	+859	-2,696	+6,545
Net change late structure acres	-1,951	0	+4	-2,209	-1,792
<b>Fisheries</b>					
Net change miles of steelhead trout habitat	+29.2	0	+9.27	+26.0	+29.2
Net change miles of Chinook salmon habitat	+15.6	0	+9.85	+15.6	+15.6
Net change miles of bull trout habitat	+14.0	0	+8.7	+14.0	+14.0
<b>Old Growth</b>					
Net change WWNF late and old structure acres (Includes dedicated old growth)	-28	0	+4	-54	-28

Significant Issue <sup>1</sup>	Alternative				
	1	2	3	4	5
Net change UNF late and old structure acres (Includes dedicated old growth)	-1,057	0	0	-1,315	-932
Net change MNF late and old structure acres (Includes dedicated old growth)	-423	0	0	-423	-385
Conveyed WWNF dedicated old growth acres	33	0	0	33	33
Conveyed UNF dedicated old growth acres	75	0	0	75	75
Conveyed MNF dedicated old growth acres	385	0	0	385	385
<b>Social</b>					
Net change ROS class primitive acres	+241	0	+241	+241	+241
Net change ROS class semi-primitive non- motorized acres	+592	0	+702	+592	+1,109
Net change ROS class semi-primitive motorized acres	+4,649	0	+711	+1,676	+4,140
Net change ROS class roaded natural acres	+7,792	0	+1,783	-1,420	+8,333
Net change ROS class roaded modified acres	-205	0	+343	-2,639	+105
Net change ROS class rural acres	+463	0	+445	+477	+436
Net change miles of open and closed roads	+41.5	0	+8.5	-6.5	+41.5
Net change Wild & Scenic River Corridor acres	+2,132	0	+1,694	+1,880	+2,132
Net change wilderness acres	+243	0	+243	+243	+243
Net change Roadless Areas within & adjacent to acres	+9,294	0	+3,290	+7,000	+9,235
Net change HCNRA acres	+7,504	0	+3,529	+7,504	+7,442
<b>Economic</b>					
Net change harvestable commercial timber volume (MBF)	+47,398	0	-381	+17,355	+42,848
Net change annual employment (FTE jobs)	+43	0	0	+16	+39
Net change annual income \$	+1,202,000	0	-10,000	+440,000	+1,087,000
Net change 6 county area property tax revenues \$	-4,500	0	-1,600	+900	-5,400
One time administrative savings \$	1,450,500	0	25,100	608,500	1,485,000
Net change annual administrative costs \$	+115,000	0	+37,400	+130,500	+115,000
Net change of boundary to be maintained (miles)	-352	0	-37	-214	-332

<sup>1</sup>Context of net changes is provided in narrative form throughout Chapter 3

# Chapter 3. Affected Environment and Environmental Consequences

## Introduction

This chapter summarizes the physical, biological, social, and economic environments of the project area and the effects of implementing each alternative on that environment. It also presents the scientific and analytical basis for the comparison of alternatives presented in Chapter 2.

## Soils

The objective of this section is to generally describe effects on soil resources of affected lands. The analysis area boundary is limited to the parcels involved in the Proposed Land Exchange.

## Laws and Regulations Applying to the Analysis

The FSM Title 2500, Watershed & Air Management, contains many sections that directly or indirectly address soil management. The primary section for soils is 2550. FSM 2520 R-6 Supplement 2500-98-01 states “Soil Quality Standards: The following soil quality standards are thresholds beyond which soil quality is adversely impacted. Leave a minimum of 80% of an activity area in acceptable soil quality condition (FS 1998).” Detrimental soil conditions (DSC) are defined for compaction, puddling, displacement, burned soil, erosion, and mass wasting. Refer to the Soils Specialist Report in the PR for Forest Plans standards and guidelines, Pacfish/Infish and Oregon Department of Forestry (ODF) water buffer guidelines and ODF ground-based harvesting rules.

## Affected Environment

Soil inventory information is available at the Malheur, Umatilla, and Wallowa-Whitman NF Supervisor’s Offices. Soil maps, soil series descriptions, and soil interpretations were not summarized or developed for this analysis, because (1) soils types were not used as decision criteria for selection of any parcel in the land exchange, and (2) soils information was not used for appraisal decisions.

Soil depths range from a few inches to more than 5 feet. Most soils are in the 20 to 60-inch depth range. Soils less than 20 inches deep occur around rock outcrops and on ridges. Soils deeper than 60 inches occur in floodplains and on concave slopes, especially toeslopes.

Soil profile textures range from loamy sands to clay loams, with rock fragment content ranging from near zero in thick volcanic ash and loess deposits, to more than 65 percent in flood deposits and shallow soils. The less than 2 millimeters of topsoil is commonly a loam or silt loam. Most subsoils (under the volcanic ash) have 35 to more than 65 percent rock fragments.

Soil productivity ranges from low to high, with low being in shallow soil rangelands, and high being in timberlands with deeper volcanic ash soils. More specific soil productivity information is available on soil interpretation records at the Wallowa-Whitman NF Supervisor’s Office. A review of the Natural Resource Conservation Service (NRCS) prime farmland geospatial databases (NRCS 2004) found no prime farmland on parcels included in the land exchange.



## Environmental Consequences

Detrimental soil conditions (DSCs) as defined in FS 1998 represent adverse effects of human influences on soil productivity and soil stability. It was assumed that broad-scale surrogates would suffice for this analysis and that DSCs are a minor resource concern in this Proposed Land Exchange. Soil productivity impairment exists under all alternatives due to the presence of infrastructure (buildings, roads, bridges, trails, ditches, dams, corrals, etc) and legacy effects of past activities, such as logging in forestlands and grazing in rangelands. No attempt was made to accurately quantify these effects, either on a parcel-by-parcel basis, or for the exchange as a whole.

### Alternative 1: Proposed Exchange

Under this alternative, the FS would acquire 31,741 acres of non-Federal lands and would convey 18,172 acres. There would be a net increase in Federal lands of 13,569 acres, which is 74.7 percent of the conveyed lands.

Indirect effects would ensue due to changes in ownership, management objectives, and management practices. Detrimental soil conditions are anticipated to increase on conveyed forestlands. The Oregon Forest Practice Administrative Rules for ground-based private logging (ODF 2004b) do not limit soil disturbance and detrimental soil conditions on slopes under 60% gradient (40% gradient for granitic soils). On steeper slopes, the rules limit total ground disturbance to 10%. In contrast, slopes over 30% gradient on National Forest lands are logged with low-impact cable systems (WWNF 1990). Observations of ground-based logging effects on private lands (Bliss 2003b) suggest DSCs would be at least 10% and would be near 20% in areas with high density skid trails. Therefore, slopes of forestlands in the 30% to 50% gradient range would more likely be logged with ground-based equipment after conveyance, compared to being logged with cable systems if they were not conveyed. Some conveyed forestland would likely be logged during times when soils are very moist to wet, when they are most susceptible to compaction and puddling. This has been occurring on parcels PU22A and 22B.

Detrimental soil conditions also are anticipated to remain the same or increase on conveyed rangelands, if those lands would not be included in an existing Federal grazing allotment. In this situation, Federal grazing standards, including conditions placed on the FS by the National Oceanic and Atmospheric Administration – Fisheries (NOAA – Fisheries) and the United States Fish and Wildlife Service (USFWS) for protection of endangered fish species would no longer apply. Therefore, soil compaction, puddling, displacement, and erosion would be expected to remain the same or increase on these rangelands, especially along streams.

Forest Plan soil productivity standards would be applied to acquired forestlands and rangelands. As land management activities are planned for these areas, detrimental soil conditions would be inventoried, and opportunities to maintain or improve soil productivity would be explored. Knowledge of current land management practices on some private lands, such as logging and road maintenance practices on parcel PU22A and PU22B and feed lots in or adjacent to riparian areas along the Imnaha River and tributaries, provides evidence that land management practices on at least some private parcels to acquire have caused high levels of DSCs.

The cumulative effects of potential changes in soil productivity for these lands can be represented in a general way by showing the trade-offs in ownership changes for commercial forestlands and for rangelands in allotments. More forestland is proposed to be conveyed, in every slope class,

than is being acquired, refer to Table 21. Two conclusions can be drawn from comparison of the data when considering FS and ODF logging requirements. First, there is potential for a net increase in DSCs on 3,538 acres of conveyed land in the 30-50% slope gradient class, plus a portion of conveyed land in the >50% slope gradient class (for 50-60% slope gradient). The maximum change would be from about 2% DSCs from road-related cable logging under Federal management to about 10-20% DSCs from ground-based logging under private ownership. The FS normally uses cable systems to harvest trees on slopes over 30% slope gradient, in contrast with private landowners who typically use ground-based logging systems on slopes up to about 50% gradient. Second, there is potential for a net increase in DSCs in riparian management areas on 13,024 acres of conveyed lands due to use of narrower riparian management area buffers on private lands compared with Federal lands. For instance, FS no-disturbance buffers for fish-bearing perennial streams are 200-250 feet wider than ODF buffers for fish-bearing streams, and FS buffers for non-fish-bearing streams are about 50-150 wider than for ODF buffers.

**Table 21. Alternative 1 – Acreage and Percent of Acquired and Conveyed Commercial Forestland as a Surrogate for Detrimental Soil Conditions**

	< 30% slopes	30 - 50% slopes	> 50% slopes	Total Acres <sup>2</sup>
Acres of Acquired Commercial Forestland	3,961	1,071	569	5,601
Acres of Conveyed Commercial Forestland	7,563	3,538	1,923	13,024
Difference (acres)	(-) 3,602	(-) 2,467	(-) 1,354	(-) 7,423
Difference (percent) <sup>1</sup>	(-) 47.6	(-) 69.7	(-) 70.4	(-) 60.0

1) Difference in acres/Conveyed acres)

2) There may be slight differences in acreages between other totals due to GIS analysis.

The FS would acquire 24,143 acres within allotments, while conveying 15,450 acres from allotments, for a net increase of 8,693 acquired acres (56.3%) (Bulthuis & Whittaker 2004), refer to Table 22. No consistent site-specific information was collected on grazing impacts on acquired and conveyed lands. However, casual observations of grazing impacts on soils in many parcels suggest that grazing-related DSCs (detrimental compaction, displacement, puddling, and erosion) average less than 1%. Such impacts exist on major trails, at stream crossings, in feedlots and corrals, and around salting areas. Casual observations of DSCs on acquired and conveyed lands suggest there is little net difference in soil impacts. The major difference in DSCs between acquired and conveyed lands is the existence of feeding sites and corrals on conveyed lands as shown in Table 23. There are about 0.04 to 5.0 acres of DSCs per site, for a total of about 15 acres. This would be about 0.06% of the proposed acquired acres. Some of these sites would be included in allotments and some would not.

**Table 22. Alternative 1 – Acreage and Percent of Acquired and Conveyed Rangelands in Allotments**

Current Acres	Acres to Acquire	Acres to Convey	Difference in Acres	Difference <sup>1</sup> Percent
1,164,648	24,143	15,450	(+) 8,693	(+) 56.3%

1) Difference in acres/Conveyed acres

**Table 23. Alternative 1 - Location of Known Feeding Sites and Corrals on Acquired Lands**

Parcel	Legal Description	Type of Facility	Near What Stream	Allotment
PW10A	T3N, R48E, Sec 13, NW NE	Feeding site	Imnaha River	Dodson Haas
PW10B	T3N, R48E, Sec 13, SE NW	Feeding site	Imnaha River	Dodson Haas
PW13B	T3N, R48E, Sec 23, NE NE	Feeding site	Imnaha River	Dodson Haas
PW20B	T2N, R48E, Sec 3, SW SW	Feeding site	Packsaddle Creek	Log Creek
PW20C	T2N, R48E, Sec 9, E1/2 NE	Feeding site	Imnaha River Tributary	Log Creek
PW24A	T1N, R48E, Sec 20, SE SW/SW SE	Feeding site	Big Sheep Creek	Middlepoint
PW24C	T1N, R48E, Sec 30, NE SE	Feeding site	Big Sheep Creek	Middlepoint
PW24D	T1N, R48E, Sec 31 E1/2 NE	Feeding site	Big Sheep Creek	Middlepoint
PW24H	T1N, R48E, Sec 20, NW SW	Barn/Corral	Camp Creek	Middlepoint
PW25D	T1N, R48E, Sec 21, W1/2 NW	Feeding site	Big Sheep Creek	None in allotment
PW34C	T3N, R45E, Sec 22, NE NE	Feeding site	Joseph Creek	Al Cunningham
PW27C	T1S, R48E, Sec 3, NW	Feeding site	Imnaha River	Middlepoint
PW39B	T4N, R43E, Sec 23, NE SW	Corral	Buck Creek Tributary	Buck Creek
PW39C	T4N, R43E, Sec 24, SE SW	Corral	Buck Creek Tributary	Buck Creek
PW48	T3N, R49E, Sec 28, SE NE	Litch Ranch Corral	Cow Creek	Dodson Haas

Probable unavoidable effects on soils, following the exchange of lands, would be a small net decrease in soil productivity due to a net increase in soil compaction, puddling, displacement, and erosion. It is highly probable that land management practices that emphasize short-term economic gains (i.e. increased logging and grazing) would cause long-term decreases in soil productivity. Existing permanent infrastructure (buildings, roads, ditches and reservoirs, etc.) on parcels proposed for acquisition represents an irretrievable commitment of soil resources to those uses. Upon acquisition, some of these infrastructures could be removed or decommissioned, resulting in the retrieval of the soil resource for soil productivity purposes.

There is a high probability that Federal lands exchanged to private ownership would be managed in a manner inconsistent with current Forest Plan standards and guidelines for soil productivity, in particular, the standard requiring DSCs to be kept under 20%.

The status of DSCs on private lands acquired would not be evaluated until a specific project was proposed for that area. If future analysis were to find that DSCs were above the 20% standard, or were otherwise less than desirable, a plan would be made to bring DSCs down to the desired level, where economically and environmentally feasible.

### **Alternative 2: No Action**

Under this alternative, the Proposed Land Exchange would not occur. There is no planned timber harvest activities on lands considered for conveyance under Alternative 1. Livestock grazing and road maintenance would continue, as in the past. Percent DSCs would not change over the 10-year period.

New actions are anticipated to occur on private lands considered for acquisition (non-acquired parcels) under Alternative 1. Additional logging is likely to occur and some recreational residences and access roads could be constructed. These actions would increase total DSCs on non-acquired parcels. DSCs in ground-based logging areas would increase due to additional entries, with total DSCs likely in the 10-20% range. DSCs in skyline logging areas likely would be less than 0.5%, excluding new roads.

### **Alternative 3: Purchase**

It is estimated that the FS could purchase approximately 4,297 acres of non-Federal parcels, which would be 13.5% of the Alternative 1 acreage to acquire. No land would leave Federal jurisdiction.

Indirect effects would ensue due to changes in ownership, management objectives, and management practices. DSCs on purchased lands would be similar to those described under Alternative 1, except the scale of effects would be much less...only about 10-15% of Alternative 1, because Alternative 3 is 13.5% of Alternative 1 acreage. DSCs on Federal lands would be the same as the No Action Alternative.

The FS would not be conveying forestland but would, however, be purchasing a nominal acreage (241 acres) of forestland as shown in Table 24 below. Acreage of and effects on acquired lands are (241 acres under Alternative 3 versus 5,601 acres under Alternative 1) 4.3% of Alternative 1, resulting in a proportionate reduction of inherited soil quality problems. Also, additional logging is likely to occur and some recreational residences and access roads could be constructed on non-acquired parcels. These actions would increase total DSCs on non-acquired parcels as described under the No Action Alternative.

**Table 24. Alternative 3 – Acreage and Percent of Acquired and Conveyed Commercial Forestland as Surrogate for Detrimental Soil Conditions**

	< 30% slopes	30 - 50% slopes	> 50% slopes	Total Ac
Acres of Purchased Commercial Forestland	100	56	85	241
Acres of Conveyed Commercial Forestland	0 ac	0 ac	0 ac	0 ac
Difference (acres)	(+) 100	(+) 56	(+) 85	(+) 241
Difference (percent) <sup>1</sup>	NA	NA	NA	NA

1) Percent is meaningless because all numbers are infinity; NA = not applicable.

Table 25, below, shows the FS would acquire 12,019 acres within allotments, while conveying none (Bulthuis & Whittaker 2004). Effects would be as described under Alternative 1, except they would be proportionately less. Table 26 shows acquired lands with feeding sites and corrals. Total acreage of DSCs for these sites is about 7.5 acres, or 50% of the effect discussed under Alternative 1.

**Table 25. Alternative 3 – Acreage and Percent of Purchased Rangelands in Allotments**

Current Acres	To Purchase Acres	Difference in Acres	Difference <sup>1</sup> Percent
1,164,648	12,019	(+) 12,019	(+) 100%+

1) Difference in acres/Conveyed acres

**Table 26. Alternative 3 - Location of Known Feeding Sites and Corrals on Purchased Lands**

Parcel Number	Legal Description	Type of Facility	Near What Stream?	Allotment
PW10A	T3N, R48E, Sec 13, NW NE	Feeding site	Imnaha River	Dodson Haas
PW10B	T3N, R48E, Sec 13, SE NW	Feeding site	Imnaha River	Dodson Haas
PW13B	T3N, R48E, Sec 23, NE NE	Feeding site	Imnaha River	Dodson Haas
PW20C	T2N, R48E, Sec 9, E1/2 NE	Feeding site	Imnaha River Tributary	Log Creek
PW25D	T1N, R48E, Sec 21, W1/2 NW	Feeding site	Big Sheep Creek	Not in allotment
PW27C	T1S, R48E, Sec 3, NW	Feeding site	Imnaha River	Middlepoint
PW39C	T4N, R43E, Sec 24, SE SW	Corral	Buck Creek Tributary	Buck Creek
PW48	T3N, R49E, Sec 28, SE NE	Litch Ranch Corral	Cow Creek	Dodson Haas

**Alternative 4: Deed Restriction**

The FS would acquire approximately 17,119 acres and would convey approximately 18,172 acres. There would be a net decrease in Federal lands of 1,053 acres or (-) minus 5.8 percent of conveyed lands.

The indirect effects would ensue due to changes in ownership, management objectives (including deed restrictions), and management practices. Effects on acquired lands would be as discussed under Alternative 1, except the effect would be about 54% of Alternative 1 levels based on

prorated acres. DSCs on conveyed lands (the same acreage as Alternative 1) would be less than those described under Alternative 1 because the 8 deed restrictions would require logging, grazing and road construction to be done according to Federal standards to protect endangered fish habitat and to maintain water quality. Most of the potential increase in DSCs on conveyed forestlands, as described under Alternative 1, would also occur under Alternative 4. The difference is there would be few or no effects within 300 feet of fish-bearing streams. Effects on conveyed rangelands outside of range allotments would also be reduced due to the restrictions.

Restrictions 1a, 2, 4, 5, 6 and 8 would prevent logging, roading, and certain grazing-related DSCs from occurring within 300 feet of Category 1 streams, i.e. fish-bearing perennial and intermittent streams. Restriction 1b would prohibit logging within 150 feet of Category 2 streams, i.e. non-fish-bearing perennial streams. Restriction 1c would prohibit logging within 100 feet of Category 4 streams, i.e. non-fish-bearing intermittent streams. Restriction 3 would limit DSCs by limiting the grazing season. Restriction 7 would limit DSCs by reducing the potential for fill and streambank erosion during floods.

Table 27, shows that more forestland is being conveyed, in every slope class, than is being acquired; the acreage and effects for these conveyed lands are exactly the same as for Alternative 1. However, acreage of and effects on acquired lands are (2,922 acres under Alternative 4 versus 5,601 acres under Alternative 1) 52% of Alternative 1, resulting in a proportionate reduction in soil quality problems acquired in this alternative. Also, some additional increase in DSCs may occur on non-acquired parcels due to private management actions as described in the No Action Alternative.

**Table 27. Alternative 4 – Acreage and Percent of Acquired and Conveyed Commercial Forestland as Surrogate for Detrimental Soil Conditions**

	< 30% slopes	30 - 50% slopes	> 50% slopes	Total Acres
Acres of Acquired Commercial Forestland	2,039	438	445	2,922
Acres of Conveyed Commercial Forestland	7,563	3,538	1,923	13,024
Difference (acres)	(-) 5,524	(-) 3,100	(-) 1,478	(-) 10,102
Difference (percent) <sup>1</sup>	(-) 73.0	(-) 87.6	(-) 76.9	(-) 77.6

1) Difference in acres/Conveyed acres

Table 28 below, shows the FS would acquire 12,201 acres within allotments, while conveying 15,450 acres from allotments, for a net decrease of 3,249 acres (21%) of conveyed lands (Bulthuis & Whittaker 2004). When considering feeding sites and corrals, the only difference between Alternative 1 and Alternative 4 is this alternative does not include the corral in PW39B.

**Table 28. Alternative 4 – Acreage and Percent of Acquired and Conveyed Rangelands in Allotments**

Current Acres	Private and State Acres to Acquire	FS Acres to Convey	Difference in Acres	Difference <sup>1</sup> Percent
1,164,648	12,201	15,450	(-) 3,249	(-) 21.0 %

1) Difference in acres/Conveyed acres

### **Alternative 5: Preferred Alternative**

Under this alternative, the FS would acquire 30,837 acres of non-Federal lands and would convey 16,473 acres. Federal lands would have a net increase of approximately 14,364 acres, which is 87.2 percent of the conveyed lands. The potential for detrimental soil conditions are similar to Alternative 1. Refer to the Alternative 1 Environmental Consequences section for information pertaining to Alternative 5.

### **Minerals**

The purpose of this section is to assess the potential for occurrence of and the potential for development of valuable minerals within the proposed Blue Mountain Land Exchange parcels. All Federal and non-Federal parcels proposed for exchange were evaluated in the Minerals Specialist Report dated 2/20/2004. This report is located in the Project Record (PR).

Non-Federal and Federal lands were analyzed for their land status and mineral potential, and also reviewed for the presence of potentially hazardous mining-related substances and public safety issues. Geologic and mining history research was conducted in preparation for field reconnaissance. Known or estimated mineral occurrences were noted, and the locations of historic and current mining operations were noted from several mining history publications. The Bureau of Land Management (BLM) mining claims database was also consulted for industry interests by noting the presence of past or current mining claims in the immediate area of the parcels. Parcels were selected for field reconnaissance based on their proximity to these known surface mineral occurrences, mining activities, mining claims, geology, and land status (i.e.: patented mining claims).

Aerial photos were also used for several of the properties before field visits to determine the possible presence of mining activities on parcels that did not have potential for such based on their geologic location. For example, most of the non-Federal and Federal properties are located on basalt and andesite flows of the Columbia River and Strawberry Mountain events. There is no historic or current evidence of mineral activity or interest in these areas, other than the subsurface resources of oil and gas and geothermal. It was not necessary to visit parcels with potential only for oil and gas or geothermal resources, as these are subsurface resources that have no surface indicators.

Specific parcels visited during field review are listed in the Minerals Report located in the PR. Discussions of findings that would influence this analysis can be found under specific mineral commodity types discussed below. All of the mineral evaluations for the Proposed Exchange parcels were begun with historical and current research by State and Federal agencies such as the Oregon Department of Geology and Mineral Industries, BLM, US Geological Survey, and the Department of Energy. The discussion on classification of potential for each parcel is in compliance with BLM Manual 3031 – Energy and Mineral Resource Assessment (USDI, 1985).

### **Affected Environment**

The project area is included within the Blue Mountain Region island-arc (Vallier, 1995), which is composed of Late Jurassic to Early Cretaceous plutonic and sedimentary rocks. Most of the area is now covered by 16 millions year old flood basalts that originated in the area of eastern Oregon and Washington, and southwestern Idaho. These basalt flows have interbeds of tuffaceous siltstones, sandstones and clays (Ferns, 1985). Subsequent erosion of these basalts provides

“windows” to the underlying older rocks. A local geology discussion and brief description of the underlying older rocks can be found in the PR.

### **Mineral Deposits - Locatable Minerals**

The Blue Mountain Province contains historic deposits of placer and lode mineralization that have been exploited since the 1860s. The “gold belt of the Blue Mountains” (Lindgren, 1901) is about 50 miles wide and 100 miles long, extending from Hells Canyon on the east to John Day on the west. Almost all of the placer and lode mining occurred in this part of the project area. Additional occurrences of copper, zinc and molybdenum occur in the Hells Canyon area along the Snake River.

### **Mineral Deposits - Placer**

Placer gold was first discovered in northeast Oregon in the mid 1800s (Brooks and Ramp, 1968), and was actively pursued in a number of gold rushes, predominantly in the 1860s to 1880s, then again with the bucket line dredges from the early 1910s up to 1954. From then to the present, the majority of placer operations have been small companies and individuals conducting sporadic exploration with limited production.

Very few of the included non-Federal and Federal parcels appear to contain placer deposits that are historically known for gold exploration or production. The non-Federal parcel PM 5 on Deep Creek is a patented placer claim. Historical research for the Deep Creek property did not reveal specific records of activities or production from this site, just a brief reference that placer mining had occurred on Deep Creek in the Susanville area. Field reconnaissance on September 9, 2002 revealed that the banks of Deep Creek within the boundaries of this claim had been hydraulically mined, and the river gravels had been worked.

The non-Federal parcels PW35A, B and C adjacent to Hurricane Creek are three patented placer claims, the Butte, the Blue Bird, and the Cougar, totaling 471 acres. Literature research did not reveal recorded history of operations or production from this property, nor what these claims were patented for. There are also no indications that placer mining occurred on these claims. The claims are located on the lower mid-slope east of Hurricane Creek, and contain 5 or 6 steep intermittent stream channels. Upslope from these claims is an extensive exposure of contact between Jurassic limestones and younger granitic intrusions. The Legore Mine copper, gold, silver and molybdenite property is located on this contact approximately one mile upslope of these placer claims, and is likely the source of minerals sought for in patenting these placer claims. It is likely that residual minerals could be located in gravels in these intermittent stream channels, but apparently these minerals were of insufficient quality and quantity to warrant any development or production. A detailed sampling and economic analysis for this property has not been done.

The private land adjacent to the Bridge Creek Wildlife Area (PU16F and G) shows evidence of small scale historic hydraulic or ground sluicing on the north banks of the John Day River. There is no evidence of recent placer work in this area, nor are there any unworked highbar gravels on these parcels.

There are no other patented placer claims involved in this exchange, and no other historic or projected placer deposits evident on the non-Federal parcels.



Federal parcels currently have no placer mining claims located on or near them. Those Federal parcels in the “gold belt of the Blue Mountains” visited and/or researched revealed no potential for economic placer deposits.

In summary, all of the parcels included in the Proposed Exchange are classified as having low potential for placer deposit occurrence and development.

### **Mineral Deposits - Lode**

Lode deposits were discovered shortly after the placer mining began. Lode gold deposits were predominantly in the same general locations as the placer deposits, as described above. There were also mercury deposits in the vicinity of the State parcels PM 21, and PM25-31, however, field review and literature search of this area revealed no known mercury occurrences on or adjacent to these parcels.

Extensive historic hard-rock exploration with limited production occurred in Hells Canyon along the Snake River from Copperfield just east of Halfway to the Oregon/Washington border. Some exploration and underground development with very limited production occurred nearer the subject lands in the Imnaha River drainage near its confluence with the Snake River. The Mountain Chief mine at the confluence of the Imnaha with the Snake River did produce a limited amount of copper resources. This material was stockpiled adjacent to the Imnaha River in the early 1900s, however, the proposed mill was never completed, and this stockpile still remains. Non-Federal parcels PW1, PW2A, B and C, and PW6 are patented lode mining claims located along the Imnaha River four miles upstream from the Snake. All of these claims were patented in the early nineteen hundreds; however, none of them ever developed more than a few hundred feet of underground exploratory drifting, and none went into production. Currently, the adits are somewhat accessible by foot, but they are mostly overgrown from 80 or 90 years of neglect. Parcel PW8A has a shallow shaft and several exploratory pits. There is no indication or literature available that would indicate the age of these workings.

In the Lostine drainage, non-Federal parcel PW37 is a portion of a patented lode mining claim named “Big Joe”. This portion lies west of the Lostine River, and is in the Lostine River floodplain. Field and literature review showed no evidence of lode mining activity.

Non-Federal parcels PW47A and B are the Frasier patented lode group containing three lode claims named Golden Gate, Golden Gate No. 1 East, and Sunset, all patented in 1916. They are situated at Hawkins pass, at an elevation of 8,400 feet in the center of the Eagle Cap Wilderness. The claims exhibit copper, gold, tungsten and molybdenum bearing minerals. The property was developed in 1914 by surface cuts and underground exploratory drifts. Field and literature review indicate that little has occurred at this mine since it was patented.

Parcels PW1, PW2A, B and C, and PW6 in Hells Canyon, parcel PW37 in the Lostine drainage, parcels PW35A, B, and C in Hurricane Creek, and parcels PW47A and B at Hawkins Pass are the only non-Federal parcels that were patented from Federal jurisdiction due to expected values of locatable minerals. The parcels in Hells Canyon and Hawkins Pass show evidence of some development, but no production. The other parcels show no evidence of mineral development. With the exception of the Hawkins Pass property, these parcels do not contain measurable quantities of valuable locatable minerals. Therefore, these parcels would have a moderate potential for occurrence. No attempt was made to estimate actual acres, tons, or cubic yards of potential lode mineralization. An economic analysis located in the PR, revealed that the

occurrence potential for the Hawkins Pass property is high, however, the development potential for this property is low. All of the remaining non-Federal parcels are rated as having low to no potential for occurrence and development of locatable minerals.

The mineral estates of the Hawkins Pass property would have public domain status upon consummation of this exchange, but would be withdrawn from mineral entry, as they are located in currently withdrawn areas.

Based on the lack of current or historic locatable mineral development, the apparent lack of industry interest, and the mapped and inferred geology of each of the Federal parcels, the potential for economic locatable mineral occurrence and development is low to none.

### **Mineral Deposits - Saleable Materials**

The majority of non-Federal and Federal parcels are located on volcanic flows of basalt, andesite and rhyolites of the Columbia River basalt group and the Strawberry Mountain flows. These rocks are suitable for crushing for road construction and other similar purposes. Numerous pits throughout the project area provide the supplies demanded by the public and Federal and State agencies, however, none of these active pits are located on the Proposed Exchange lands. These lands do not appear to contain these resources in values or quantities above that of the surrounding lands.

Considering the high variety of rock types outcropping in the project area as observed during field reviews, all of the parcels would be classified as high potential for occurrence.

Based on the lack of current development on the subject lands but the presence of old pits not currently in use, the potential for development of these resources is moderate.

### **Mineral Deposits - Leasable Minerals**

#### **Oil and Gas**

More than half of the subject lands are underlain by the Columbia Basin and Central Oregon Mesozoic Basins (Olmstead, 1989), containing a major deposit of mostly marine sedimentary rocks. The Columbia Basin is structural, with a thickness up to 20,000 feet of arc-derived marginal and non-marine Cretaceous to late Tertiary sediments. They are covered with thick Miocene Columbia River Basalt flows which are an impediment to oil and gas exploration.

Some of the sediments known to exist beneath these basalts are marine organic shales and mudstones that may be mature, oil-prone source rocks (Tennyson, et. al., 1987). Miocene and younger structural folds in the area could also provide for oil and gas traps and seals. Although the geology of this area indicates the potential for oil and gas occurrences, very little exploratory drilling has been done. The majority of oil and gas occurrences are actually incidental to other activities (Olmstead, 1989), and all occurrences have been insignificant.

Due to the lithology and geologic structure of the area included in the Columbia Basin and the Central Oregon Mesozoic Basins, and the literature cited, the area within these basins is classified as having moderate potential for oil and gas occurrence. There are approximately 19,446 acres of non-Federal mineral lands that are classified as having moderate potential for oil and gas occurrence. The remaining 12,300 acres of non-Federal mineral lands are classified as having low potential for oil and gas occurrence.

There are approximately 15,170 acres of Federal mineral lands that are classified as having moderate potential for oil and gas occurrence. The remaining 2,604 acres of Federal mineral lands are classified as having low potential for oil and gas occurrence.

There are no known private oil and gas leases on the subject Federal or non-Federal lands. Because no substantial exploration occurred during high oil prices, and in the time since the last price spike, it is unlikely that any would occur in the foreseeable future. Therefore, the potential for oil and gas development on either the non-Federal lands or the Federal lands are low to none.

### **Coal/Lignite**

Coal and lignite deposits in the area of the subject lands are contained in the sedimentary interbeds between the individual Columbia River Basalt flows (Ferns, 1985); however, none of the subject non-Federal or Federal lands has identified actual lignite outcrops. Refer to the Mineral Report in the PR for a detailed discussion on coal/lignite occurrences near the Proposed Exchange parcels.

There are 2,162 acres of non-Federal lands in Wallowa County where geologic mapping projects the Grouse Creek formation beneath the area containing these parcels. There are also 1,787 acres of Federal lands in this same area with the same formation projected beneath them. These non-Federal and FS acres would therefore be classified as having moderate potential for lignite occurrence based on their proximity to known lignite deposits and inferred geology that supports this type of deposit. The likelihood of economic development of any potential lignite resources on these subject lands is low.

There are 189 acres of Federal lands in Morrow County that are in close proximity and similar geology as the Willow Creek Coal Field. These Federal lands would therefore be classified as having moderate potential for lignite occurrence. The likelihood of economic development of any potential lignite resources on these Federal lands is low.

The remaining non-Federal and Federal lands are classified as having low to no potential for lignite occurrence, and therefore low to no potential for lignite development.

### **Geothermal**

Geothermal resources in Oregon are mostly associated with the volcanic regions of the Cascades and the highly fractured and faulted area of southeast Oregon. The project area has a higher than normal geothermal gradient, between 60 and 90 degrees C, which is attributed to a thin crust overlying a hot mantle, and lower than average thermal conductivity of the overlying rocks (Bowen, 1977). As a result, numerous warm and hot springs are present throughout the project area, indicating the potential presence of widespread, shallow geothermal resources. Geothermal resources are considered “blind” (Bloomquist, et. al., 1985) in that they are not limited to areas of surface manifestations such as hot springs and fumaroles. Consequently, estimating potential occurrences and qualities of this resource is uncertain.

None of the parcels included in this Proposed Exchange have known geothermal resources. Refer to the Minerals Report in the PR for a discussion on geothermal resource assessments by R. G. Bloomquist and Gerald L. Black.

Based on the proximity of known geothermal resources to the parcels included in this exchange, and on previous reports as cited in the Minerals Report, with the exception of the 58 acres of private land at Hawkins Pass (PW47A and B – low potential) all of the non-Federal and Federal

parcels included in this Proposed Exchange would be classified as having a moderate potential for occurrence of geothermal resources. There are approximately 6,243 non-Federal acres of high potential for exploration and development of geothermal resources. The remaining non-Federal acres would be classified as having a moderate potential for exploration and development, with the exception of the 58 acres at Hawkins Pass (PW47A & B), that would be classified as low due to its remoteness, and low classification for occurrence.

Based on the same information referred to above, there are approximately 2,386 FS acres of high potential for exploration and development of geothermal resources. The remaining FS acres would be classified as having a moderate potential for exploration and development.

### **Hazardous Mining Related Materials/Underground Workings**

There are no mining-related hazardous materials located on these properties. None of the properties had any level of mineral production that would have generated potentially hazardous mill tailings, and all mine properties were investigated for the presence of chemical storage.

Some of the non-Federal properties in Hells Canyon do contain underground workings that are currently open and accessible. These pose a potential threat to members of the public who might enter them. Hazards associated with these small mines include insufficient oxygen, falling rocks, hidden shafts (falling hazard), and wildlife. These workings may also contain sensitive bat populations common in the Hells Canyon area. Upon consummation of this exchange, two open portals should be gated. They are on the Pine Tree (PW6) and the Evening Star (PW2B). The estimated cost to install bat-friendly gates is estimated to be \$2,500 per portal. The appropriate level of NEPA would be completed prior to implementation. The Wild Irishman, MS 807 (PW1), also has two open portals but they are very inaccessible. These two portals do not represent a significant public safety hazard; therefore no gates are recommended for these portals.

### **Environmental Consequences**

Alternative 1 Federal and non-Federal land status as of the date of the Minerals Specialist Report is disclosed below. Alternative 1 has 169 non-Federal parcels belonging to a consortium of private landowners and the State of Oregon in exchange for 94 Federal parcels. The measurement indicator of acres available for mineral entry will be used to assist in comparing each alternative.

#### **Alternative 1: Proposed Exchange**

According to the title search conducted for the Proposed Exchange, there are approximately 4,632 acres of non-Federal lands that would classify as having outstanding mineral rights where all of the minerals do not necessarily belong to the current surface owners. The parcels with outstanding mineral reservations include PM 4 (outstanding 40 acres), PU 24 (outstanding 161 acres), PM18, PM20 (outstanding 960 acres), PM14, PM15, PM19 (outstanding 320.51 acres), PM5 (outstanding 50.23 acres), PM 28 (outstanding 161 acres), PM29 (outstanding 44 acres), PM30 (outstanding 641 acres), PM25 (outstanding 161 acres, PM 26 (outstanding 160 acres), PM27 (outstanding 159 acres), PM21 (outstanding 146 acres), PM31 (outstanding 160 acres), part of PW51D, PW3, PW4, PW48, PW5 (outstanding 916 acres), PW51C (outstanding 40 acres), PW35A, PW35B, PW35C (outstanding 470.35 acres) and PW37 (outstanding 4 acres). The majority of these mineral acres are clearly in outstanding status, retaining all minerals to a previous owner. However, there are 2,548 acres of the 4,632 acres where 50% undivided interest was reserved to a former owner, including 1,632 acres where the State of Oregon owns an

undivided 50% of the mineral estate. Upon completion of this Proposed Exchange, the United States would own a 50% undivided interest in these 2,548 acres of minerals, and these minerals would have public domain status. In the total acres of outstanding minerals are 4 acres of outstanding mineral rights associated with the patented lode mining claims included with Mineral Survey 774 (parcel PW37). This mineral reservation is for 49% of all minerals for a period of 30 years, beginning in 1968. That time period could be extended beyond the 30 years if the minerals were brought into production, and production continued beyond 1999 when the reservation would normally have terminated. These lands were sold in 1987, and this reservation was discussed in that deed as well. To date, there has been no production of minerals on these lands; therefore, it is assumed that these minerals are no longer in outstanding status. There are also four patented placer claims included in this exchange that have the standard lode mineral reservation (PW35A, B and C, and PM5), all lode deposits known to exist at the time of patenting are not included in the patent. However, according to BLM records, there are no lode mining claims on these patented placer properties, and no indication of known lode deposits within the boundaries of these claims, therefore, there were no known lode deposits on them at the time of patenting. If acquired, these minerals would become public domain open to mineral entry, if a legitimate mining claim on a known lode deposit did exist, this Proposed Exchange would have no effect on that lode claim.

Federal parcel FM9 (321 acres) has outstanding minerals from a former land exchange. As of May 22, 2003, there are no mining claims on any of the Federal parcels. All Federal lands subject to mineral entry were segregated on April 1, 2002. These lands would remain closed to mineral entry until a decision on the proposed land exchange occurs.

Case law has established that the mineral estate is dominant over the surface estate, that is, the owner of the private minerals has the right to use as much of the surface as is reasonably necessary to access and develop the mineral estate. Reasonable access to private minerals must be allowed. The following discussion refers to a few parcels of land currently managed by the Oregon Department of Fish and Wildlife (ODFW) in the Murderer's Creek area on the Malheur NF. These parcels proposed in the exchange: PM21, PM25, PM26, PM27, PM28, PM29, PM30, and PM31, are hereafter referred to as the State of Oregon Murderer's Creek parcels. Acquisition of the Murderer's Creek parcels would only include half of the mineral estate. Numerous attempts have been made in the past few years to bring the two half interests in the mineral estate together, with no success. An assessment as to the potential risk associated with the Murderer's Creek parcels acquisition was completed. It included measures in place to protect the interests of the United States if these parcels are acquired with half outstanding mineral rights. The assessment was based on information from the Area Mining Specialist; direction in FSM 2832, past attempts at exploration and development, and attempts to secure the outstanding mineral estate from the current owner. This assessment is summarized in the following discussion.

Access and surface operations are subject to Federal and State laws, but not subject to 36 CFR 228 regulations. Typically, the deed will state that the mineral estate owner has the right of ingress and egress. The deed to the parcels in question states that the grantor has "...reasonable rights of way for ingress and egress; provided that in the use of the surface, the said grantor, its successors and assigns, shall not unreasonably interfere with the use thereof for agricultural or ranching purposes by the grantee..." Usually, the rights under deeds can generally be defined by reference to State law. Access to all parcels except PM28 and PM29 is available; however, access to PM28 and PM29 would be quite difficult, as these parcels lie on very steep ground. The parcels are located in an area of moderate potential for occurrence of oil, gas, and geothermal resources.

The potential for development for oil and gas resources is low, and moderate to high potential for geothermal development. Currently, the economics of development are poor. In the mid-70's, much of the South Fork John Day River basin was surveyed and seismic testing was completed, but not specifically in the area where the Murderer's Creek parcels are located. A number of leases were acquired although no development ever took place. Subsequently, all leases expired with no activity. Procedures, should the mineral owner exercise his outstanding mineral rights, are outlined in Forest Service Manual 2832. The mineral owner submits a proposed operating plan to the Forest Supervisor. This operating plan is reviewed for consistency with the rights granted in the deed and for consistency with the Forest Plan. It is also evaluated to determine if it proposes to use the minimal surface area as is prudently necessary for the proposed operations. If the operating plan does not meet these criteria, the Forest Supervisor shall meet with the owner to negotiate modifications needed to make the plan acceptable, or at least attempt to do so. The State of Oregon also plays a part in this process, as there are State controls on mineral development under these circumstances. The Department of Geology and Mineral Industries (DOGAMI) acts as a referee in negotiating with the mineral estate owner regarding his Plan of Operations. When both the owner of the mineral estate and the surface owner agree to this Plan, and it complies with other State requirements, both parties must sign the Plan. The Plan is submitted to DOGAMI and a State permit is issued. The State will also secure a bond to cover the operation; however, that bond is usually of a limited amount - \$3000 for the first acre disturbed, \$2000 per acre after that.

The Blue Mountain Land Exchange facilitator has control over an undivided 50% mineral interest in the Murderer's Creek parcels, and has agreed to donate these minerals to the United States. These minerals would then take on Week's Act status, excluding them from mineral operations under the 1872 Mining Law, but allowing mineral development under the Mineral Leasing Laws and regulations, under which the agency has substantially more control. Subsequently, there would be less potential complication in managing the surface should the owner of the other 50% mineral estate, which would remain as outstanding, propose development of those minerals.

By not proceeding with the acquisition of the Murderer's Creek parcels, these parcels would remain in the State of Oregon ownership. Management options would remain as they are, however, State of Oregon's ability to pursue options desirable to them would be limited. Management costs common to private lands within the National Forest, i.e., access complications, boundary issues, etc., would remain if the Murderer's Creek parcels would not be acquired. There would also be a potential for these costs to increase if the State of Oregon were to sell these parcels to private interests. It is likely that acquisition of the Murderer's Creek parcels would assist the State of Oregon in furthering their mission while not adding an extraordinary burden to the United States. Should the outstanding mineral rights owner propose development, it is reasonable to conclude that adequate protection would be in place to ensure wise use of these parcels if the facilitator donates the other half interest in the mineral estate to the United States (Letter to Regional Forester/Split Mineral Estate/Murderer's Creek Parcels in PR).

On an acre-per-acre basis, the Federal government would realize a net increase in mineral estate acres and total mineral value under Alternative 1. The vast majority of the private parcels to acquire are currently owned fee simple. That is, the current owners own both the surface and mineral estates.

Many private parcels to acquire are inholdings within areas already withdrawn from mineral entry. These withdrawn areas include the HCNRA, the Hells Canyon Wilderness, the Imnaha and Snake Wild and Scenic River corridors within the HCNRA, the Lostine River Roadside and

Riverfront Zone, the Lostine Wild and Scenic River (the Recreation portion of this river was also withdrawn), and the Eagle Cap Wilderness. A total of 8,261 acres of non-Federal parcels are located in these areas (Refer to Table 29). The largest number of non-Federal parcels that would fall into this category is in the HCNRA. The HCNRA Act of December 31, 1975 (Public Law 94-199) includes the recreation area, the wilderness area, and the wild and scenic river corridors within the HCNRA. The Act specifically states:

Sec. 9 (g):

“... Upon acquisition of any such interest, the lands and/or minerals covered by such interest are by this Act withdrawn from entry or appropriation under the United States mining laws and from disposition under all laws pertaining to mineral leasing and all amendments thereto.”

There are also some Federal parcels within this area that are currently withdrawn.

Sec. 11:

“Notwithstanding the provisions of section 4(d) (2) of the Wilderness Act and subject to valid existing rights, all Federal lands located in the recreation area are hereby withdrawn from all forms of location, entry, and patent under the mining laws of the United States, and from disposition under all laws pertaining to mineral leasing and all amendments thereto.”

The Eagle Cap Wilderness Act of June 26, 1984, and PLO 1867 (October 28, 1988) withdrawing the Lostine River Roadside and Riverfront Zone and the Lostine Wild and Scenic River corridor, contains similar language withdrawing from all forms of appropriation. Table 29 identifies the non-Federal parcels located within these areas. Following implementation of Alternative 1, these acquired parcels would be withdrawn from mineral entry according to the provisions of the individual Act or Public Land Order under which these areas were withdrawn. Approximately 23,480 acres would be available for mineral entry.

**Table 29. Non-Federal Parcels within Withdrawn Areas**

Wilderness Area	Parcel	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Eagle Cap Wilderness	PW47A,B	58	0	58	58	58
Hells Canyon Wilderness	PW29	143	0	143	143	143
Lostine River	PW37	4	0	4	4	0
HCNRA	PW1	11	0	11	11	11
	PW2 A-C	61	0	0	0	61
	PW3	564	0	0	0	564
	PW4	40	0	0	0	40
	PW5	40	0	0	0	40
	PW6	9	0	0	0	9
	PW7 A-C	445	0	0	0	445
	PW8 A-C	726	0	0	0	726
	PW10 A,B	164	0	164	164	164

**Table 29. Non-Federal Parcels within Withdrawn Areas (continued)**

Wilderness Area	Parcel	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
HCNRA	PW11	41	0	41	41	41
	PW12	257	0	0	257	257
	PW13 A-D	197	0	197	197	197
	PW14	649	0	0	649	649
	PW15 A,B	274	0	0	274	274
	PW16 A-E	698	0	503	698	668
	PW17 A,B	517	0	0	517	517
	PW18	41	0	0	41	41
	PW19 A-C	384	0	363	384	384
	PW20 A-C	534	0	310	534	534
	PW21 A-D	383	0	383	383	383
	PW22	41	0	41	41	41
	PW23 A,B	114	0	114	114	114
	PW48	233	0	233	233	233
	PW25 A-E	680	0	606	680	645
	PW26 A-C	627	0	0	627	627
	PW27 A, C	207	0	127	207	207
PW28	119	0	119	119	119	
<b>Total Acres</b>		<b>8,261</b>	<b>0</b>	<b>3,417</b>	<b>6,376</b>	<b>8,192</b>

There are several Federal parcels currently located within withdrawn areas. The HCNRA contains parcels FW1D, FW1E, FW5, FW7 and FW8. The Lostine Wild and Scenic River Withdrawals contain FW17A and FW17C. The withdrawal would be revoked for all of these lands by the Department of Interior prior to conveyance.

### **Alternative 2: No Action**

In the No Action Alternative, private and State of Oregon parcels that are proposed for acquisition would not be acquired and Federal parcels that are proposed for conveyance would continue to be part of the National Forest System. The Federal government would retain its existing mineral estate. Any non-exchanged Federal parcels outside of withdrawn areas would be released from segregation and therefore open for mineral entry. Federal parcel FM9 (321 acres) would continue to have outstanding minerals from a former land exchange.

### **Alternative 3: Purchase**

The number of acres drops substantially from the Proposed Exchange Alternative as no lands would be conveyed and prioritized parcels would be purchased up to a given funding level. The mineral resource was not a factor used in prioritization for purchase.

In Alternative 3, there are approximately 237 acres of non-Federal lands to purchase that would classify as having outstanding mineral rights where all of the minerals do not necessarily belong to the current surface owners. The acquisition of split estates and the problems associated with this type of acquisition is documented in the effects analysis of Alternative 1. On an acre-per-acre basis, the Federal government would realize a net increase in mineral estate acres and total



mineral value because of the purchase of the non-Federal parcels. This increase would be significantly less than Alternative 1.

Under Alternative 3, a total of 3,417 currently non-Federal purchased acres are located in mineral withdrawal areas (Refer to Table 29). This table identifies the non-Federal parcels purchased within these areas. Following implementation of Alternative 3, these purchased parcels would be withdrawn from mineral entry according to the provisions of the individual Act or Public Land Order under which these areas were withdrawn. Approximately 1,065 purchased non-Federal lands would be available for development under mineral leasing laws in addition to all the non-exchanged Federal parcels outside of special withdrawn areas. These segregated Federal lands that were not in the special areas previously identified in Table 29 would be released from segregation and therefore also be open for mineral entry.

#### **Alternative 4: Deed Restriction**

Parcels conveyed would be the same as in Alternative 1, however deed restrictions would reduce the value of those acres, therefore less acres would be acquired. The Mineral resource was not a factor used in prioritization for acquisition.

In Alternative 4, there are approximately 1,469 acres of non-Federal lands to acquire that would classify as having outstanding mineral rights where all of the minerals do not necessarily belong to the current surface owners. The acquisition of split estates and the problems associated with this type of acquisition have been previously documented. On an acre-per-acre basis, the Federal government would not likely realize a net increase in mineral estate acres and total mineral value because fewer acres would be acquired than conveyed. The increase in mineral estate and total mineral value would be substantially less than Alternative 1 and somewhat less than Alternative 2.

Under Alternative 4, a total of 6,376 non-FS Acres are located in special mineral withdrawn areas (Refer to Table 29). This table identifies the non-Federal parcels acquired within these areas. Following implementation of Alternative 4, these acquired parcels would be withdrawn from mineral entry according to the provisions of the individual Act or Public Land Order under which these areas were withdrawn. Approximately 10,743 acquired acres would be available for mineral entry under this alternative.

There are several Federal parcels currently located within withdrawn areas. The HCNRA contains parcels FW1D, FW1E, FW5, FW7 and FW8. The Lostine Wild and Scenic River Withdrawals contain FW17A and FW17C. The withdrawal would be revoked for all of these lands by the Department of Interior prior to conveyance.

#### **Alternative 5: Preferred Alternative**

According to the title search conducted for the Preferred Alternative, there are approximately 4,592 acres of non-Federal lands that would classify as having outstanding mineral rights where all of the minerals do not necessarily belong to the current surface owners. The parcels with outstanding mineral reservations include all of the parcels listed in the Alternative 1 discussion except a part of PW51D (outstanding 36 acres) and PW37 (outstanding 4 acres). The landowner withdrew these from the Preferred Alternative. Refer to the Alternative 1 narrative for a discussion on outstanding mineral rights since this discussion is the same for Alternative 5 except

for the discussion of the 4 acre outstanding mineral rights associated with Survey 774 (parcel PW37).

On an acre-per-acre basis, the Federal government would realize a net increase in mineral estate acres and total mineral value under Alternative 5. The vast majority of the private parcels to acquire are currently owned fee simple. That is, the current owners own both the surface and mineral estates.

Many private parcels to acquire are inholdings within areas already withdrawn from mineral entry. These withdrawn areas include the HCNRA, the Hells Canyon Wilderness, the Imnaha and Snake Wild and Scenic River corridors within the HCNRA, the Lostine River Roadside and Riverfront Zone, the Lostine Wild and Scenic River (the Recreation portion of this river was also withdrawn), and the Eagle Cap Wilderness. A total of 8,192 acres of non-Federal parcels are located in these areas (Refer to Table 29). The largest number of non-Federal parcels that would fall into this category is in the HCNRA. The HCNRA Act of December 31, 1975 (Public Law 94-199) includes the recreation area, the wilderness area, and the wild and scenic river corridors within the HCNRA. The Act specifically states:

Sec. 9 (g):

“... Upon acquisition of any such interest, the lands and/or minerals covered by such interest are by this Act withdrawn from entry or appropriation under the United States mining laws and from disposition under all laws pertaining to mineral leasing and all amendments thereto.”

There are also some Federal parcels within this area that are currently withdrawn.

Sec. 11:

“Notwithstanding the provisions of section 4(d) (2) of the Wilderness Act and subject to valid existing rights, all Federal lands located in the recreation area are hereby withdrawn from all forms of location, entry, and patent under the mining laws of the United States, and from disposition under all laws pertaining to mineral leasing and all amendments thereto.”

The Eagle Cap Wilderness Act of June 26, 1984, and PLO 1867 (October 28, 1988) withdrawing the Lostine River Roadside and Riverfront Zone and the Lostine Wild and Scenic River corridor, contains similar language withdrawing from all forms of appropriation. Table 29 identifies the non-Federal parcels in Alternative 5 located within these areas. Following implementation of Alternative 5, these acquired parcels would be withdrawn from mineral entry according to the provisions of the individual Act or Public Land Order under which these areas were withdrawn. Approximately 23,550 acres would be available for mineral entry.

There are several Federal parcels currently located within withdrawn areas. The HCNRA contains parcels FW1D, FW1E, FW5, FW7 and FW8. The withdrawal would be revoked for all of these lands by the Department of Interior prior to conveyance.

## Hydrology, Wetlands, and Floodplains

The objective of this section is to describe the existing condition of the hydrologic system associated with the Proposed Land Exchange parcels and disclose the hydrologic direct, indirect, and cumulative effects. Wetland condition, floodplain function, water quality, riparian condition, and water yield are described with narratives and accompanying tables. The analysis areas used includes individual exchange parcels, 47 watersheds (5<sup>th</sup> field hydrologic unit code {HUC}), and sub-watersheds with the highest concentration of exchange parcels. The project area includes portions of 13 sub-basins, across four river basins.

### Laws and Regulations Applying to the Analysis

Executive Orders 11988, Floodplain Management and 11990, Protection of Wetlands, direct Federal agencies to preserve, restore, and enhance the natural and beneficial values of floodplains and wetlands in carrying out agency responsibilities for, among other activities, acquiring and conveying of Federal lands.

FSM 2527, Floodplain Management and Wetland Protection directs the agency to protect wetland values and prevent increased flood hazards. FS Handbook (FSH) 5409.13, Land Acquisition Handbook directs the agency to identify and document any loss of wetland values and any anticipated increases in flood hazard.

The FS and the State of Oregon Forest Practices Regulations both base aquatic protection on applying management restrictions or standards within riparian management zones, which are defined according to categories of beneficial use.

National Forests in Region 6, outside of the range of the spotted owl, have adopted PACFISH and INFISH as interim aquatic conservations strategies and have incorporated them into each Forest Plan. These strategies apply to the three Blue Mountain Forests, the Malheur National Forest, the Umatilla National Forest, and the Wallowa-Whitman National Forest, which are parties to this Proposed Land Exchange. Interim aquatic conservation strategies were adopted to protect Endangered Species Act (ESA) listed fish species and to maintain, restore, and preserve management options for the future. Interim Riparian Habitat Conservation Areas (RHCAs) are designated to protect, maintain, and allow the recovery of riparian management objectives (RMOs). Interim criteria for RMOs have been established for pool frequency, water temperature, large woody debris (forested systems), bank stability, lower bank angle (non-forested systems), and width/depth ratio to allow the measurement of attainment or progress toward attainment of riparian goals.

On NFS lands in the exchange, PACFISH/INFISH standards and guides are applied to management activities near channels and wetlands. These standards and guides direct that Watershed Analysis occur before any commercial harvest within RHCAs (Table 30). Any vegetation treatment within RHCAs is to be in support of riparian management objective criteria. Grazing and road management practices are to avoid adverse effects on listed fish species (USDA FS, 1995).

**Table 30. PACFISH and INFISH RHCA Widths**

<b>PACFISH &amp; INFISH</b>	Category 1 Fish Bearing	Category 2 Perennial non-fish bearing	Ponds, Lakes, Reservoirs, and Wetlands > 1 acre	Intermittent Streams and wetlands < 1 acre and landslide prone areas
<b>RHCA Interim Widths</b>	The greater of: the outer edge of the 100 year floodplain or 300 feet	The greater of: the outer edge of the 100 year floodplain or 150 feet	150 feet	100 feet or 1 mature site potential tree height in Key Watersheds. 50 feet in INFISH, non-key watersheds

On private and State of Oregon lands, the Oregon Forest Practices Act is used to regulate timber harvest and associated activities near channels. The Oregon Forest Practices Act and the Oregon Administrative Rules (OAR); Water Protection Rules identify protections for riparian areas, wetlands, and water quality. Rules related to management of roads and harvest near channels is summarized in the PR.

The purpose of the water protection rules is to protect, maintain, and (where appropriate) improve the functions and values of streams, lakes, wetlands, and riparian management areas (RMA). These functions and values include water quality, hydrologic functions, the growing and harvesting of trees, and fish and wildlife resources.

### **Affected Environment**

Climate varies across the Blue Mountain Province of Northeast Oregon. The western slopes of the northern Blue Mountains in the Umatilla Basin are influenced by marine weather systems that move east through the Columbia River Gorge. Precipitation exceeds many other areas in the region. The majority of the precipitation occurs in the winter months and early spring as snow at higher elevations. Rain-on-snow events are common in this basin. A mix of spring snowmelt dominated by annual peaks and winter rain-on-snow events generate annual peak hydrographs. The other physiographic provinces in the land exchange have similar climate patterns; continental climate with short, dry summers and long cold winters. The snow pack at higher elevations dominates the hydrograph, which has spring peak flows.

Precipitation declines from north to south, with the 30-year average equal to:

Aneroid Lake (Wallowa Mountains)	49 inches
High Ridge (Umatilla Basin)	50 inches
Tipton (Dixie Summit)	26 inches
Star Ridge (Strawberry Mountains)	21 inches

Large Pacific Northwest regional rain-on-snow events are the source of the floods of record in 1964, 1996, and 1997 and can occur from November through February in the Umatilla River Basin and portions of the Grande Ronde River Basin including portions of the Wallowa, Imnaha, and Grande Ronde rivers.

Most acres proposed in the Blue Mountain Land Exchange are located in the John Day River Basin on the south end of the Blue Mountains and in the Lower Snake River Basin, located in the north end of the Blue Mountains. Table 31 lists the river basins, affected watersheds, displays

ownership, and displays the acres proposed for exchange by affected watershed. Acreages, stream category, and miles of stream by category were calculated with the NFS Geographic Information System (GIS) and are approximate.

**Table 31. Watersheds, Ownership, and Proposed Exchange Acres**

Watershed Name	Watershed Ownership Acres						Exchange Acres	
	NFS	BLM	Other <sup>1</sup>	Tribal	Private	Total	FS To Convey	Private and State To Acquire
<b>Middle Snake/Powder River Basin</b>							<b>42</b>	<b>454</b>
Snake River/Indian Creek	69,173	17,941	20,011	0	10,610	117,736	0	153
South Fork Burnt River	45,232	2,719	393	0	26,934	75,278	42	0
Upper Eagle Creek	105,044	3,842	281	0	14,271	123,438		311
<b>Lower Snake Basin</b>							<b>5,007</b>	<b>13,789</b>
Snake River/Divide Creek	37,297	2,988	22,595	0	40,535	103,415	0	4
Upper Imnaha River	90,277	0	0	0	111	90,388	0	36
Middle Imnaha River	74,333	0	0	0	13,613	87,946	244	1,274
Big Sheep Creek	71,451	0	0	0	17,524	88,975	1,348	261
Little Sheep Creek	28,523	459	265	0	100,572	129,820	82	458
Lower Imnaha River	119,634	76	78	0	27,309	147,098	452	6,641
Meadow Creek	84,038	320	124	3,404	28,023	115,909	388	241
Grande Ronde River/Five Points Creek	37,252	435	1,486	0	48,710	87,882	9	36
Upper Wallowa River	56,332	0	48	0	101,359	157,739	409	481
Lostine River	43,685	0	774	0	13,614	58,073	13	4
Middle Wallowa River	515	0	61	0	84,395	84,971	124	0
Bear Creek	36,451	0	158	0	9,800	46,409	82	0
Lower Wallowa River	8,499	2,610	777	0	98,154	110,040	70	0
Grande Ronde River/Rondowa	50,366	3,263	5,120	0	55,871	114,619	0	157
Wenaha River	182,747	589	3,241	0	2,517	189,093	0	969

**Table 31. Watersheds, Ownership, and Proposed Exchange Acres (continued)**

Watershed Name	Watershed Ownership Acres						Exchange Acres	
	NFS	BLM	Other <sup>1</sup>	Tribal	Private	Total	FS To Convey	Private and State To Acquire
Chesnimnus Creek	63,654	0	6	0	58,981	122,640	0	1,538
Upper Joseph Creek	57,827	54	27	0	67,213	125,121	0	657
<b>Middle Columbia Basin</b>							<b>5,108</b>	<b>2,861</b>
Meacham Creek	75,919	171	89	5,202	32,696	114,078	3,976	2,671
Umatilla River/Mission Creek	1,512	804	54	102,949	6,194	131,398		190
Birch Creek	22,683	182	0	193	74,955	182,154	215	0
Upper Butter Creek	7,347	73	0	0	179,311	206,624	690	0
Upper Willow Creek	6,646	13	0	0	71,990	94,097	99	0
Rhea Creek	5,419	45	0	0	75,372	146,007	129	0
<b>John Day Basin</b>							<b>8,011</b>	<b>14,609</b>
Upper South Fork John Day River	63,403	398	0	0	30,843	94,644	0	41
Middle South Fork John Day River	51,492	16,477	399	0	53,360	121,727	0	224
Murderers Creek	65,104	9,637	8,702	0	1,496	84,940	0	1,202
Upper John Day River	54,590	242	0	0	51,882	106,714	137	0
Strawberry Creek	50,118	4,362	50	0	95,192	149,722	2,609	12
Beech Creek	40,630	121	35	0	30,088	70,873	617	1,800
Laycock Creek	30,417	705	630	0	76,499	108,251	0	1,428
Fields Creek	25,339	1,552	8,409	0	75,590	110,890	0	205
Upper North Fork John Day River	69,879	0	0	0	1,584	71,464	0	167
North Fork John Day River/Big Creek	96,879	313	1,559	0	7,118	105,870	0	4,064
Upper Camas Creek	85,812	1,386	0	0	17,489	104,688	0	959
Lower Camas Creek	57,579	444	13,255	0	85,711	156,989	1,925	152
North Fork John Day River/Potamus Creek	99,568	39,230	2,556	0	43,927	185,282	181	159
Wall Creek	95,353	12,027	0	0	20,969	128,349		2,246

**Table 31. Watersheds, Ownership, and Proposed Exchange Acres (continued)**

Watershed Name	Watershed Ownership Acres						Exchange Acres	
	NFS	BLM	Other <sup>1</sup>	Tribal	Private	Total	FS To Convey	Private and State To Acquire
Cottonwood Creek	32,951	2,742	31	0	113,354	149,078	152	160
Lower North Fork John Day River	7,091	15,425	0	0	94,511	117,028	2,389	405
Upper Middle Fork John Day River	75,909	37	0	0	2,331	78,277	0	514
Camp Creek	120,691		0	0	5,193	125,884	0	112
Big Creek	64,188	290	484	0	46,594	111,556	0	441
Long Creek	29,882	78	0	0	100,536	130,497	0	163
Lower John Day River/Kahler Creek	32,893	11,789	589	0	152,726	197,997	0	156

1) Other – includes BIA, Corps of Recreation, State of Oregon and County ownerships

### Wetlands, Floodplains, and the Stream Network of the Exchange Area

Wetlands gains and losses were evaluated to meet Executive Order 11990. All wetlands were identified and their area measured on color aerial photography at various scales, primarily 1:24,000. At this scale, narrow wetland areas associated with smaller channels or under tree canopy cover would not be identified. Miles of stream, which would be conveyed or acquired, were used to index these potential unidentified wetlands.

Wetlands are generally identified as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas”(U.S. Army COE, 1987). Seasonally wet meadows account for most of the identified acres of wetlands that would be included in the Proposed Land Exchange (Table 32). Most are associated with stream channels (riverine wetlands), though some are not (palustrine wetlands). Wetlands perform many functions in the hydrologic system including subsurface water storage and improvement of water quality. Their contribution to wildlife and aquatic habitat make them among the most productive of all sites.

Floodplain gains and losses were evaluated to meet Executive Order 11988. Floodplains associated with seasonally wet meadows were calculated using GIS generated channel length and assigning estimated widths. All floodplains in the Proposed Land Exchange are less than 200 feet wide (Table 32). Parcels that include portions of mainstem river bottoms were evaluated for floodplain area including the Imnaha River and several of its tributaries, Meacham Creek, and one parcel on the North Fork John Day River. Channel lengths were determined from maps (scale 1:24,000) and GIS stream network reports. Floodplain width in the Imnaha system was estimated from averages of “primary riparian widths” measured during fish habitat surveys conducted by personnel on the Wallowa-Whitman National Forest (Wallowa-Whitman National Forest, 1991-1993). Meacham Creek floodplain widths were based on cross-section measurements of flood-

prone width (100 year floodplain) conducted during an assessment sponsored by the Confederated Tribes of the Umatilla Indian Reservation (Andrus and Middel, 2003). Floodplains are those areas adjacent to channels that are occupied and formed by occasional high water events. Floodplains play an important role in dissipating high velocities associated with high flow events, and in providing slow and slack water refuge areas for fish and other aquatic animals.

**Table 32. Wetlands and Floodplains Acres in the Proposed Exchange**

Watershed Name	Wetlands Acres			Floodplains Acres		
	Convey	Acquire	Comments	Convey	Acquire	Comments
Middle Imnaha River	0.0	0.0		0.0	14.9	mainstem
Big Sheep Creek	0.0	0.0		4.0	4.0	corners of conveyed parcels
Little Sheep Creek	0.0	0.0		0.0	6.7	mainstem
Lower Imnaha River	0.0	0.0		0.0	60.5	Horse Creek, Cow Creek, plus mainstem
Meadow Creek	0.0	15.0	Meadow Creek, McCoy Creek	0.0	3.6	Mainstem
Grande Ronde River/Five Points Creek	0.0	2.2		0.0	0.0	
Wenaha River	0.0	5.0		0.0	0.0	
Chesnimnus Creek	0.0	134.0	Thomason Meadow, Steen's Ranch	0.0	7.3	mainstem
Upper Joseph Creek	0.0	24.0		0.0	9.0	mainstem
Meacham Creek	0.0	0.0		0.0	14.8	Butcher Crk. Confluence
Murderers Creek	0.0	121.0	Murderer's Creek, John Young Mdw. Etc.	0.0	14.0	assoc. with wetlands
Strawberry Creek	1.8	0.0		5.3	0.0	Bear Creek
Beech Creek	0.3	0.0		0.0	0.0	
Fields Creek	0.0	22.0	Aldrich Mt.	0.0	5.9	assoc. with wetlands



**Table 32. Wetlands and Floodplains Acres in the Proposed Exchange (continued)**

Watershed Name	Wetlands Acres			Floodplains Acres		
	Convey	Acquire	Comments	Convey	Acquire	Comments
Upper North Fork John Day River	0.0	67.0	Trout Mdw.	0.0	10.7	assoc. with wetlands
North Fork John Day River/Big Creek	0.0	27.0	Landslide topog, Clearcut	0.0	0.0	road between PU16G and river
Upper Camas Creek	0.0	10.3		0.0	2.4	mainstem
North Fork John Day River/Potamus Creek	0.0	8.0		0.0	1.1	
Wall Creek	0.0	32.0	Wilson Prairie	0.0	34.8	assoc. with wetlands
Lower North Fork John Day River	8.5	0.0	Includes Mud Spring	3.6	0.0	W. Fk. Deer Creek
Upper Middle Fork John Day River	0.0	146.0	Phipps Mdw., Bridge Creek Mdw.	0.0	15.0	assoc. with wetlands
Long Creek	0.0	46.0	Keeney Mdw.	0.0	0.0	
<b>Total</b>	<b>10.6</b>	<b>659.5</b>		<b>13.0</b>	<b>204.7</b>	

Note: Slight differences occur in totals due to rounding of figures.

Of the 263 parcels in the Proposed Exchange, 247 have stream channels (based on FS GIS mapping). Table 33 shows the miles in each stream category by HUC 5 Watershed

**Table 33. Alternative 1 – Miles of Stream by Watershed and by Stream Category**

Watershed Name	Conveyed Miles				Acquired Miles			
	Fish Bearing	Per-ennial	Inter-mittent	Total	Fish Bearing	Per-ennial	Inter-mittent	Total
Snake River/Indian Creek	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.4
Upper Eagle Creek	0.0	0.0	0.0	0.0	0.0	0.0	2.7	2.7
Upper Imnaha River	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2
Middle Imnaha River	0.0	0.0	3.9	3.9	4.2	0.0	9.6	13.9
Big Sheep Creek	0.5	1.3	7.9	9.7	1.6	0.0	1.3	2.9
Little Sheep Creek	0.0	0.0	0.7	0.7	2.7	0.0	3.0	5.8

**Table 33. Alternative 1 – Miles of Stream by Watershed and by Stream Category (contd)**

Watershed Name	Conveyed Miles				Acquired Miles			
	Fish Bearing	Perennial	Intermittent	Total	Fish Bearing	Perennial	Intermittent	Total
Lower Imnaha River	0.2	0.0	4.3	4.5	12.7	2.8	68.9	84.5
Meadow Creek	0.7	0.0	1.6	2.3	1.5	0.0	1.1	2.6
Grande Ronde River/Five Points Creek	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
Upper Wallowa River	0.0	0.8	2.2	3.0	0.0	0.6	3.0	3.5
Lostine River	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Middle Wallowa River	0.0	0.0	0.9	0.9	0.0	0.0	0.0	0.0
Bear Creek	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0
Lower Wallowa River	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0
Grande Ronde River/Mud Creek	0.0	0.6	7.3	7.9	0.0	0.3	1.5	1.8
Wenaha River	0.0	0.0	0.0	0.0	0.0	0.0	1.7	1.7
Chesnimnus Creek	0.0	0.0	0.0	0.0	1.5	0.1	3.5	5.1
Upper Joseph Creek	0.0	0.0	0.0	0.0	3.7	0.0	2.2	5.8
Meacham Creek	2.8	9.2	17.7	29.7	3.1	6.7	12.9	22.8
Umatilla River/Mission Creek	0.0	0.0	0.0	0.0	0.0	0.3	1.0	1.3
Birch Creek	0.0	0.4	1.3	1.7	0.0	0.0	0.0	0.0
Upper Butter Creek	0.0	0.8	1.0	1.8	0.0	0.0	0.0	0.0
Upper Willow Creek	0.2	0.0	0.2	0.5	0.0	0.0	0.0	0.0
Rhea Creek	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.0
Upper South Fork John Day River	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
Middle South Fork John Day River	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
Murderers Creek	0.0	0.0	0.0	0.0	3.3	0.0	4.6	8.0
Strawberry Creek	3.6	1.5	10.0	15.1	0.0	0.0	0.0	0.0

**Table 33. Alternative 1 – Miles of Stream by Watershed and by Stream Category (contd)**

Watershed Name	Conveyed Miles				Acquired Miles			
	Fish Bearing	Per-ennial	Inter-mittent	Total	Fish Bearing	Per-ennial	Inter-mittent	Total
Beech Creek	0.5	1.2	1.6	3.2	1.0	2.7	4.3	8.0
Laycock Creek	0.0	0.0	0.0	0.0	1.2	0.0	5.9	7.1
Fields Creek	0.0	0.0	0.0	0.0	0.0	2.4	0.0	2.4
Upper North Fork John Day River	0.0	0.0	0.0	0.0	1.2	0.3	0.3	1.8
North Fork John Day River/Big Creek	0.0	0.0	0.0	0.0	2.1	8.6	18.8	29.5
Upper Camas Creek	0.0	0.0	0.0	0.0	2.3	0.5	4.6	7.4
Lower Camas Creek	0.0	1.5	7.4	8.9	0.0	0.4	0.6	1.0
North Fork John Day River/Potamus Creek	0.0	1.0	0.4	1.4	0.4	0.0	1.2	1.7
Wall Creek				0.0	3.8	2.7	9.2	15.7
Cottonwood Creek	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0
Lower North Fork John Day River	1.4	0.8	4.9	7.0	0.0	0.0	1.2	1.2
Upper Middle Fork John Day River	0.0	0.0	0.0	0.0	2.1	0.2	1.4	3.7
Camp Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Big Creek	0.0	0.0	0.0	0.0	2.3	0.7	2.0	5.1
Lower John Day River/Kahler Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
<b>Total</b>	<b>9.9</b>	<b>19.5</b>	<b>74.2</b>		<b>50.8</b>	<b>29.4</b>	<b>169.7</b>	

Note: Slight differences occur in totals due to rounding of figures.

### Water Quality and Riparian Condition of the Exchange Area

Forested vegetation information was developed for each parcel in the Proposed Land Exchange; see “Blue Mountain Land Exchange Upland Forest Vegetation”, 2003 in the PR. Nearly half (58/126) of the parcels in the Lower Snake Basin are non-forested and are located in the Lower and Middle Imnaha River, the Big and Little Sheep Creek, and the Chesnimnus Watersheds.

Of the parcels with forested stands, many include non-forested acres so that acres of forested structure does not equal parcel acreage. Generally, forest cover is concentrated near channels; therefore, forest stand structure indicates streamside vegetation structure. Since nearly all parcels have stream channels, forest structure information on all parcels was used in this analysis. Stand initiation (SI) indicates young stands that would not provide shade or woody debris to channels due to the size of the trees and low expected natural mortality. Mid-structure indicates stands with tree heights that would provide shade, but little woody debris to channels. Late structure indicates old stands that would provide both shade and woody debris to channels. The Hydrology Specialist Report in the PR has a table displaying forest stand structure for all parcels in the Proposed Exchange Alternative by watershed.

## Environmental Consequences

The measurement indicator of net changes in ownership will be used to evaluate the potential for changes in wetlands and floodplain condition and function. Changes in forest stand structure will be the measurement indicator used to evaluate potential for changes in water quality, riparian condition, and water yield. It is assumed, for the purposes of this analysis, that merchantable timber will be harvested within ten (10) years on private lands and harvesting would be in compliance with the State of Oregon Forest Practices Act and Rules. It is further assumed the Forest Plan standards on the three National Forests party to this exchange would be implemented for all management activities on NFS lands. Since young (SI) stands are not merchantable, they will not be carried forward in the hydrologic analysis.

In the Proposed Exchange Alternative, six (6) watersheds account for 50% of exchange acres, twelve (12) watersheds account for 75% of exchange acres, and twenty (20) watersheds account for 90% of exchange acres. Forested vegetation information was developed for each parcel in the exchange (Diskin, 2003).

Stand structure information was used to analyze changes in the age distribution of forested stands as an indicator of the potential for changes in water quality and riparian condition as a consequence of anticipated planned management actions. Table 34 summarizes this information by alternative. The hydrology specialist report in the PR shows the distribution of stand structure across the 47 watersheds in the Proposed Exchange.

**Table 34. Summary of Forested Structure by Alternative (Acres)**

	Alternatives								
	1-Cv	1-Aq	2-Cv	2-Aq	3-Pr	4-Cv	4-Aq	5-Cv	5-Aq
Mid	10212	16255	0	0	859	10212	7516	9144	15689
Late	2648	697	0	0	4	2648	439	2485	693
Total	12860	16952	0	0	863	12860	7955	11629	16382

Mid – Mid-structure Stand Development, Late – Late Structure Stand Development  
Cv – convey, Aq – acquire, Pr - purchase

Harvest of conveyed lands to Oregon State Practices Act standards would allow harvest in or near channel areas that would not occur under current management by the FS. Forest Practices rules provide protection to ground cover and stand structure very near fish bearing, domestic supply, and larger channels (within 20 feet), restrict road development within 100 feet and skid trails within 35 feet of fish bearing streams for the largest streams. Roads are not located within RMAs.

Short season intermittent channels do not have identified RMAs, and skid trail location and basal area retention is not required.

Forested acres conveyed have a long history of management. Since the 1995 adoption of PACFISH/INFISH (Table 30), land near stream channels has been managed to provide vegetative components at site potential and to avoid ground disturbance near channels, and to prevent sedimentation into streams from harvest and other vegetation management activities (thinning, fuels reduction, etc.). Acquired lands would be managed to these standards unless changed through Forest Plan revision.

Stand structure within a mature tree height of stream channels provides direct benefits to water quality and to channels; shade, sediment storage, large wood structure, other material that contributes instream nutrients (FEMAT, 1993). Indirect effects to shade and to water temperature could occur where stand density is reduced within 50 to 100 feet of perennial or long flowing intermittent channels. Harvest within one to two mature tree heights of channels reduces down wood adjacent to and in the channel. This material plays an important sediment trapping function in both locations. Instream wood also plays an important role in the creation of fish habitat and in many streams is important to the morphology and stability of the channels themselves. Logging near channels removes the source of these benefits and modifies the age distribution of forest structure.

Soil disturbance associated with logging; temporary road construction, skid trail development, cable corridors, landing construction, opens the ground up to erosion. The amount and location of soil disturbance varies with logging system, harvest prescription, and riparian protection. Even-age harvest practices intensify these effects by removing more material and by disturbing more ground cover. On private land, management is generally not geared toward retention of late and old structure.

State Forest Practices Rules would protect water temperature to some degree, but some shade removal would be expected. For most parcels in the Proposed Land Exchange measurable increases in water temperature are unlikely to occur if Forest Practices Rules are followed. Localized soil disturbance near channels and removal of trees from near channel areas would lead to localized erosion and sedimentation effects (Belt et al, 1992). Long-term effects would be expected from reduced down and large wood over the life cycle of a stand.

Created openings in forested stands may lead to changes in transpiration and the timing and rate of snowmelt, which can lead to changes in water yield and peak flows. These relationships have been studied and documented by numerous studies. Recent reviews of literature demonstrate that the relationship is highly variable (Stednick, 1995 and Scherer, 2001). Generally, flow effects are not seen at less than a 15-20% reduction in hydrologically mature stands. Effects were not seen below 50% reductions in a multi-year study on the Umatilla National Forest (Helvey, 1995). Forested stands are estimated to reach hydrologic maturity at 25 years (Clifton, 1995). Mid and Late structure are assumed to be hydrologically mature in this analysis.

For most subwatersheds in the exchange, harvest on conveyed parcels would be insignificant relative to water yield and there would be no effect to this parameter. Hydrologic indicators are most sensitive at smaller scales. The fifteen (15) subwatersheds (SWS) where 5% or more of subwatershed acres are included in the Proposed Land Exchange were evaluated in detail (Table 35). Five percent (5%) was chosen as a conservative estimate of potential for cumulative effects

of harvest on water yield. The hydrology specialist report has a table in the PR that summarizes the merchantable timber structure for these subwatersheds.

**Table 35. Subwatersheds with 5% or More of Their Acres in the Land Exchange**

Subwatershed Name	Total SWS Acres	% SWS in Exchange	Conveyed Acres	% SWS Conveyed	Acquired Acres	% SWS Acquired
Imnaha River/Deer Creek	22998	5.2%	39	0.2%	1154	5.0%
Big Sheep Creek/Carrol Creek	16580	6.7%	1103	6.7%	0	0.0%
Lower Horse Creek	12742	8.0%	0	0.0%	1020	8.0%
Imnaha River/Thorn Creek	20852	18.3%	0	0.0%	3808	18.3%
Lower Mud Creek	10995	12.2%	947	8.6%	397	3.6%
Dry Gulch	11967	6.8%	0	0.0%	813	6.8%
Upper Chesnimnus Creek	19000	6.9%	0	0.0%	1303	6.9%
Butcher Creek	25760	25.8%	3971	15.4%	2671	10.4%
Bark Cabin	15995	6.6%	0	0.0%	1056	6.6%
Bear Creek	12448	20.2%	2516	20.2%	2	0.0%
North Fork John Day/Oriental	15740	8.8%	0	0.0%	1392	8.8%
Texas Bar	19904	13.4%	0	0.0%	2672	13.4%
Snipe	27606	5.0%	1377	5.0%	0	0.0%
Upper Wilson	26657	6.7%	0	0.0%	1780	6.7%
Upper Deer Creek	16467	15.1%	2249	13.7%	239	1.5%

### Alternative 1: Proposed Exchange

#### Wetlands and Floodplains

Tables 28 and 29 in the previous Affected Environment displays by HUC 5 watersheds the acres of conveyed and acquired wetlands, floodplains, and miles of stream in the exchange. The direct effects for Alternative 1 are summarized below (Table 36).

**Table 36. Summary of Wetlands, Floodplains, and Stream Channel by Alternative**

	Alternatives								
	1-Cv	1-Aq	2-Cv	2-Aq	3-Pr	4-Cv	4-Aq	5-Cv	5-Aq
Wetland Acres	11	659	0	0	7	11	347	11	608
Floodplain Acres	13	205	0	0	67	13	168	13	199
Fish Bearing Streams Miles	10	51	0	0	14	8	37	8	48
Perennial Streams Miles	20	29	0	0	2	19	14	17	29
Intermittent Streams Miles	74	170	0	0	33	73	116	67	161

Cv – convey, Aq – acquire, Pr - purchase

Alternative 1 would acquire 60 times more acres of wetlands and 16 times more acres of floodplains than it would convey. Discussion on major individual wetland and floodplain acquisition is documented in the Hydrology Specialist Report in the PR.

Acquired wetlands include numerous meadows in varying condition. Nearly all of the parcels with acquired wetlands (seasonally wet meadows) are in existing allotments and would continue to be grazed. Grazing standards for the proposed acquired lands were adopted into the Forest Plans in 1995 from PACFISH. Current grazing management would continue after the exchange. Acquired wetlands with adjacent timber would be protected from logging and associated activities by PACFISH RHCA Standards and Guides designed to protect hydrologic function and habitat values.

Conveyed wetlands are mostly narrow and adjacent to streams or seasonally wet meadows. The Oregon Forest Practices Act and the OARS Water Protection Rules are intended to protect them from direct impacts of logging and discourage road construction that could damage their hydrologic function.

Acquired floodplains are mostly relatively narrow and confined by steep canyon walls. The Butcher Creek confluence with Meacham Creek channel has a relatively wide floodplain, resulting in the acquisition of 15 acres of floodplain.

Conveyed floodplains are mostly small segments of floodplain associated with seasonally wet meadows. They are less than 20 feet wide and located in remote areas with little development pressure. There would be no increase in flood hazard from the conveyance of 13 acres of floodplains.

### Stream Channels

The NFS would acquire approximately 2.4 times as many miles of stream as would be conveyed (Table 33). This includes about 5 times the number of miles of fish bearing streams, 1 ½ times

more perennial non-fish bearing streams, and more than twice the miles of intermittent streams. The Innaha system, Meacham Creek, and the North Fork John Day (Texas Bar sub watershed) account for most miles. Streams that would be acquired would be managed according to PACFISH/INFISH standards. Standards and Guides applied to interim RHCA widths would protect any wetlands adjacent to channels that have not otherwise been identified.

Conveyed streams would have less protection. The Oregon Forest Practices Act and the OARS Water Protection rules are intended to protect narrow wetlands associated with streams.

### **Water Quality, Riparian Condition, and Water Yield**

Parcels in the Proposed Land Exchange are widely dispersed and generally make up a very small portion of the land base at a Watershed (HUC 5) or Subwatershed (HUC 6) scale (Table 35). Generally, the magnitude of water quality effects of the land exchange would be expected to be low on both the watershed and subwatershed scale. The magnitude of effect would be related to geographically concentrated harvest activities and to the time frame in which they would occur. Subwatersheds with substantial acres in the Proposed Land Exchange are discussed below.

### **Subwatersheds with Conveyed Timbered Lands- Water Quality, Riparian Condition, and Water Yield**

#### **Butcher Creek Subwatershed**

Meacham and Butcher Creeks are fish-bearing streams that are subsurface for portions of the year in exchange parcels. The Butcher Creek subwatershed has a high percentage of its acres proposed for exchange. The exchange proposal would block up land on either side of Meacham Creek and lower Butcher Creek. Butcher Creek has good channel condition.

The FS would convey about 1½ times as much merchantable forest structure (convey 2,700 acres of mid and late forest structure, and acquire 1,690 acres of mid and late forest structure). It would be expected that the conveyed merchantable material would be harvested within 10 years. Protections for streams would decline on conveyed lands and would increase on acquired lands. There is nearly no surface water during summer months in the conveyed parcels therefore harvest near channels on these lands would not affect water temperature on site or downstream of the project area.

Soil disturbance near channels would increase on conveyed parcels due to logging and accompanying activities. This could lead to increased sedimentation into Butcher Creek and Meacham Creek for several years following harvest. Recruitment of woody structure in Butcher Creek would be reduced over the long term as young stands replaced mid and late stands. This would adversely affect channel morphology and sediment routing. Most of Meacham Creek in the area of these parcels is within or immediately adjacent to the Railroad right-of-way and is outside of parcel boundaries. Future downed wood and sediment storage capacity for non-fish bearing streams, intermittent streams, and ephemeral draws would be reduced over the long term on conveyed parcels and would be protected on acquired parcels. More miles of these streams would be conveyed under Alternative 1 than would be acquired.

Harvest on conveyed lands would reduce or eliminate hydrologically mature forested cover on up to about 10.5 % of the acres in the Butcher Creek subwatershed over the next 10 years. Of the private timberlands in the subwatershed that could be harvested, about 6½% of the mature forest cover in the subwatershed would be acquired. Information about existing levels of harvest on



private lands in this subwatershed is limited and the incremental effect of the Proposed Exchange would not be measurable. NFS lands were evaluated in 2000 and had less than 5% reduction in hydrologically mature forest cover (Umatilla and Meacham Ecosystem Analysis, 2000).

### **Bear Creek Subwatershed**

Bear Creek is a tributary to the John Day River, north and west of Prairie City. Private lands surround NFS lands in this subwatershed and most of the mainstem of Bear Creek is on private land. The FS would convey about 2,500 acres and no acres would be acquired. Channel condition in this subwatershed is relatively poor due to deficient streamside vegetation. An old breeched, earthen dam near the forest boundary is evidence of historic mining. Streamside vegetation is lacking shrubs and has short stubble height (field visit October, 2003). Currently logging is occurring on private lands. Grazing is occurring on both private and public lands.

About 20% of the mature forested structure in this subwatershed would be conveyed in the Proposed Land Exchange. With up to 20% of the forested stands likely to be logged within the next decade, stream temperature could be increased. Oregon State Forest Practices rules would protect trees within 20 feet of perennial streams in this subwatershed and would require higher basal areas to be left near channels. This would protect some of the existing shade component, but not all of it. Soil disturbance near channels would increase due to logging and accompanying activities. Increases in erosion and sedimentation would be expected and turbidity and sediment deposition into Bear Creek would increase for several years following logging. Decline in recruitment of woody structure in Bear Creek would be seen over the long term as young stands replaced mid stands. This would adversely affect channel morphology and sediment routing. Future downed wood and sediment storage capacity for perennial streams, intermittent streams, and ephemeral draws would be reduced over the long term on conveyed parcels.

A reduction in hydrologically mature timber stands of 20% over a decade in this subwatershed could lead to small changes in water yield and timing of peak flows. Information about existing levels of harvest on private lands in this subwatershed is limited and it is unlikely that the incremental effect of the Proposed Exchange would be measured due to background variability. It is unlikely any change to peak flow would affect channel morphology or cause bank erosion.

### **Upper Deer Creek Subwatershed**

The West Fork of Deer Creek drains the exchange parcels and is headwater to Deer Creek, a tributary of the North Fork John Day River. National Forest ownership in this area is scattered and the exchange proposes to convey about 2,000 acres in this subwatershed and acquire about 200 acres to block up ownership.

About 12% of the mature forested stand acres in this subwatershed would be conveyed. Oregon Forest Practices rules would protect a portion of the shade component on harvested lands however water temperature could increase in the subwatershed. Soil disturbance near channels would increase due to logging and accompanying activities. Increases in erosion and sedimentation would be expected and turbidity and sediment deposition into the West Fork of Deer Creek and its tributaries would increase for several years following logging. Decline in recruitment of woody structure in subwatershed channels would be seen over the long term as young stands replace mid stands. This would adversely affect channel morphology and sediment routing. Future downed wood and sediment storage capacity for perennial streams, intermittent streams, and ephemeral draws would be reduced over the long term on conveyed parcels.

Harvest on conveyed lands would reduce or eliminate hydrologically mature forested cover on up to about 12% of the acres in the Upper Deer Creek subwatershed over the next 10 years. Information about existing levels of harvest on private lands in this subwatershed is limited and it is unlikely that the incremental effect of the Proposed Exchange would be measurable due to background variability.

### **Subwatersheds with Acquired Lands (Timbered Lands) – Water Quality, Riparian Condition and Water Yield**

In the remaining subwatersheds with more than 5% of their timbered acres in the Proposed Land Exchange, the National Forest System would acquire the following acres:

- Dry Gulch Subwatershed, tributary to the Wenaha River 650 timbered acres from State of Oregon
- Bark Cabin Subwatershed, Murderers Creek 950 timbered acres from State of Oregon
- Texas Bar Subwatershed, tributary to the North Fork. John Day River 2150 timbered acres

About 11% of forested stands in the above SWS would come into the NF system. Based on the harvest assumptions of this analysis, these acres would not be harvested within the next 10 years and any future activities would meet PACFISH standards. There are about 2 miles of fish bearing streams, 4 miles of other perennial streams, and 13.5 miles of intermittent stream in these parcels that would be protected to a higher standard in Alternative 1.

No timber sale activities are planned on acquired lands within the next 10 years. Acquired lands would be managed in accordance with individual Forest Plans, which incorporate PACFISH/INFISH Standards and Guides. Any management activity would be designed to maintain or recover the components of healthy riparian areas and water quality.

### **Subwatersheds with Acquired Lands (Clearcut Lands) – Water Quality, Riparian Condition and Water Yield**

Upper Wilson Subwatershed, near Wilson Prairie: About 1,720 acres of recently clearcut lands (SI structure) would be acquired. This accounts for about 6½% of the subwatershed. Logging activity occurred within the last year. Indirect effects, including increased water temperature and sedimentation, are ongoing.

### **Subwatersheds with Acquired Lands (Non-forest Lands) - Water Quality, Riparian Condition and Water Yield**

Substantial acres of non-forested land would be acquired in the Lower Imnaha River Watershed.

- Lower Horse Creek Subwatershed 753 acres representing 5.9% of SWS

- Imnaha River/Thorn Creek Subwatershed 3,623 acres representing 17.4% of SWS

These acquisitions are river bottomlands and would bring high resource value lands into the NFS. Acquisition of wetlands and floodplains by the NFS would lead to increased protection of these sensitive areas as Forest Plan (PACFISH/INFISH) standards and guides would be implemented.

### **Alternative 1 – Summary**

The net increase in stream channels, and wetland and floodplain acres would protect wetland and floodplain function to PACFISH standards. Conveyed wetlands are mostly narrow and adjacent to streams or seasonally wet meadows. The Oregon Forest Practices Act and the OARS Water Protection Rules would protect them from direct impacts of logging and discourage road construction that could damage their hydrologic function. Conveyed floodplains are mostly small segments of flood plan associated with seasonally wet meadows. They are less than 20 feet wide and located in remote areas with little development pressure. There would be no increase in flood hazard from the conveyance of 13 acres of floodplains. Wetland acres are generally seasonally wet meadows. These meadows are nearly all inside existing grazing allotments. Forest Plan grazing standards currently apply and no change would occur after acquisition.

Parcels in the Proposed Land Exchange are widely dispersed and generally make up a very small portion of the land base at a Watershed (HUC 5) or Subwatershed (HUC 6) scale. Effects to water quality, riparian condition, and water yield would be localized, and generally too small to be measured. In those subwatersheds with a large number of acres of merchantable timber proposed to convey: Butcher Creek Subwatershed, Bear Creek Subwatershed, and Upper Dry Gulch Subwatershed; erosion and sedimentation would likely increase for one to two years following harvest and associated activities. Water temperatures could be affected, but State Forest Practices rules protect at least a portion of existing shade. Woody recruitment and sediment storage would be reduced over the long term due to changes in stand structure. In Butcher Creek, acquisition of merchantable stands which otherwise would be harvested would offset to some extent (11% conveyed, 6.6% acquired) the conveyance of merchantable stands. Water yield is unlikely to be measurably affected by harvest of conveyed stands.

Acquisitions of large blocks of timberland in Texas Bar would protect, to Forest Plan standards, about 11% of the subwatershed, which is tributary to the North Fork John Day River. There would be no change in management due to the acquisition of parcels in the Dry Gulch and Bark Cabin Creek subwatersheds, which currently belong to the State of Oregon Department of Fish and Wildlife and are managed for habitat.

### **Alternative 2: No Action**

Under the No Action Alternative, no parcels would be acquired or conveyed.

### **Wetlands and Floodplains**

The opportunity to bring substantial acres of seasonally wet meadow, acres of floodplain, and miles of stream channels into public ownership would be forgone. Current NFS management standards are directed to maintain, protect, and recover the components necessary for riparian, aquatic, and hydrologic systems to function at high levels of productivity. Protection of these systems that would be acquired under Alternative 1 would not occur under FS management. In the Bark Cabin and Dry Gulch subwatersheds, State of Oregon management would continue and wetland management would not differ between the No Action and Proposed Exchange Alternative. Grazing management on non-acquired parcels would continue to be under NFS allotments, which are subject to PACFISH and INFISH standards. There would be no conveyance of the very few acres of wetland and floodplain identified in the Proposed Land Exchange.

### **Water Quality, Riparian Condition and Water Yield**

It is assumed that merchantable timber on non-acquired private parcels would be harvested within 10 years and that merchantable timber on non-conveyed National Forest parcels would not be harvested.

Merchantable stand structure in excess of 5% of SWS acres would not be conveyed in Butcher Creek, Bear Creek, or Upper Deer Creek subwatersheds. Non-acquired parcels would have merchantable stand structure in excess of 5% of SWS acres in Dry Gulch, Butcher Creek, Bark Cabin Creek, and Texas Bar subwatersheds.

#### **Dry Gulch**

About 643 acres of merchantable timber stands would not be conveyed in this alternative. These parcels are owned by the State of Oregon and managed by ODFW for habitat. It is unlikely that these parcels would be managed as commercial timberlands. There would be no adverse effects to water quality or riparian condition from ongoing management in Alternative 2. Alternatives 1 and 2 would result in the same water quality, riparian condition, and water yield in this subwatershed.

#### **Butcher Creek**

In this alternative, merchantable timber stands would not be conveyed on about 2,700 acres and would not be acquired on about 1,700 acres. Harvest on non-acquired parcels would amount to 6.6% of the subwatershed acres. The net difference between the Proposed Land Exchange and Alternative 2 would be a 1,000-acre reduction in harvest, about 4% less of the subwatershed, in Alternative 2. Streams in the non-exchanged parcels are intermittent or subsurface during the summer. There would be no affect to water temperature from harvest of non-acquired parcels. Harvest associated soil disturbance, sedimentation into channels, and declines in woody structure recruitment would be similar to but less than Alternative 1. It should be noted that logging on other private acres has occurred in the past, and other acres could be logged in the future.

#### **Bark Cabin**

Approximately 930 acres or 5.8% of the subwatershed would not be acquired in this alternative. These parcels are owned by the State of Oregon and managed by Oregon Department of Fish and Wildlife (ODFW). They are not likely to be managed for timber production, and no negative effects to water quality or riparian condition would be expected from management on these parcels in the No Action Alternative. The Proposed Exchange and the No Action Alternative would result in similar water quality, riparian condition, and water yield.

#### **Bear Creek**

Approximately 2,500 acres of merchantable structure would not be conveyed in this alternative. Adverse effects to water quality, riparian condition, and channel structure associated with logging and discussed in Alternative 1 would not occur.

#### **Texas Bar**

About 2,100 acres of timberland would remain private rather than be conveyed to the FS. Harvest of these stands could lead to an increase in water temperature and sedimentation and a reduction in woody recruitment. There are about 2 miles of fish bearing streams, 4 miles of other perennial streams, and 13.5 miles of intermittent stream in these parcels.

#### **Upper Deer Creek**

About 2,000 acres (12% of the SWS) of merchantable timber would not be conveyed in this

alternative. Adverse effects to water quality, riparian condition, and channel structure associated with logging and discussed in Alternative 1 would not occur.

### **Alternative 2 – Summary**

Floodplains and wetlands would be managed as they currently are. Wetlands in Dry Gulch subwatershed and Bark Cabin Subwatershed are currently owned by the State of Oregon and are managed for habitat. Other non-acquired wetlands could have management actions, which would affect their hydrologic function, especially water storage, and habitat function. Non-acquired floodplains could be managed in ways that would prevent the attainment of the potential vegetation community. No increase in flood hazard would be expected due to non-acquisition of offered floodplains. Grazing management of seasonally wet meadows would continue in NFS allotments and would not change.

Water quality effects from harvest of non-conveyed lands in Bear Creek and Upper Deer Creek subwatersheds would not occur. In Texas Bar and Butcher Creek Subwatersheds, non-acquired merchantable stands would be logged. In Butcher Creek, there would be a net reduction in harvest of privately owned merchantable timber, since non-conveyed acres exceed non-acquired acres. Detrimental water quality effects would decrease and recruitment of woody material would increase in Butcher Creek subwatershed relative to Alternative 1. In Texas Bar subwatershed detrimental effects to water quality and woody recruitment would increase compared to Alternative 1.

### **Alternative 3: Purchase**

The number of acres in the exchange drops substantially from the Proposed Land Exchange as no lands would be conveyed, and prioritized parcels would be purchased up to a given funding level. Parcels were prioritized to acquire wilderness, wild and scenic river corridors, and protect T&E plant and animal species.

### **Wetlands and Floodplains**

Financial limitations decrease the acreage of wetlands, floodplains, and miles of channels that would be purchased. High priority parcels purchased inside the Imnaha Wild and Scenic River corridor and HCNRA would add 67 acres of floodplain to the NFS. The opportunity to provide public protection to most channels and wetlands identified in Alternative 1 would be forgone.

### **Water Quality, Riparian Condition and Water Yield**

Table 34 summarizes the distribution of forested structure for Alternatives 3 and 4. Of the 15 subwatersheds analyzed in detail, most have no acres included in Alternative 3. Since no land would be conveyed, and little forest structure is acquired, risks and benefits associated with possible logging on conveyed lands would not occur. The effects of this alternative are very similar to effects of Alternative 2. Purchase of parcels in the Imnaha watershed would bring those non-forested parcels into NFS management with associated management of riparian areas. No acres would be purchased in Butcher Creek, Bear Creek, Texas Bar, or Upper Deer Creek subwatersheds. Other effects related to non-acquired lands in Texas Bar SWS and Butcher Creek would be similar to those described in Alternative 2.

### **Alternative 3 – Summary**

Floodplains in the Imnaha River would be purchased and protected to Forest Plan standards and guides. Most floodplains and wetlands identified in the Proposed Land Exchange would not be purchased. Wetland protection and function would not be provided to these acres. There would be no increased risk of flood hazard as most floodplains would remain in their existing condition and are not susceptible to development. Cumulative effects for water quality, riparian condition, and water yield would be very similar to Alternative 2.

### **Alternative 4: Deed Restriction**

Parcels conveyed would be the same as Alternative 1, however, deed restrictions would reduce the value of those acres, resulting in less acquired acres. Parcels were prioritized to acquire wilderness, wild and scenic river corridors, and protect T&E plant and animal species.

### **Wetlands and Floodplains**

Effects to wetland condition and flood hazard on conveyed parcels are negligible and similar to Alternative 1 (Table 32). This alternative would acquire about 50% of the acres of wetlands and 80% of floodplains acres when compared to Alternative 1. Floodplains on the mainstem of the Imnaha River, Cow Creek, Horse Creek, and in Meacham Creek would be acquired. Most non-acquired acres of floodplain are associated with wetlands that would also not be acquired. An additional 126 acres of wetland not acquired are currently owned by the State of Oregon and would continue to be managed for riparian and wildlife values. Many of the most valuable wetland acres would be acquired, including Phipps Meadow, portions of the Chesnimnus Creek wetlands, and Trout Meadow.

Non-acquired wetlands like Aldrich Mountain, Keeney Meadow, most of Wilson Prairie and others, would not receive the level of protection offered by PACFISH. Protection of these areas would be forgone in most instances.

Grazing management of all wetlands, whether acquired or not, would continue to be under FS allotments which are subject to PACFISH and INFISH standards.

### **Water Quality, Riparian Condition, and Water Yield**

Deed restrictions for conveyed parcels in this alternative would prohibit harvest inside of RHCAs and would prohibit harvest of trees larger than 21 inches. Road management and grazing management would meet Forest Plan standards.

Conveyed stand structure acres would be the same in this alternative as Alternative 1. Acquired stand structure would be substantially less.

Deed restrictions would protect canopy cover and shade currently and in the future. They would protect potential stand density and maintain and allow for recovery of water temperatures. No-harvest areas, restrictions on road building, and livestock holding restrictions would prevent soil disturbance near channels. Erosion and sedimentation from harvest of conveyed lands would be substantially less than in Alternative 1. Water quality would be maintained near its present condition, and management under the deed restrictions would provide for recovery of riparian management objectives to the same degree as PACFISH standards on NFS lands. The deed

restrictions would protect woody structure recruitment over time resulting in no effect to channel stability or morphology due to harvest on conveyed parcels.

Less than half the acres of forested stands would be acquired under this alternative when compared to Alternative 1. About one-quarter the acres of young (SI) stands would be acquired and less than half the merchantable stands (mid or late structure) would be acquired. The non-acquired stands are assumed to be harvested to Oregon Forest Practices standards within a decade. Parcels acquired in the Imnaha River and its tributaries are similar to Alternative 1.

Alternative 1 proposed to acquire merchantable structure greater than 5% of subwatershed acres in four subwatersheds. In this alternative, many of these Alternative 1 acres would not be acquired.

#### **Dry Gulch and Bark Cabin**

These parcels are owned by the State of Oregon and would not be acquired but would be managed for wildlife values. There would be no change in the risk to water quality or water yield.

#### **Texas Bar**

About two-thirds of the young (SI) stands and all of the merchantable acres would be acquired. PACFISH standards would be applied to all management activities.

#### **Butcher Creek**

Alternative 4 would not acquire about 1,500 acres of merchantable stands or about 6% of subwatershed acres. Harvest of these stands would be controlled by the Oregon Forest Practices Rules and would not be controlled by the deed restrictions. In this alternative, about 16% of subwatershed acres would be harvested in the next 10 years. About 10% of the subwatershed harvest would have deed restrictions, which would protect water quality at a high level and about 6% would not. The effects to water quality and riparian condition in this subwatershed for this alternative would be similar to and somewhat smaller than Alternative 2.

#### **Alternative 4 – Summary**

The deed restrictions would not directly affect the percentage of subwatershed acres in a hydrologically mature condition. Restrictions on harvest of trees greater than 21 inches would reduce, to an unknown extent, the number of trees removed from merchantable stands. This deed restriction would further reduce the small risk of increases in water yield identified in other alternatives. In Butcher Creek subwatershed, an increase in harvested acres resulting from acquiring fewer parcels would be unlikely to affect water yield to a measurable degree, and no effects to channel stability or morphology would be expected.

About 80% of the floodplains identified in Alternative 1 would be acquired. There would be no increase of flood hazard due to the implementation of Alternative 4. About 50% of the acres of wetlands identified for acquisition in Alternative 1 would be acquired in this alternative. The 125 acres of wetland in State of Oregon ownership would not be acquired but would continue to be managed for riparian and habitat values. Acquired wetlands would receive increased protection from Forest Plan standards and guides. Non-acquired wetlands would forego these protections. Preservation of wetland function would decrease in Alternative 4 relative to Alternative 1. Grazing management would not change as would be the case in all alternatives because nearly all seasonally wet meadows identified as wetlands in exchange parcels are grazed under FS allotments.

Deed restrictions on conveyed parcels would maintain water quality and riparian condition at its current level and allow recovery of their components. On acquired acres, water quality and riparian condition would receive these same protections. In subwatersheds where merchantable timber stands exceeded 5% of the subwatershed, only Butcher Creek Subwatershed would see more acres harvested than in Alternative 1 (16%). Ten percent of subwatershed acres would have deed restrictions that would protect water quality at a high level and 6% subwatershed acres would not. Although more acres would be harvested in Alternative 4 than any other alternative, the effects to water quality and riparian condition of Alternative 4 would be less than Alternative 1 due to deed restrictions, and about the same as Alternative 2. Measurable effects to water yield would be unlikely.

### **Alternative 5: Preferred Alternative**

#### **Wetlands and Floodplains**

The effects of conveyance and acquisition of wetlands and floodplains would be similar to Alternative 1. Table 36 shows the Preferred Alternative would acquire about 8 percent less wetland acreage than Alternative 1. This change from Alternative 1 in acquired wetlands is the result of acre corrections identified between the DEIS and the FEIS.

Current grazing management would continue after the Preferred Alternative. Acquired wetlands with adjacent timber would be protected from logging and associated activities by PACFISH RHCA Standards and Guides designed to protect hydrologic function and habitat values.

#### **Stream Channels**

Alternative 5 would result in little or no change from Alternative 1 in hydrologic features conveyed and acquired.

Conveyed streams would have less protection. The Oregon Forest Practices Act and the OARS Water Protection rules are intended to protect narrow wetlands associated with streams.

#### **Water Quality, Riparian Condition, and Water Yield**

The analysis of this indicator is based on acquisition and conveyance of mid and late structure conifer stands which it is assumed would be harvested by private landowners within the next decade in compliance with the Oregon Forest Practices Act. The Preferred Alternative would convey 1231 less acres of mid and late structure classes and would acquire 570 less acres of these classes than Alternative 1 (Table 34). This small change would result in the same overall effect to water quality, riparian condition, and water yield as previously described for Alternative 1.

#### **Subwatersheds with Conveyed Timbered Lands- Water Quality, Riparian Condition, and Water Yield**

##### **Butcher Creek Subwatershed**

Of the subwatersheds analyzed in detail, only the Butcher Creek Subwatershed would have a change from Alternative 1 in conveyance of merchantable conifer stand structure. The change in this alternative would reflect dropping two conveyed parcels; FU3E and FU4, as well as dropping some acres in parcels FU3A and FU3B.



### **Subwatersheds with acquired Lands**

Alternative 5 would have no discernable difference in water quality, riparian condition and water yield effects than has been identified in Alternative 1.

### **Alternative 5 – Summary**

Effects from the acquisition of floodplains, wetlands, and stream channels are similar but somewhat less than in Alternative 1 (Table 36). The National Forest System would acquire more acres of wetland and floodplain and more miles of stream channels than would be conveyed.

Alternative 5 effects to water quality, riparian condition, and water yield of conveying merchantable timber would be similar to but less than Alternative 1, since conveyed acres decline. Butcher Creek Subwatershed would see the largest reduction in conveyance when comparing Alternative 5 with Alternative 1.

### **Clean Water Act**

Implementation of the Clean Water Act has been assigned to the State of Oregon and is administered by the Oregon Department of Environmental Quality (DEQ). Water quality standards have been established for the protection of beneficial uses. They describe thresholds or limits for various chemical, biological, and physical parameters. EPA has recently approved new water temperature standards for the State of Oregon.

Beneficial uses are identified for river basins and for the areas in the Proposed Land Exchange. They include fish habitat (both spawning and rearing), wildlife use, recreation, and downstream irrigation.

The Clean Water Act requires States to develop Total Maximum Daily Load (TMDL) allocations and Water Quality Management Plans (WQMP) in basins where water bodies are listed as water quality impaired (303(d) list), that is, do not meet State Water Quality Standards. The current 303d list was developed in 2002 and is based on the water quality standards in place at that time. The State of Oregon DEQ has designated the Forest Service as the implementing agency for point and nonpoint source pollution control on lands under its jurisdiction (ODEQ 2002).

Two basins in the Proposed Land Exchange, the Umatilla River Basin and the Upper Grande Ronde Sub-Basin, have completed TMDLs and WQMPs which establish water quality goals for streams in the Basins. These documents lay out steps toward meeting the goals by establishing numeric goals for allowable levels of pollution (loads) by sub-basin within the larger basin. On NFS Lands, the WQMPs rely on current laws, management plans, and Best Management Practices (BMPs) to provide the basis for improving water quality in the forested landscape. They must follow standards and guidelines (S&Gs) listed in PACFISH, the Biological Opinion for PACFISH, the Biological Opinions for the Land and Resource Management Plans, the Wallowa-Whitman and Umatilla National Forest Land and Resource Management Plans, and BMPs.

PACFISH and/or INFISH have been incorporated into the Forest Plans of the three National Forests which are party to the proposed land exchange. Riparian management objectives (RMOs) in these plans were identified for the maintenance and recovery of fish habitat. Actions of the National Forests with these strategies must maintain or not retard the recovery the RMOs. RMOs provide for shade and stream structure and protection from excessive sedimentation.

For forest operations on State or private lands, water quality standards are intended to be attained and are implemented through best management practices and other control mechanisms established under the Forest Practices Act (ORS 527.610 to 527.992) and rules there under, administered by the Oregon Department of Forestry. Therefore, forest operations that are in compliance with the Forest Practices Act requirements are (except for the limits set out in ORS 527.770) deemed in compliance with this rule. DEQ will work with the Oregon Department of Forestry to revise the Forest Practices program to attain water quality standards.

The State of Oregon uses the above Rule to identify the means and process for forestry on state and private lands to meet water quality standards. All action alternatives evaluated in detail are in compliance with the Clean Water Act as administered by the Oregon Department of Environmental Quality.

Table 37 shows which watersheds in the exchange have water quality impaired streams. Listed stream segments are not located in all of the parcels in these watersheds, but waters draining from them would enter impaired water bodies. With the exception of those with approved TMDLs, nearly all watersheds in the exchange are listed for water temperature. There are a few listings for sedimentation and fecal coliform. In general, the mainstem of rivers are listed, as well as some of the tributary streams.

There are no public drinking water supplies on any of the parcels proposed for exchange.

**Table 37. Watersheds with Water Quality Impaired Stream Segments**

Watershed Name	Total Acres	303d Listing Criteria	Exchange Acres	
			To Convey	To Acquire
<b>Middle Snake/Powder River Basin</b>		TMDL target date 2005	42	454
Snake River/Indian Creek	117,736	None	0	143
South Fork Burnt River	75,278	None	42	0
Upper Eagle Creek	123,438	None		311
<b>Lower Snake Basin</b>		TMDL target date 2004	5,007	13,789
<b>Hells Canyon Subbasin</b>				
Snake River/Divide Creek	103,415		0	4
<b>Imnaha Subbasin</b>				
Upper Imnaha River	90,388	Temperature	0	36
Middle Imnaha River	87,946	Temperature	244	1,274
Big Sheep Creek	88,975	Temperature	1,348	261
Little Sheep Creek	129,820	Temperature	82	458
Lower Imnaha River	147,098	Temperature	452	6,641
<b>Upper Grande Ronde Subbasin</b>		TMDL Completed 1999		
Meadow Creek	115,909	TMDL	388	241
Grande Ronde River/Five Points Creek	87,882	TMDL	9	36

**Table 37. Watersheds with Water Quality Impaired Stream Segments (continued)**

Watershed Name	Total Acres	303d Listing Criteria	Exchange Acres	
			To Convey	To Acquire
<b>Wallowa River Subbasin</b>		TMDL target date 2004		
Upper Wallowa River	157,739	Temperature, Fecal Coliform, Sedimentation, pH	409	481
Middle Wallowa River	84,971		124	0
Lower Wallowa River	110,040		70	0
Lostine River	58,073	Sedimentation	13	4
Bear Creek	46,409	Temperature	82	0
<b>Lower Grande Ronde Subbasin</b>		TMDL target date 2004		
Grande Ronde River/Rondowa	114,619	Temperature	0	157
Grande Ronde River/Mud Creek	154,048	Temperature	1,788	1,034
Wenaha River	189,093	Temperature	0	969
Chesnimnus Creek	122,640	Temperature Sediment	0	1,538
Upper Joseph Crk	125,121	Temperature	0	657
<b>Middle Columbia Basin</b>			5,108	2,861
<b>Umatilla Subbasin</b>		TMDL Completed 2001		
Meacham Creek	114,078	TMDL	3,976	2,671
Umatilla River/Mission Creek	131,398	TMDL	0	190
Birch Creek	182,154	TMDL except Iron	215	0
Upper Butter Creek	206,624	TMDL except Iron	690	0
<b>Willow Creek Subbasin</b>		TMDL target date 2004		
Upper Willow Creek	94,097	Fecal Coliform Chlorophyll a	99	0
Rhea Creek	146,007		129	0
<b>John Day Basin</b>		TMDL target date 2006		
<b>Upper John Day Subbasin</b>			8,011	14,609
Upper South Fork John Day River	94,644	Temperature	0	41
Middle South Fork John Day River	121,727	Temperature	0	224
Murderers Creek	84,940	Temperature	0	1,202
Upper John Day River	106,714	Temperature	137	0
Strawberry Creek	149,722	Temperature	2,609	12
Beech Creek	70,873	Temperature	617	1,800
Laycock Creek	108,251	Temperature	0	1,428
Fields Creek	110,890	Temperature	0	205
<b>North Fork John Day Subbasin</b>				
Upper North Fork John Day River	71,464	Temperature	0	167
North Fork John Day River/Big Creek	105,870	Temperature	0	4,064

**Table 37. Watersheds with Water Quality Impaired Stream Segments (continued)**

Watershed Name	Total Acres	303d Listing Criteria	Exchange Acres	
			To Convey	To Acquire
Upper Camas Creek	104,688	Temperature	0	959
Lower Camas Creek	156,989	Temperature	1,925	152
North Fork John Day River/Potamus Creek	185,282	Temperature	181	159
Wall Creek	128,349	Temperature Sediment		2,246
Cottonwood Creek	149,078	Biologic Criteria	152	160
Lower North Fork John Day River	117,028	Temperature	2,389	405
<b>Middle Fork John Day Subbasin</b>				
Upper Middle Fork John Day River	78,277	Temperature	0	514
Camp Creek	125,884	Temperature	0	112
Big Creek	111,556	Temperature	0	441
Long Creek	130,497	Temperature	0	163
Lower John Day River/Kahler Creek	197,997	Temperature	0	156

## Water Rights

The objective of this section is to describe effects of the Proposed Land Exchange on water developments and water rights located on acquired and conveyed lands. The analysis area for water rights includes the parcels with water developments, plus adjacent lands with related water development facilities and places of use. For cumulative effects, the analysis area includes the watershed of the main stem stream above the furthest downstream water right. The time period for evaluation of effects on water resources is the next 10 years.

This section summarizes information for all known water developments and water rights on parcels included in the Proposed Land Exchange. Water rights and developments affect Federal and non-Federal parcels. Data and analysis was summarized, consolidated or referenced in the PR to assure that descriptions are no longer than necessary to understand the effects of the alternatives (40CRR 1502.15). Water rights information (permits, certificates, maps) has been provided by the Blue Mountain Lands Zone. Additional water rights information was obtained from the Grant, Umatilla, and Wallowa County watermasters and from the Oregon Water Resources Department (OWRD) website. PR documents were also updated with information on water developments without water rights; this information was obtained through aerial photo interpretation, interviews with landowners and land managers, and site inspections. The high priority site inspections were water developments on parcels with irrigation, mining, or domestic water rights, plus water developments without water rights. Most ponds listed in recent water rights and exempt reservoir notices for stockwater or wildlife use were rated low priority for site inspections; exceptions were water rights with legal description problems.

Case files were made for all of the known water rights and water developments. These case files included photocopies of water rights certificates or permits, water right maps, water right plat cards, livestock allotment records, aerial photos, topographic maps, and parcel maps. As fieldwork progressed, field note reference numbers were added to water right numbers, case file

numbers, and parcel numbers for every water right or water development on the Preliminary Water Rights Evaluation list. This information is available for review in the PR.

### Laws and Regulations Applying to the Analysis

The Blue Mountain Land Exchange Water Rights Existing Condition Report located in the PR lists quotes from Oregon Revised Statutes (ORS), Oregon Administrative Rules (OAR), FS Manual, and Forest Plans relevant to water rights decisions that should be made for the Proposed Land Exchange. The recommended actions are:

Necessary Administrative Actions:

- Submit affidavits to OWRD requesting correction of decrees and certificates with point of diversion or place of use errors.
- Submit water right applications for all unauthorized developments if needed for FS purposes.
- Decommission unsafe domestic water supply sources.
- Where possible water rights acquired by the US would be leased to the State for instream use.
- Complete and submit ownership update forms to OWRD.

### Affected Environment

Table 38 identifies parcels in the Proposed Land Exchange with water developments and/or water rights for acquired and conveyed parcels by forest. Detailed information on water developments and water rights in these parcels is available in the PR.

**Table 38. Offered and Conveyed Parcels with Water Developments and/or Water Rights by Forest**

National Forest	Parcels	Number of Parcels
Malheur – conveyed lands	FM2, FM9, FM10, FM15, FM16A, FM17, FM18, FM19, FM21	9
Malheur – acquired lands	PM2, PM4, PM5, PM7, PM30	5
Umatilla – conveyed lands	FU3A, FU3C, FU3D, FU21, FU30	5
Umatilla – acquired lands	PU1A, PU1B, PU5, PU7B, PU7C, PU9A, PU11B, PU15, PU16C, PU16E, PU16H, PU19, PU20, PU22A	14
Wallowa-Whitman – conveyed lands	FW1D, FW6A, FW12, FW17C	4
Wallowa-Whitman – acquired lands	PW3, PW7B, PW7C, PW8A, PW8B, PW8C, PW10B, PW11, PW12, PW13D, PW14, PW15A, PW15B, PW16C, PW16D, PW19B, PW20B, PW20C, PW21C, PW21D, PW23B, PW24A, PW24C, PW24D, PW24E, PW24H, PW25B, PW25C, PW25D, PW25E, PW27C, PW30, PW33, PW34A, PW34B, PW34C, PW38, PW39A, PW39B, PW39C, PW40, PW48, PW50, PW51A, PW52	45
<b>Total Number of Parcels</b>		<b>82</b>

### **Water Related Safety**

The dams/reservoirs for stockwater purposes are not large enough to require safety inspections by OWDR personnel or by FS engineers.

### **Environmental Consequences**

The effects of alternatives on all water developments, water uses, and water rights known to exist on lands appurtenant to the analysis are discussed. This discussion is centered on legal, environmental, and economic issues associated with water rights.

Specific information compiled and located in the PR for each water development, water use, and water right known to exist for each alternative includes:

- **Type of Water Development:** well, reservoir, spring diversion, stream diversion.
- **Water Use or Purpose:** domestic or human consumption, irrigation, mining, stock, stock/wildlife, wildlife, railroad, fire protection, and instream (fish and aquatic life).
- **Type of Water Use Authorization:** water right certificate, water use permit, statutory exempt uses, none, Federal reserved water rights.
- **Status of Water Use:** Used in past 5 years, not used in past 5 years.
- **Implementation Cost:** field inventory (FS, Clearwater), new surface water applications, new reservoir applications, beneficial use reports, correction of water use authorizations, affidavits of cancellation, ownership updates, annual water use reports, water development decommissioning, water development maintenance.

### **Effects Common to all Action Alternatives**

All parties to a land exchange/purchase would need to submit water right ownership update forms to OWRD. The “Water Right Ownership Update” form must be used for certificates and the “Request for Assignment” form must be used for permits.

All governmental entities would need to review and update the list of water rights appurtenant to their annual water use reports and ensure that detailed water use reporting would be done for all diversions of at least 0.1 cubic feet per second (CFS) pursuant to instructions in OAR 690-85.

All functioning water developments would continue to function. Maintenance needed to keep them functional would vary.

Federal reserved water rights cannot be transferred to acquired lands.

### **Alternative 1: Proposed Exchange**

Under this alternative, the FS would acquire 64 parcels with water developments and/or water rights and would convey 18 parcels with water developments and/or water rights. For specific information on each parcel refer to tables in the PR.

A direct effect would be that all of the water developments and water rights appurtenant to parcels subject to exchange under Alternative 1 would pass to the new landowners, regardless of status with respect to state water law.

**The indirect effects related to legal issues are summarized in six categories.**

- 1) *Errors on water right certificates and/or maps.* Alternative 1 would have 9 identified errors.
- 2) *Water rights apparent in non-use status for more than 5 years.* These rights are subject to rebuttable presumption of forfeiture under state law (ORS 540.610). This alternative would have 20 certificates on acquired land and 1 certificate on conveyed land where water rights may have been in non-use status.
- 3) *Unauthorized water uses.* These uses would need to be resolved by either obtaining water right permits and/or providing proof of beneficial use, or by decommissioning the water developments. Alternative 1 would have 17 unauthorized reservoirs on acquired lands and 20 unauthorized reservoirs on conveyed lands, which are used primarily for stockwater and wildlife purposes. There would also be 3 unauthorized domestic spring developments, one each in PW33, PW34A, and PW48. The development in PW34A services a private residence that would likely be dropped from the Proposed Exchange.
- 4) *Determination of exempt water use status.* Certain water developments have been or still need to be inspected to ensure they qualify or can be modified to qualify as exempt water uses. Three types of exempt water developments would exist on Alternative 1 exchange parcels: wells, reservoirs, and spring developments. There is one exempt domestic well located on Parcel PW39B. It would likely be dropped from the exchange. There is one exempt reservoir located on Parcel PU1B. Some reservoirs that only tap ground water, identified under unauthorized water uses, may also qualify as exempt groundwater developments. There would be 4 springs on conveyed lands and 7 springs on acquired lands, which may qualify as exempt stockwater sources. Most of these developments still need to be inspected to confirm qualification as exempt.
- 5) *Ownership update following exchange of lands.* Following the Proposed Exchange, ownership updates would be submitted to OWRD for all lands included on 23 water right certificates and 3 water right permits. Ownership updates would also be needed for up to 18 new water right applications, which may be submitted before completion of the Proposed Exchange, unless the entity to receive the parcel would be listed as the applicant.
- 6) *Water use reporting.* Following the exchange, the FS would also be required by state law to report water use annually for any water rights obtained under state law. Rights that would require this are listed in the PR. When ownership updates are submitted to OWRD, that information would be used by OWRD to update the draft annual water use reports for the Malheur, Umatilla and Wallowa-Whitman National Forests. The draft reports should be carefully inspected to ensure the proper land exchange-related additions and deletions are made.

In addition to the above, it is noted that the FS for any Federal parcel subject to exchange has not quantified Federal reserved water rights; neither has the State of Oregon adjudicated any Federal reserved water rights for any Federal lands subject to the Proposed Land Exchange.

Federal reserved water rights that may be appurtenant to any single Federal parcel with reserved status are (USFS 1990):

- Water needed for fire protection and control.
- Water needed for constructing and maintaining access roads for timber production and watershed protection activities.
- Water needed for irrigation of tree nurseries, seed orchards, and other facilities devoted primarily to the supply of timber or watershed protection.
- Water needed for maintaining FS riding and pack stock used in the administration of the NFS timber resources and for watershed protection.
- Water needed in connection with special uses where the user is engaged in activities carried out for watershed protection or timber production on the NFS lands.
- Water needed in the form of instream flows sufficient to maintain the stability of stream channels for favorable conditions of water flow and protection against the loss of productive timber lands adjacent to the stream channels.

Any of the above-listed reserved water rights that may exist on Federal parcels subject to the Proposed Exchange would become void upon conveyance of NFS lands to private ownership. No Federal reserved water rights would be received from or for acquired lands. However, the State of Oregon has not recognized Federal reserved water rights on any of the Federal lands proposed for conveyance in this exchange.

**The indirect effects related to environmental issues are summarized in five categories.**

Some of these issues may be resolved before or after the Proposed Exchange of lands, while other issues would not be resolved at all.

- 1) *Unsafe domestic water sources.* Alternative 1 would have an unsafe domestic water development on acquired lands. It is an above ground domestic water development located on a large spring in Parcel PW48 has better water quality and may be suitable for human consumption with treatment. However, this source also would not be needed for National Forest purposes nor be used for human consumption. Domestic water developments in three other parcels (PU9A, PW7, and PW25D) no longer exist.
- 2) *Potential for private landowners to successfully reestablish apparently abandoned water uses if lands are not exchanged and water rights are not cancelled.* In Alternative 1 part or all of 20 water rights on acquired lands and 1 water right on conveyed land have been in non-use status for more than 5 years. Most of these water uses have been abandoned for at least 20-40 years. When a water right is not used for more than 5 years, it is subject to a rebuttable presumption of forfeiture [ORS 540.610(1)]. This law allows a landowner to overcome the presumption of forfeiture after successfully using an abandoned right for 15 years [ORS 540.610(2) (f)].
- 3) *The effects of exercise of consumptive water developments and rights on streamflows in OWRD Water Availability Basins (WABs).* The potential effects of exercise of consumptive water developments and rights on streamflows in OWRD WABs are documented in the PR. The effects would be more severe in the fall than in the spring due to lower streamflow. Streams under Alternative 1 that would have at least a 5%



reduction in streamflow at some time of the year are: Big Sheep Creek, Horse Creek, Corral Creek, Dodson Creek, Thorn Creek, Tully Creek, Cow Creek, Joseph Creek, Doe Creek, Chesnimnus Creek, Meacham Creek, Idaho Creek, Olmstead Creek, Deadwood Creek, Swamp Gulch, Big Creek, Deep Creek, Middle Fork John Day River and Deer Creek. Of the developments and rights that would affect at least 10% of streamflow, all may have been abandoned except Permit S-49249 for irrigation from Joseph Creek and the domestic development on Doe Creek.

- 4) *State of Oregon instream water rights are also listed for comparison with the modeled flow reductions.* Only three streams would be affected by modeled flow reductions of 5% or more: Joseph Creek, Meacham Creek, and Middle Fork John Day River. Joseph Creek is the only stream that would have a streamflow increase if the water right were cancelled; water uses on the other streams appear to have been abandoned.
- 5) *Effect of storage on stream channels, streamflow, wetlands, livestock, and wildlife.* The effect of storage and spring developments on stream channels, streamflow, and wetlands is localized. Reservoirs increase local water loss due to evaporation from larger water surfaces. Reservoirs capture streamflow, thereby reducing local downstream flow. Construction of reservoirs destroys natural wetlands along streams, but new wetlands develop around reservoirs if the water level is relatively stable and livestock/wildlife use is low. Spring developments have a lower impact on streamflow if they are developed with return flow to the natural channel near the point of diversion. However, livestock and wildlife usually damage riparian areas around spring areas if the source areas are not fenced and troughs are not located outside of wetlands. All of the above conditions were observed in Alternative 1 affected parcels, but no consistent inventory of such conditions was made.

Costs would be incurred to address the legal and environmental issues previously discussed. Table 39 displays costs associated with water rights and uses.

**Table 39. Alternatives 1 and 5 – Estimated Costs for Private and FS**

Cost Item	Cost for Acquired Lands	Cost for Conveyed Lands	Total Costs <sup>3</sup>
Correct errors	\$540	\$60	\$600
Obtain new water rights	\$5,840	\$3,060	\$8,900
Decommission developments <sup>1</sup>	\$2,360	\$0	\$2,360
Maintain/use developments <sup>2</sup>	\$1,660/yr	\$1,020/yr	\$2,680/yr
Update ownership	\$900	\$420	\$1,320
Report water use	\$60	\$0	\$60
Total Costs <sup>3</sup>	\$9,700 + \$1,660/yr	\$3,540 + \$1,020/yr	\$13,240 + \$2,680/yr

1) This does not include decommissioning costs for any water develops for which OWRD would deny a water right application.

2) This does not include the cost of maintaining irrigation use for Permit S-49249 on Joseph Creek, the cost of proving up on the permit, or the cost of transferring this or any other valid water rights to temporary instream use to maintain those rights.

3) Costs were modeled for \$30/hour.

Cumulative effects are associated with legal, environmental, and economic issues discussed under indirect effects.

All of the water developments and/or water rights previously discussed would require between 1 and 6 individual actions to bring them into compliance with state water law. About 315 individual actions have been identified. The economic cost of these actions is displayed in Table 39. Total modeled costs for private and FS would be about \$13,240 plus \$2,680/yr. The actual or potential environmental effect of implementing the Proposed Land Exchange discussed and documented in the PR would reverse most of the effects on streamflow where exercise of the water rights would divert at least 5% of streamflow.

### Alternative 1 Summary

Water developments and water rights have the potential to conflict with FS management objectives and policies of other jurisdictions. The exercise of valid water rights, (more specifically, stream diversions for irrigation), could adversely affect listed fish species. The affected fish species include spring/fall Chinook salmon, summer steelhead and bull trout. The State of Oregon water laws have been discussed under indirect effects of legal issues. The exercise of valid water rights may adversely affect water quality of streams on the ODEQ 303(d) List. Tribal Governments cite from the *Spirit of the Salmon* (CRITFC 1995) when referring to water quality. A Problem Statement in this document states “Inadequate instream flows and sometimes the complete absence of water due to irrigation withdrawals have severely affected Columbia basin salmon”. Recommended actions related to water quality include: Halt any additional consumptive withdrawals of water...until adequate instream flows...are protected; Assure that no consumptive uses are occurring in excess of the amount permitted; Halt any further impairments of wetlands; and Establish instream flows designed to provide a full range of habitat conditions...

Probable adverse effects of exercise of water rights through use of currently functioning water developments include reduced streamflow of affected waters, plus related indirect adverse effects on riparian areas, aquatic life, water quality, riparian-dependent wildlife, floodplains, and soil productivity. Another potential adverse effect is impairment of fish passage at diversion structures; however, no such structures are known to exist on exchange lands. The only water rights that could potentially impair passage at this time are Parcels PW34A and PW34B on Joseph Creek and the Parcel PW24A on Big Sheep Creek. PW34A would likely be dropped from the exchange. The water right on Joseph Creek is for placement of a pump in the Creek, so no structure would impair passage. The water right on Big Sheep Creek is too small to adversely affect passage.

Probable beneficial effects of exercise of water rights include late season water supply in reservoirs for wildlife and livestock, wetland creation by reservoirs, peak streamflow reduction by and sediment storage in reservoirs, off-channel water supply provided by upland spring developments, and cold water return flows from irrigated areas adjacent to streams.

Irretrievable commitment of resources refers to opportunity foregone by a particular choice of resource use. Diversion and consumptive use of water represents an irretrievable commitment of water resources to out-of-stream uses during the time water is diverted. Storage represents an irretrievable commitment because water loss by evaporation from an open water surface is higher than water loss by evapo-transpiration from soil and plants. Instream use is retrievable when water rights are not exercised (and related facilities are decommissioned) or are temporary transferred to instream use.

All three Forest Plans require compliance with state water rights laws.

If Alternative 1 is implemented following the Proposed Exchange, compliance with Forest Plan direction requires each Forest to:

- Request that OWRD add newly acquired water rights to the Forest’s Annual Water Use Report, and delete the water rights conveyed.
- Inspect and modify newly acquired water developments as needed to ensure they are developed in accordance with the terms and conditions in the water right permit or certificate.
- Acquire water rights for unauthorized water developments or decommission those developments.
- Correct inaccuracies on water rights permits or certificates.
- Use water at least one year in 5 to avoid forfeiture or inform OWRD that water use has been abandoned.
- Cooperate with OWRD in investigations of abandoned water uses.

### **Alternative 2: No Action**

Under this alternative, no water developments and/or water rights would be acquired or conveyed.

It is likely that most of the actions recommended resolving the legal and environmental issues discussed as indirect effects for Alternative 1 would remain unresolved for considered exchange parcels during the next 10 years. For example it is likely that irrigation water use would continue on Joseph Creek. Potentially abandoned water rights on private lands documented in the PR could be reactivated. However, it is likely that the FS would eventually accomplish the recommended actions for unauthorized water developments on NF system land, if those developments do not already qualify as reserved water rights.

### **Alternative 3: Purchase**

Under this alternative, the FS would purchase 16 parcels with water developments and/or water rights and would convey no parcels.

A direct effect would be that all of the water developments and water rights appurtenant to parcels subject to purchase under Alternative 3 would pass to the FS, regardless of status with respect to state water law.

**The indirect effects relate to legal issues are summarized in six categories.**

- 1) *Errors on water right certificates and/or maps.* Alternative 3 would have 1 identified error.
- 2) *Water rights in apparent non-use status for more than 5 years.* This alternative would have part or all of 9 certificates on purchased land.
- 3) *Unauthorized water uses.* These uses need to be resolved by obtaining water right permits and providing proof of beneficial use, or by decommissioning the water developments. This alternative would have 3 unauthorized reservoirs on purchased lands and 2 unauthorized domestic spring developments, one each in PW34A, and PW48. PW34A is likely to be dropped from the exchange

- 4) *Determination of exempt water use status.* Two types of exempt water developments exist on Alternative 3 purchased parcels: reservoirs, and spring developments. Some reservoirs that only tap ground water, identified under unauthorized water uses, may also qualify as exempt groundwater developments. There would be 2 springs on purchased lands, which may qualify as exempt stockwater sources.
- 5) *Ownership update following purchase of lands.* Following the purchase, ownership updates must be submitted to OWRD for one water right certificate. Ownership updates would also be needed for up to 3 new water right applications.
- 6) *Water use reporting.* Following the purchase, the FS would also be required by state law to report water use annually for any water rights obtained under state law.

No reserved water rights would be conveyed under Alternative 3.

**The indirect effects relate to environmental issues are summarized in four categories.**

Some of these issues may be resolved before or after purchase of lands, while other issues would not be resolved at all. These issues are the same as identified under Alternative 1.

- 1) *Unsafe domestic water sources.* Alternative 3 would have one unsafe domestic water development on purchased lands. It is an unfenced aboveground domestic water development on a large spring in Parcel PW48. It may be suitable for human consumption with treatment. However, this source would not be needed for National Forest purposes nor used for human consumption. A domestic water development in one other parcel (PW25D) no longer exists.
- 2) *Potential for private landowners to successfully reestablish apparently abandoned water uses if lands are not purchased.* In Alternative 3 part or all of 9 water rights on purchased lands may have been in non-use status for more than 5 years. When a water right is not used for more than 5 years, it is subject to a rebuttable presumption of forfeiture [ORS 540.610(1)]. This law allows a landowner to overcome the presumption of forfeiture after successfully using an abandoned right for 15 years [ORS 540.610(2) (f)].
- 3) *The effects of exercise of consumptive water developments and rights on streamflows in OWRD Water Availability Basins (WABs).* The potential effects of exercise of consumptive water developments and rights on streamflows in OWRD Water Availability Basins (WABs) are documented in the PR. The effects would be more severe in the fall than in the spring due to lower streamflow. The stream under Alternative 3 that would have at least a 5% reduction in streamflow at some time of the year would be Horse Creek. The water right for this source may have been abandoned.

State of Oregon instream water rights are also listed for comparison with the modeled flow reductions. None of them would be affected by modeled flow reductions of 5% or more.

- 4) *Effect of storage on stream channels, streamflow, wetlands, livestock, and wildlife.* This effect is localized as discussed under Alternative 1.

Costs would be incurred to address the legal and environmental issues previously discussed under this alternative. Table 40 displays costs associated with water rights and uses.

**Table 40. Alternative 3 – Estimated Costs for FS**

Cost Item	Cost for Acquired Lands	Cost for Conveyed Lands	Total Costs <sup>3</sup>
Correct errors	\$60	na	\$60
Obtain new water rights	\$950	na	\$950
Decommission developments <sup>1</sup>	\$0	na	\$0
Maintain/use developments <sup>2</sup>	\$320/yr	na	\$320/yr
Update ownership	\$60	na	\$60
Report water use	\$30	na	\$30
Total Costs <sup>3</sup>	\$1,360 +	na	\$1,360 +
Details in PR	\$320/yr		\$320/yr

1) This does not include decommissioning costs for any water develops for which OWRD would deny a water right application.

2) This does not include the cost of maintaining irrigation use for Permit S-49249 on Joseph Creek, the cost of proving up on the permit, or the cost of transferring this or any other valid water rights to temporary instream use to maintain those rights

3) Costs were modeled for \$30/hour.

Cumulative effects are associated with legal, environmental and economic issues discussed under indirect effects.

Every one of the water developments and/or water rights appurtenant to Alternative 3 would require between 1 and 6 individual actions to bring them into compliance with state water law. About 32 individual actions have been identified. The economic cost of these actions is displayed in Table 40. Total modeled costs for private and FS would be about \$1,360 plus \$320/yr. The actual or potential environmental effect of implementing the actions discussed and documented in the PR would reverse most of the effects on streamflow where exercise of the water rights would divert at least 5% of streamflow.

This alternative's summary statement is the same as Alternative 1.

#### **Alternative 4: Deed Restriction**

Under this alternative, the FS would acquire 40 parcels with water developments and/or water rights and would convey 17 parcels with water developments and/or water rights. For specific information on each parcel refer to tables in the PR.

A direct effect would be that all of the water developments and water rights appurtenant to parcels subject to exchange under Alternative 4 would pass to the new landowners, regardless of status with respect to state water law.

#### **The indirect effects relate to legal issues are summarized in six categories.**

- 1) *Errors on water right certificates and/or maps.* Alternative 4 would have 5 identified errors on water right certificates and/or related maps.
- 2) *Water rights in apparent non-use status for more than 5 years.* This alternative would have 16 certificates on acquired land and 1 certificate on conveyed land that should be cancelled.
- 3) *Unauthorized water uses.* Alternative 4 would have 14 unauthorized reservoirs on acquired lands and 20 unauthorized reservoirs on conveyed lands, which are used primarily for stockwater and wildlife purposes. There would also be 2 unauthorized

domestic spring developments, one each in PW34A and PW48. PW34A is likely to be dropped from the exchange.

- 4) *Determination of exempt water use status.* Certain water developments have been or still need to be inspected to ensure they qualify or can be modified to qualify as exempt water uses. Two types of exempt water developments would exist on Alternative 4 exchange parcels: reservoirs, and spring developments. Some reservoirs that only tap ground water, identified under unauthorized water uses, may also qualify as exempt groundwater developments. There would be 4 springs on conveyed lands and 6 springs on acquired lands, which may qualify as exempt stockwater sources. Most of these developments still need to be inspected to confirm qualification as exempt.
- 5) *Ownership update following exchange of lands.* Following this alternative, ownership updates would be submitted to OWRD for all lands included on 9 water right certificates and 1 water right permit. Ownership updates would also be needed for up to 14 new water right applications, which may be submitted before completion of this Exchange Alternative unless the entity to receive the parcel would be listed as the applicant.
- 6) *Water use reporting.* Following this alternative, the FS would also be required by state law to report water use annually for any water rights obtained under state law. Rights that would require this are listed in the PR.

The situation with respect to reserved water rights would be the same as described under Alternative 1.

**The indirect effects relate to environmental issues are summarized in four categories.**

Some of these issues may be resolved before or after exchange of lands, while other issues would not be resolved at all.

- 1) *Unsafe domestic water sources.* Alternative 4 would have one unsafe domestic water developments on acquired lands. It is an unfenced aboveground domestic water development located on a large spring in Parcel PW48. It may be suitable for human consumption with treatment. However, this source would not be needed for National Forest purposes nor be used for human consumption. Domestic water developments in three other parcels (PU9A, PW7, and PW25D) no longer exist.
- 2) *Potential for private landowners to successfully reestablish apparently abandoned water uses if lands are not exchanged.* In Alternative 4 part or all of 16 water rights on acquired lands and 1 water right on conveyed land have been in non-use status for more than 5 years. When a water right is not used for more than 5 years, it is subject to a rebuttable presumption of forfeiture [ORS 540.610(1)]. This law allows a landowner to overcome the presumption of forfeiture after successfully using an abandoned right for 15 years [ORS 540.610(2)(f)].
- 3) *The effects of exercise of consumptive water developments and rights on streamflows in OWRD Water Availability Basins (WABs).* The potential effects of exercise of consumptive water developments and rights on streamflows in OWRD Water Availability Basins (WABs) are documented in the PR. The effects would be more severe in the fall than in the spring due to lower streamflow. Streams under Alternative 4 that would have

at least a 5% reduction in streamflow at some time of the year would be: Big Sheep Creek, Horse Creek, Corral Creek, Dodson Creek, Thorn Creek, Tully Creek, Cow Creek, Joseph Creek, Meacham Creek, Idaho Creek, Olmstead Creek, Deadwood Creek, Swamp Gulch, Big Creek, Deep Creek, Middle Fork John Day River and Deer Creek. Of the developments and rights that would affect at least 10% of streamflow, all have apparently been abandoned except Permit S-49249 for irrigation from Joseph Creek.

State of Oregon instream water rights are also listed for comparison with the modeled flow reductions. Only three streams would be affected by modeled flow reductions of 5% or more: Joseph Creek, Meacham Creek, and Middle Fork John Day River. Water uses on these streams appear to have been abandoned, so transfer of water rights to the FS would merely protect an existing condition of restored streamflow.

- 4) *Effect of storage on stream channels, streamflow, wetlands, livestock, and wildlife.* This effect is localized as discussed under Alternative 1.

Costs would be incurred to address the legal and environmental issues previously discussed under Alternative 4. Table 41 displays costs associated with water rights and uses.

**Table 41. Alternative 4 – Estimated Costs for Private and FS**

Cost Item	Cost for Acquired Lands	Cost for Conveyed Lands	Total Costs <sup>3</sup>
Correct errors	\$240	\$60	\$300
Obtain new water rights	\$3,160	\$3,060	\$6,220
Decommission developments <sup>1</sup>	\$1,500	\$0	\$1,500
Maintain/use developments <sup>2</sup>	\$420/yr	\$1,020/yr	\$1,440/yr
Update ownership	\$180	\$420	\$600
Report water use	\$60	\$0	\$60
Total Costs <sup>3</sup>	\$5,140 + \$420/yr	\$3,540 + \$1,020/yr	\$8,680 + \$1,440/yr

1) This does not include decommissioning costs for any water develops for which OWRD would deny a water right application.

2) This does not include the cost of maintaining irrigation use for Permit S-49249 on Joseph Creek, the cost of proving up on the permit, or the cost of transferring this or any other valid water rights to temporary instream use to maintain those rights.

3) Costs were modeled for \$30/hour.

Cumulative effects are associated with legal, environmental and economic issues discussed under indirect effects.

All of the water developments and/or water rights appurtenant to Alternative 4 would require between 1 and 6 individual actions to bring them into compliance with state water law before and/or after lands would be conveyed and acquired. About 156 individual actions have been identified. The economic cost of these actions is displayed in Table 41. Total modeled costs for private and FS would be about \$8,680 plus \$1,440/yr. The actual or potential environmental effect of implementing the actions discussed and documented in the PR would reverse most of the effects on streamflow where exercise of the water rights would divert at least 5% of streamflow.

This alternative’s summary statement is the same as Alternative 1.

### **Alternative 5: Preferred Alternative**

Under this alternative, the FS would acquire 61 parcels with water developments and/or water rights and would convey 15 parcels with water developments and/or water rights. This alternative also drops 44 acres from a portion of PW25D and 240 acres from portions of PW34A, PW34B and PW34C. For specific information on each parcel refer to tables in the PR. Alternative 5 is similar to Alternative 1 because acquired and conveyed water developments and/or water rights are almost the same except Alternative 5 does not include FU21 (319 acres) which has one maintained spring and one residential water development, FW17C (2 acres) with a special use permit, and PW33 (161 acres) which has one maintained spring and one residential water development.

A direct effect would be that all of the water developments and water rights appurtenant to parcels subject to exchange under Alternative 5 would pass to the new landowners, regardless of status with respect to state water law.

Alternative 5 indirect effects related to legal and environmental issues are similar to Alternative 1 except the maintained spring and water development on FU21 would not be conveyed, the special use permit on FW17C would not be affected by conveyance, and the spring and residential water development on PW33 would not be acquired.

Table 39 displays Alternative 5 and Alternative 1 estimated private and FS costs associated with water rights and uses.

The Alternative 5 summary statement is the same as Alternative 1.

### **Vegetation**

The objective of this section is to describe current conditions of upland forest vegetation. Late and old structure (LOS) will be compared to historic LOS conditions by watersheds that contain LOS and/or Forest Plan dedicated old growth. The gain or loss from historic conditions of LOS and old growth will be disclosed by alternatives evaluated in detail. The analysis area includes portions of the Wallowa-Whitman, Malheur, and Umatilla National Forests and 49 fifth level HUC watersheds on these forests. Federal and non-Federal land information in the Affected Environment and Environmental Effects subsection of this section are organized by National Forest. Forest vegetation on Proposed Land Exchange parcels covers approximately 19,136 acres of non-Federal land and 13,239 acres of Federal land. Other vegetative types such as grasslands and shrub lands will not be addressed in this section.

Two forest vegetation characteristics commonly used to describe forest conditions are potential vegetation and stand structure. Potential vegetation groups (PVG) are an aggregation of plant association groups having similar environmental regimes and dominated by similar plant types (Powell 2000). Potential vegetation of a particular site reflects that site's biophysical environment, including temperature/moisture regime and soil characteristics. Potential vegetation is useful in structural stage analysis because all forest types (i.e., dry, moist, cold) do not occupy every structural stage, and different forest types do not spend an equal amount of time in any particular structural stage.

Structural stage classes exhibit recognizable conditions that relate to the physical orientation and arrangement of vegetation, the size and arrangement (vertical and horizontal) of trees and tree



parts (Powell 2000). Structural stages reflect the natural successional development of a forest ecosystem following disturbance. Structural stage classification is useful in characterizing the physical attributes of a forest stand (i.e., late and old structure).

Analysis of forest vegetation requires a landscape-level assessment of vegetation conditions, including an analysis of the historical range of variability (HRV). Historic range of variability is a characterization of the fluctuations in ecosystem conditions or processes over time; and is used as an analytical technique to define the bounds of consistent ecosystem behavior over time (Powell). As with other large scale analyses of ecosystem conditions, “historical” in this FEIS is intended to represent conditions and processes that are likely to have occurred prior to settlement of the project area by people of European decent, approximately the mid-1800s (Interior Columbia Basin Ecosystem Management Project). An HRV analysis compares the current forest structure distribution of a potential vegetation group to an estimated historic distribution. The historic distribution estimates are described as a range of percentages for specific structural stages. A mid-point percentage is sometimes used during analysis, rather than a range. The results of an HRV analysis are generally summarized in a table showing the current percentages and the historic range, or mid-point average, for each structural stage. For purposes of comparison to the current conditions, historical conditions referenced in this FEIS represent an estimated mid-point with the historic range of variability. Comparison to a historic midpoint is sufficient in this analysis because its use is limited to a reference point for comparison and not as a decision making factor.

Assessments of historic range of variability have been completed at the 5<sup>th</sup> field watershed scale for all watersheds of the Wallowa-Whitman and Umatilla National Forests, and for the Lower North Fork John Day River watershed of the Malheur National Forest. Previous HRV analysis for watersheds on the Wallowa-Whitman NF combined several mid-seral structural stages (stem exclusion, understory reinitiation, and multi-strata without large tree), into one “mid” category, and combined the two late seral stages (multi-strata and single-strata with large trees) into one “late” category. As a result, the historic mid-point of each stage was combined to form one average mid-point for the “mid” and “late” categories. HRV analysis in this FEIS is confined to the “late” category to account for effects to late and old structure. For consistency across the three National Forests, HRV analysis tables in this report will display only the average of historic mid-points of multi-strata and single-strata LOS. The current LOS conditions only consider NFS land, since structure stage data on other ownership is not available.

The Wallowa-Whitman and Umatilla National Forests assign different structural tags, or identifiers, to LOS on their respective forests. The Wallowa-Whitman National Forest identifies multi-strata with large trees (MSLT) and single strata with large trees (SSLT) as the two structural stages associated with LOS. The Umatilla National Forest identifies old forest multi-strata (OFMS) and old forest single strata (OFSS) as the two structural stages associated with LOS. The structural characteristics of MSLT and OFMS are the same, just identified differently. Likewise, the structural characteristics of SSLT and OFSS are the same. LOS on the Malheur National Forest is identified as MSLT and SSLT, the same as the Wallowa-Whitman National Forest.

Structural stages are sometimes combined and simply referred to as early, mid, and late. Late and old structure corresponds to “late”. Stand initiation structure corresponds to “early”. The remaining structures correspond to mid-structures are simply a catchall category between very young stands (stand initiation) and mature forests (LOS). It is a very broad category in terms of age, numbers and size of trees. That is why over 83% of the parcels to acquire and 76% of the parcels to convey are classified as mid-structure. The tables in this section display structural

stages as early, mid, and late. The tables containing specific parcel information display structural stages as identified for that particular National Forest.

The Proposed Land Exchange includes several parcels with forested acres of LOS and Forest Plan dedicated old growth. All of the three Forests in the project area have dedicated old growth. Dedicated old growth is specific management areas set aside in the Forest Plans to insure that proposed management activities promote retention of old growth values. These areas are intended to maintain habitat diversity, preserve aesthetic values, and to provide old growth habitat for wildlife. Conveyance of Forest Plan dedicated old growth requires an amendment of the Forest Plan. In most instances, dedicated old growth is composed of forested stands containing late and old structure. LOS, by contrast, is any stand, regardless of Forest Plan management area designation, containing late and old forest structure. In general, old growth has LOS, but LOS is not necessarily dedicated old growth.

Several noted trends in the three forests within the analysis area have occurred due to departures from native disturbance and successional processes since historic times. These broad-scale changes in forest health conditions have influenced the susceptibility of the forests to uncharacteristic wildfires and large-scale insect and disease events, and have affected habitat for many wildlife species. These trends include loss of the large-tree component within roaded and harvested areas, loss of single-strata and old structure (LOS) in the dry forest type, and an increase in mid-seral structures in the dry and moist forest types (ICBEMP). The loss of LOS is a concern because of its effect on forest health. Forest health is defined as the condition in which forest ecosystems sustain their complexity, diversity, resilience, and productivity while providing human needs (ICBEMP). Resiliency enables a forest to persist during change, thereby allowing its complexity, diversity, and productivity to be sustained. Forests that are within their historic range of variability are more resilient. Therefore, it is desirable to move forests toward this historic range of variability (HRV) across the landscape.

## **Affected Environment**

### **Vegetation Groups and Structural Stages**

Ecoclass information from the GIS database of each of the three National Forests was used to determine forested acres, potential vegetation, and stand structure for NFS land. Walk-through stand exams and aerial photo interpretation was used to determine forested acres, potential vegetation, and stand structure for private and State of Oregon parcels.

The following general descriptions of the cold, moist, and dry potential vegetation groups of the Blue Mountains apply to NFS, State of Oregon and private land.

#### **Cold upland forests**

These forests generally occur in subalpine environments at elevations ranging from 4,000 feet to over 8,000 feet. The dominant plant associations vary depending upon landform. The subalpine fir/big huckleberry plant association dominates where cold air drainage occurs. The subalpine fir/grouse huckleberry and lodgepole pine/grouse huckleberry associations occur where cold, moist conditions are maintained through prolonged frost and snow covered periods. Lodgepole pine and western larch are the early pioneers following disturbances. Over-abundant regeneration of lodgepole pine results in stagnation at an early stage, a condition that continues throughout the life of the stand until another disturbance occurs. Without disturbance, subalpine fir and Engelmann spruce successional replace lodgepole pine.

**Moist upland forests**

These forests are generally mixed-conifer, multi-strata, and uneven-aged, occurring at elevations ranging from 3,500 feet to over 6,400 feet. The dominant plant associations vary depending upon landform. On cool/dry sites, the grand fir/twinflower plant association dominates plateaus and lower slopes, while the grand fir/big huckleberry association dominates on mid to upper slopes. The lodgepole pine/sitka alder plant association dominates cool/moist sites. The early seral species, Douglas-fir, western larch, and lodgepole pine currently occur primarily as remnant overstory. Grand fir, and Engelmann spruce on moister sites, follow successional, and currently dominate the understory.

Stand replacement wildfires are uncommon, and most stands are in an uneven-aged, multi-strata condition. However, eighty years of effective fire suppression has altered historic fire regimes, allowing fire intolerant grand fir to become overly dense. Increased stand density has resulted in declining tree vigor and increased tree mortality; leading to higher fuel levels. Increased fuel abundance has increased the occurrence of historically rare crown fires. In addition, decreasing tree vigor and replacement of early seral species with a preferred pathogen host, grand fir, has led to increases in insects and disease over historic levels. The over-abundance of grand fir has contributed to increased incidence of fir engraver beetle and spruce budworm, and the expansion of armillaria and annosus root diseases.

**Dry upland forests**

These forests generally occur at elevations ranging from 3,500 to 6,000 feet, with the Douglas-fir/snowberry plant association dominating. Eighty years of effective fire suppression have altered historic fire regimes. The absence of fire and intensive harvest of large early seral species, has converted ponderosa pine dominated stands to overly dense stands of understory Douglas-fir. Increased stand density has resulted in declining tree vigor and increased tree mortality; leading to higher fuel levels. Increased fuel abundance has increased the occurrence of historically rare crown fires. Replacement of early seral species with a preferred pathogen host, Douglas-fir, has led to increases in insects and disease over historic levels. An over abundance of Douglas fir has contributed to increased incidence of mountain pine and Douglas-fir bark beetles, and expansion of armillaria and annosus root diseases.

*The Federal parcel distribution* of forested acres by structural stage for each potential vegetation group in the Proposed Exchange within each of the three forests is described below and summarized in Table 42. The PR has the Upland Forest Vegetation information on forested acres, potential vegetation, and structure stage distribution by specific exchange parcel.

**Table 42. FS Land Structure Stage Distribution by Potential Vegetation Group**

National Forest	Potential Vegetation	Structural Stage Distribution					
		Early		Mid		Late	
		Acres	Percent	Acres	Percent	Acres	Percent
Wallowa-Whitman	Cold UF	18	2	772	90	64	8
	Moist UF	-0-	-0-	49	100	-0-	-0-
	Dry UF	133	8	1,121	68	403	24
	<b>Total</b>	<b>151</b>	<b>-</b>	<b>1,942</b>	<b>-</b>	<b>467</b>	<b>-</b>
Umatilla	Cold UF	52	69	18	24	5	7
	Moist UF	30	2	1,613	91	133	7

**Table 42. FS Land Structure Stage Distribution by Potential Vegetation Group (contd)**

National Forest	Potential Vegetation	Structural Stage Distribution					
		Early		Mid		Late	
		Acres	Percent	Acres	Percent	Acres	Percent
Umatilla	Dry UF	639	18	1,724	48	1,253	34
	<b>Total</b>	<b>721</b>	<b>-</b>	<b>3,355</b>	<b>-</b>	<b>1,391</b>	<b>-</b>
Malheur	Cold UF	-0-	-0-	-0-	-0-	-0-	-0-
	Moist UF	-0-	-0-	466	79	121	21
	Dry UF	-0-	-0-	4,186	94	264	6
	Moist UW	-0-	-0-	168	100	-0-	-0-
	<b>Total</b>	<b>-0-</b>	<b>-</b>	<b>4,820</b>	<b>-</b>	<b>385</b>	<b>-</b>

Approximately 2,560 acres of Federal land proposed to convey within the Wallowa-Whitman NF are forested; represented by the sum of cold, moist, and dry upland forest potential vegetation groups. Dry forest comprises 65%, cold forest 33%, and moist forest 2% of the total forested acres (PR). Approximately 68% of the dry and 90% of the cold forest is currently mid-seral structure. Approximately 24% of the dry and 8% of the cold forest is late seral, including late and old structure (LOS). Approximately 8% of the dry forest is early seral. Thirty-three acres of late and old structure, within two parcels, are Forest Plan dedicated old growth. In addition, there are 434 acres in eight parcels of multi-strata late and old structure (PR).

Approximately 5,474 acres of Federal land proposed to convey within the Umatilla NF are forested; represented by the sum of cold, moist, and dry upland forest potential vegetation groups. Moist forest comprises 66%, dry forest 32%, and cold 1% of the forested acres (PR). Approximately 91% of the moist and 48% of the dry forest is currently in the mid-seral structure stages. Approximately 69% of the cold and 18% of the dry forest is in early-seral stages. Approximately 34% of the dry and 7% of the moist forests are in late-seral stages, including late and old structure (LOS). One parcel of seventy-five acres of mid-seral structure is Forest Plan dedicated old growth. In addition, there are 1,104 acres in twenty-three parcels of multi-strata, and 287 acres in eight parcels of single-strata late and old structure (PR).

Approximately 5,205 acres of Federal land proposed to convey within the Malheur NF are forested; represented by the moist, dry upland forest and the upland woodland potential vegetation groups. Dry forest comprises 86%, moist forest 11%, and woodland forest 3% of the forested acres (PR). Approximately 94% of the dry forest and 79% of the moist forest are currently in the mid-seral structure stages. Approximately 21% of the moist forest and 6% of the dry forest are in late-seral stages, including late and old structure (LOS). There are 385 acres of late and old structure, within three parcels, of Forest Plan dedicated old growth.

*The non-Federal parcel distribution* of forested acres by structural stage for each potential vegetation group considered for exchange within each of the three forests is described below and summarized in Table 43. The PR has the Upland Forest Vegetation information on forested acres, potential vegetation, and structure stage distribution by specific exchange parcel.

**Table 43. Non-Federal Land Structure Stage Distribution by Potential Vegetation Group**

National Forest	Potential Vegetation	Structural Stage Distribution					
		Early		Mid		Late	
		Acres	Percent	Acres	Percent	Acres	Percent
Wallowa-Whitman	Cold UF	-0-	-0-	61	100	-0-	-0-
	Moist UF	-0-	-0-	843	67	413	33
	Dry UF	-0-	-0-	1,818	99	26	1
	<b>Total</b>	<b>-0-</b>	<b>-0-</b>	<b>2,722</b>	<b>-</b>	<b>439</b>	<b>-</b>
Umatilla	Cold UF	-0-	-0-	31	100	-0-	-0-
	Moist UF	143	6	1,998	83	258	11
	Dry UF	1,636	21	6,310	79	-0-	-0-
	<b>Total</b>	<b>1,779</b>	<b>-</b>	<b>8,339</b>	<b>-</b>	<b>258</b>	<b>-</b>
Malheur	Cold UF	-0-	-0-	367	100	-0-	-0-
	Moist UF	-0-	-0-	937	100	-0-	-0-
	Dry UF	593	14	3,550	86	-0-	-0-
	Moist UW	-0-	-0-	152	100	-0-	-0-
	<b>Total</b>	<b>593</b>	<b>-</b>	<b>5,006</b>	<b>-</b>	<b>-0-</b>	<b>-</b>

Approximately 3,161 acres of private land proposed to acquire in the Wallowa-Whitman NF are forested; represented by the cold, moist, and dry upland forest potential vegetation groups. Dry forest comprises 58%, moist forest 40%, and cold forest 2% of the forested acres (PR).

Approximately 99% of the dry forest and 67% of the moist forest are currently in the mid-seral stand structure stages. Approximately 1% of the dry forest and 33% of the moist forest are in late-seral stages, including late and old structure (LOS). There are 439 acres in five parcels of multi-strata late and old structure (PR).

Approximately 10,376 acres of private land proposed to acquire in the Umatilla NF are forested; represented by the cold, moist, and dry upland forest potential vegetation groups. Dry forest comprises 77%, and moist forest 23% of the forested acres, less than one percent is cold forests (PR). Approximately 79% of the dry forest and 83% of the moist forest are currently in the mid-seral stand structure stages. Approximately 21% of dry forest and 6% of moist forest are in early-seral stages. Approximately 11% of the moist forest is in the late-seral stages, including late and old structure (LOS). There are 258 acres in four parcels of multi-strata late and old structure (PR).

Approximately 5,599 acres of private and State of Oregon land proposed to acquire in the Malheur NF are forested; represented by the cold, moist, and dry upland forest potential vegetation groups. Dry forest comprises 74%, moist forest 17%, cold forest 6%, and woodland forest 3% of the forested acres (PR). Approximately 86% of the dry forest, and 100% of moist and cold forest, are currently in the mid-seral stand structure stages. Approximately 14% of dry forests are in the early-seral stages. There are no late and old structure stands on non-Federal lands proposed to acquire in the Malheur N.F.

### Comparison of Existing and Historic Late Old Structure (LOS)

Historic structural stage distributions within those watersheds with a potential for a gain or loss of LOS provides a useful reference with which to compare existing and historic structure distribution. Table 44 compares existing and historic structure distribution by watershed and

potential vegetation group. This table includes only those watersheds with exchange parcels having late and old structure (LOS). Current stand structure information, including percent of existing LOS, for Cottonwood Creek Watershed has not been determined and will not be compared.

**Table 44. Comparison of Existing and Historic Late and Old Structure (LOS)**

National Forest	Watershed	Potential Vegetation	Existing % LOS <sup>1</sup>	Historic % LOS <sup>2</sup>	Percent Difference <sup>3</sup>
Wallowa-Whitman	Big Sheep Creek	Dry UF	62	55	+7
	Upper Wallowa	Cold UF	37	40	-3
		Moist UF	24	45	-21
	Bear Creek	Dry UF	29	55	-26
	Lostine River	Moist UF	26	45	-19
	Grande Ronde/ Mud Creek	Dry UF	32	55	-23
Umatilla	Birch Creek	Moist UF	37	45	-8
		Dry UF	75	55	+20
	Lower Camus	Dry UF	37	55	-18
	Meacham Creek	Moist UF	17	45	-28
		Dry UF	22	55	-33
	N. Fork John Day /Potamus Creek	Dry UF	43	55	-12
	Lower N. Fork John Day	Dry UF	35	55	-20
	Rhea Creek	Cold UF	54	40	+14
		Moist UF	26	45	-19
		Dry UF	52	55	-3
Upper Butter Creek	Dry UF	48	55	-7	
Malheur	Lower N. Fork John Day <sup>4</sup>	Moist UF	18	45	-27
		Dry UF	35	55	-20

1) Existing LOS includes NFS land only.

2) Percent historic is a combined average of multi-strata and single-strata LOS (Cold: 30% MS, 10% SS; Moist: 35% MS, 10% SS; Dry: 15% MS, 40% SS).

3) Percent difference of existing and historic indicates LOS deficit (-) or excess (+).

4) Lower N. Fork John Day watershed includes NFS land from Umatilla and Malheur NFs.

Of the watersheds within the Wallowa-Whitman NF, only the dry upland forest group in Big Sheep Creek currently has excess LOS. The other watersheds are currently deficit LOS, ranging from 3 to 26 percent below historic average. Of the watersheds within the Umatilla NF, the dry upland forest of Birch Creek and cold upland forest of Rhea Creek currently have excess LOS. The remaining watersheds are currently deficit, ranging from 3 to 33 percent below historic average. The moist and dry upland forests of the Lower North Fork John Day on the Malheur NF are deficit LOS, 27 and 20 percent below historic average.

### Old Growth

The conveyance of Federal parcels, currently assigned as dedicated Forest Plan old growth would require an amendment of the Wallowa-Whitman, Umatilla, and Malheur Forest Plans. Table 45 shows parcel numbers, parcel acres and watersheds having Federal parcels to convey that have dedicated old growth. Old growth replacement stands have been identified, as part of the mitigation measures necessary for compliance with existing Forest Plans.

**Table 45. Forest Plan Dedicated Old Growth by Acres and Watershed**

National Forest	Parcel Number	Acres	Watershed
Wallowa-Whitman	FW10	3	Big Sheep Creek
	FW24	30	Grande Ronde/Mud Creek
	<b>Total</b>	<b>33</b>	
Umatilla	FU24	75	Upper Butter Creek
	<b>Total</b>	<b>75</b>	
Malheur	FM16A	138	Lower N. Fork John Day River & Cottonwood Creek
	FM18	165	Lower N. Fork John Day River
	FM19	82	Lower N. Fork John Day River
	<b>Total</b>	<b>385</b>	

The Proposed Exchange Alternative would convey 33 acres of Forest Plan dedicated old growth (Management Area 15) from the Wallowa-Whitman NF. Thirty acres of old growth are within Parcels FW24 and three acres are within FW10. These 33 acres are currently dry forest multi-strata LOS (MSLT), with 30 acres in Grande Ronde/Mud Creek Watershed, and 3 acres in Big Sheep Creek Watershed. Sufficient dry forest, multi-strata LOS (MSLT) is available in both watersheds to replace the old growth lost.

Several candidate stands of old growth replacement were identified based on distance from the old growth being lost, adjacency to existing Forest Plan dedicated old growth, stand size, and minimum old growth characteristics represented. Old growth characteristics include a sufficient amount of large (over 21 inches in diameter) and old trees, snags, large down wood, canopy closure, and canopy layers.

Based on the above criteria, an assessment determined that Stand 2IH13S998090 (74 acres) best meets the criteria for replacement in the Grande Ronde/Mud Creek Watershed (Refer to Figure 1 on page 108). A determination was made to propose inclusion of the entire 74 acres (not just 30 acres) for replacement because of the need to have a replacement area large enough to stand-alone. This stand, composed of dry multi-strata LOS, is not adjacent to any other dedicated old growth and is located approximately two miles from the old growth in FW24 proposed for conveyance (Refer to Figure 2 on page 109).

The three acres in parcel FW10 of old growth proposed for conveyance in the Big Sheep Creek Watershed are part of a larger old growth stand. An assessment determined that adding three different acres from another stand immediately adjacent to the larger old growth would provide suitable replacement old growth. A determination was made that the three acres from the northeastern most portion of Stand 2JH16S931155 best meets the criteria for replacement in the Big Sheep Creek Watershed (Refer to Figure 1 on page 108). The replacement old growth is located between two peninsula-shaped sections of existing old growth.

Seventy-five acres of Forest Plan dedicated old growth (Management Area C1) would be conveyed from the Umatilla NF under the Proposed Exchange Alternative. This old growth is within Parcel FU24 and located in the Upper Butter Creek Watershed. The 75 acres are mid-seral structure (YFMS), rather than late and old structure. Dedicated old growth on the Umatilla NF is composed of “suitable” and “capable” old growth habitat. Suitable is defined as existing old growth tree habitat now meeting the minimum Regional FS definition (Region 6 Interim Old

Growth Definitions). Capable old growth is defined as areas capable of becoming old growth in time, but not now meeting the Regional old growth tree habitat definition (Umatilla Forest Plan). Although the stand in Parcel FU24 is currently Forest Plan dedicated old growth, it is neither suitable nor capable old growth habitat (Van Winkle). It would likely take this stand more than 60 to 70 years to develop late and old structure and meet the minimum definition of old growth.

Several candidate stands of potential old growth replacement have been identified based on distance from the old growth being conveyed, adjacency to any existing Forest Plan dedicated old growth, stand size, and represented old growth characteristics. Based on the above criteria, an assessment determined that Stands 5970226 (32 acres) and 5970236 (66 acres) best meets the criteria for replacement in the Upper Butter Creek Watershed (Refer to Figure 3 on page 110). The two stands are contiguous, and are located approximately ½ mile from the old growth proposed for conveyance in parcel FU24. These stands are the closest replacement candidates to the existing old growth. They are composed of moist forest and are mid-seral structure (YFMS). They are the best candidate replacement stands available and are currently providing some old growth habitat characteristics for some of the Forests' management indicator species (Van Winkle). They are capable of becoming old growth and would likely develop late and old structure (meeting minimum old growth definition) in 40 to 60 years.

The Proposed Exchange Alternative would convey 385 acres of Forest Plan dedicated old growth (Management Area 13) from the Malheur NF. This old growth is located on Hamilton Ridge in a nearly contiguous block that provides pileated woodpecker habitat. The 385 acres are within Parcels FM16A (138 acres), FM18 (165 acres), and FM19 (82 acres). The 385 acres are currently dry (264 acres) and moist (121 acres) forest, multi-strata LOS. Of the old growth proposed for conveyance, 375 acres are in the Lower North Fork of John Day River Watershed and 10 acres (moist) are in the Cottonwood Creek Watershed. Replacement old growth acres of multi-strata or single-strata LOS currently does not exist in that portion of the Lower North Fork of John Day River Watershed on the Malheur National Forest or the portion of this watershed located on the Umatilla National Forest. Most of the 385 replacement acres would have to come from mid-seral structures. The replacement stands would likely take 60 to 70 years (for dry forests) and 50 to 60 years (moist forests) to develop LOS characteristics. Structure distribution information and replacement old growth availability is unknown for Cottonwood Creek Watershed.

Field reconnaissance and stand assessment has determined that the only replacement available for the 385 acres of old growth in parcels FM16A, FM18, and FM19 consist of two blocks with several stands each. The “western” block is approximately 210 acres and the “eastern” block is 148 acres. The closest one to the conveyed MA 13 is two miles to the east; the second area is nearly three miles to the east of the conveyed MA 13. A mile of grasslands and scattered timber separates the two replacement areas. Field reconnaissance of the western most replacement area was done by Cheri Miller (Blue Mountain Ranger District wildlife biologist). Stand data from GIS and aerial photographs were used to assess the other area. The proposed replacement areas are not currently old growth habitat and are not capable of supporting management indicator species that rely on mature of old growth habitat. An open road running the length of the western most area, isolation by surrounding timber harvests, and natural fragmentation due to land types (grasslands, natural openings) further contribute to unsuitable old growth conditions in these replacement areas. Based on existing conditions and the capability of the stands, it would likely require more than 60 years for these blocks to achieve old growth conditions capable of supporting reproducing pileated woodpeckers, goshawks, and other old growth associated wildlife species. The identified replacement areas represent the best options for replacement old



growth, but do not meet direction in the Malheur LRMP for old growth. These replacements also appear to not adhere to the spacing criteria established to meet dispersal distances for dependant species. The 210 acre western block is composed of stands 211010016, 211010031, 211010146, 211010160, 211010170, 211010173, 211010190, 211010198, 211010235, 211010238, 211010239, and 211010362. The 148-acre eastern block is composed of Stands 304150109, 304150113, and 304150210 (Refer to Figure 4 on page 111).

## **Environmental Consequences**

The net change in LOS by potential vegetation and by watershed is used to compare alternatives. Most watersheds involved in the Proposed Exchange are well below the historical range of variability for mature and old growth habitat, and some associated wildlife populations reflect this deficit. The gain or loss of LOS and dedicated old growth are measurement indicators of this issue. The time required to replace LOS conveyed through exchange is another consideration in this comparison of alternatives. Acquired older mid-seral stage stands would require fewer years than younger mid-seral stands to develop the old-forest characteristics required of LOS.

Measurement indicators are a means of assessing the extent to which alternatives address and respond to identified significant issues. Mitigation measures for replacing lost dedicated old growth are implemented where possible to comply with Forest Plan management direction on the Wallowa-Whitman, Umatilla, and Malheur National Forests.

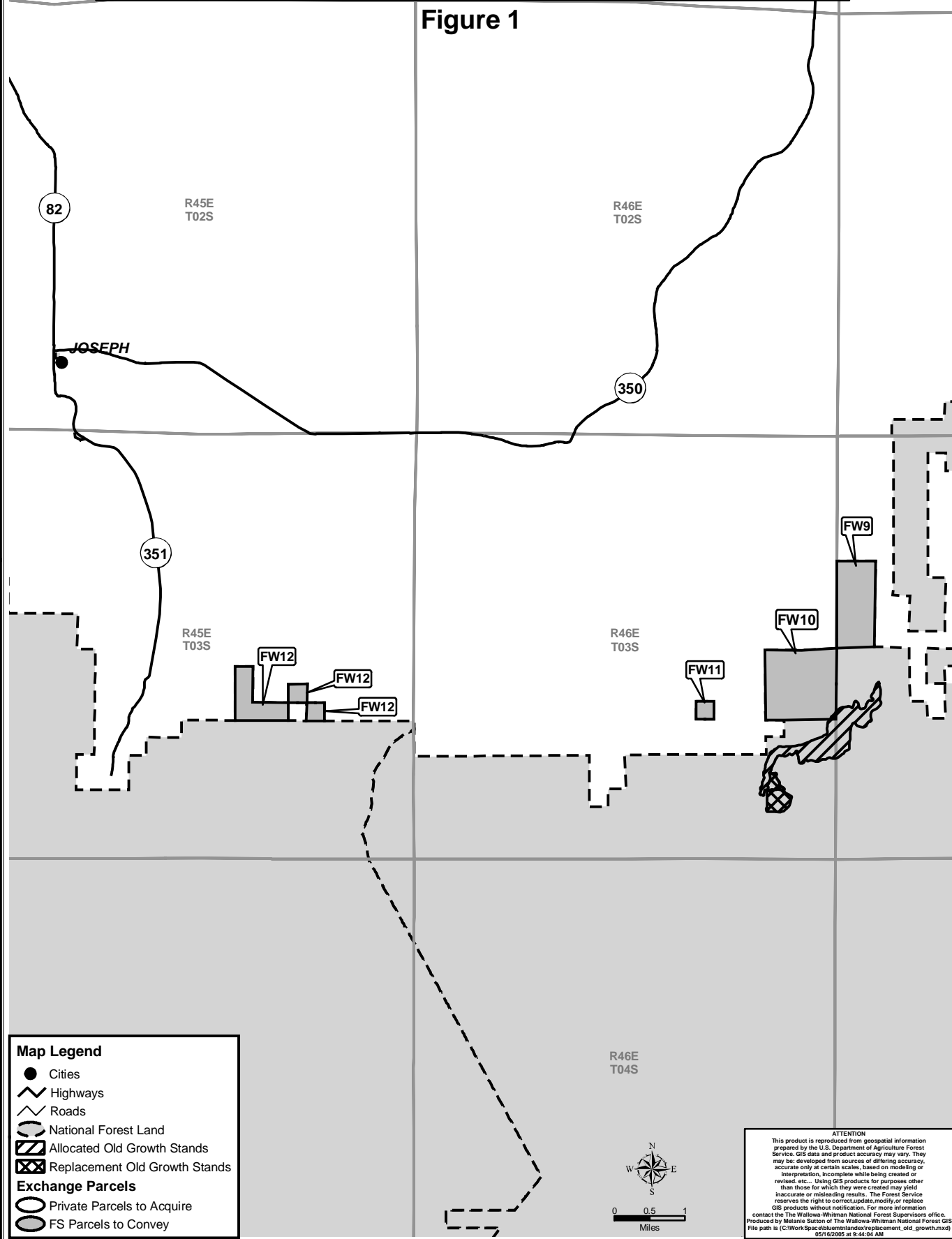
### **Alternative 1: Proposed Exchange**

#### **Late and Old Structure (LOS)**

The Proposed Exchange Alternative conveys LOS. The prospective new owners have indicated that they intend to log the commercial timber on these lands. Large-tree removal would result in current LOS being unable to function as late and old structure in the short and mid term. Alternative 1 would convey 2,205 acres and acquire 697 acres of late and old structure in the project area. The LOS conveyed includes Forest Plan dedicated old growth. Refer to Table 46 for conveyed and acquired LOS by watershed and potential vegetation. This table also displays the net acres gain/loss and the percent gain/loss from existing conditions on NFS lands.

# Identified Old Growth Replacement Stands for Parcel FW10 Wallowa-Whitman National Forest

Figure 1



**Map Legend**

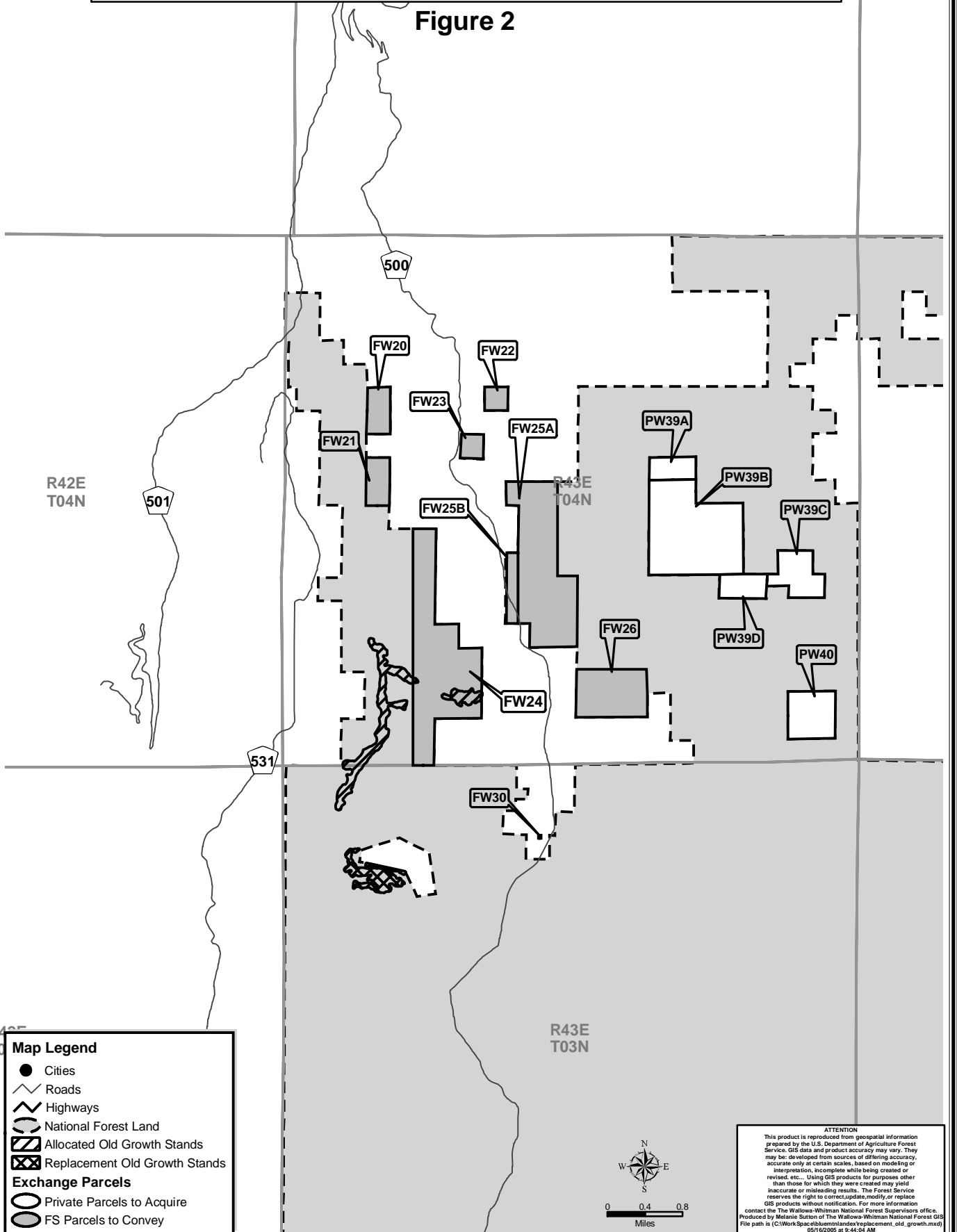
- Cities
- ⚡ Highways
- ⚡ Roads
- ▭ National Forest Land
- ▨ Allocated Old Growth Stands
- ▩ Replacement Old Growth Stands
- Exchange Parcels**
- Private Parcels to Acquire
- FS Parcels to Convey

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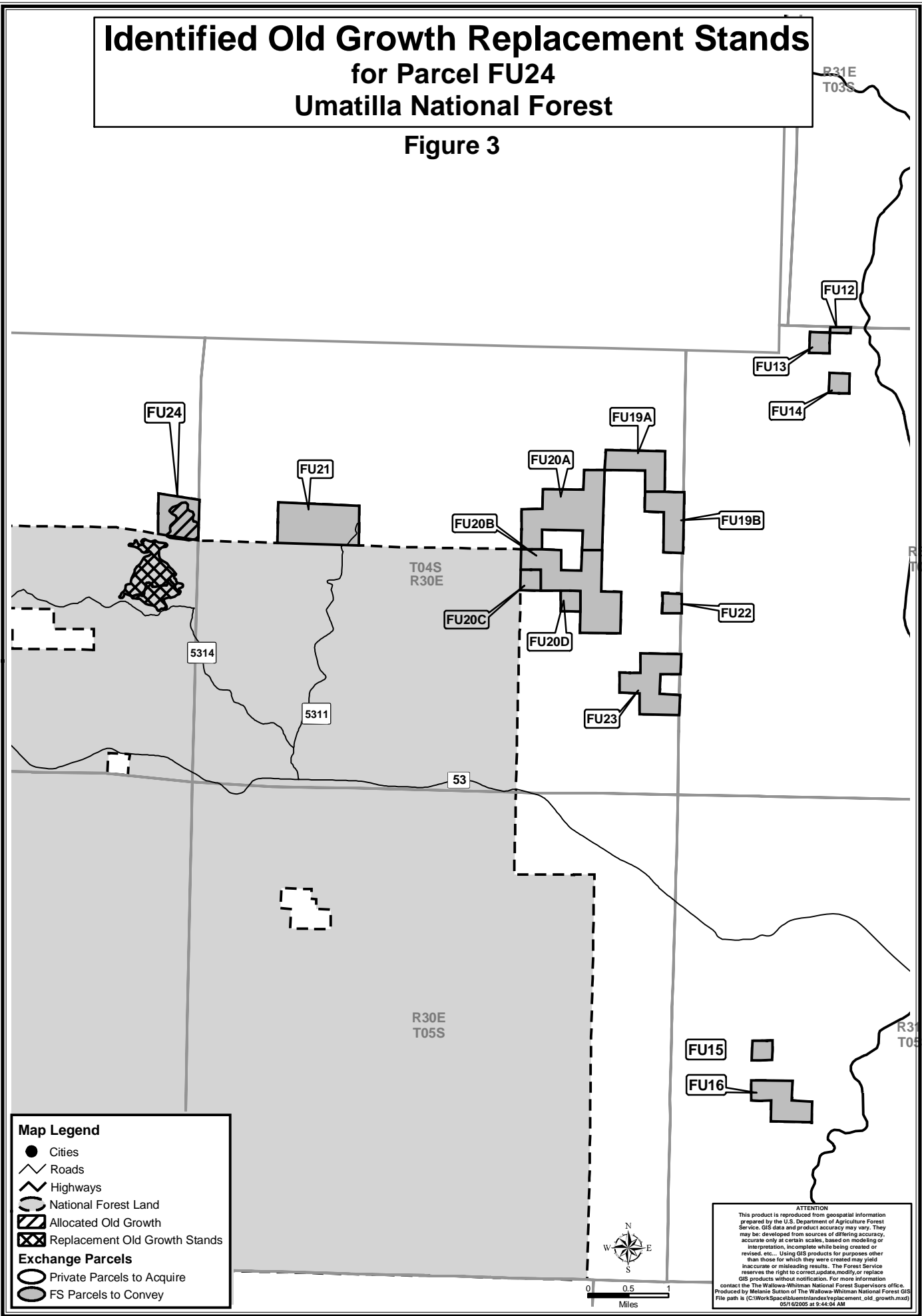
# Identified Old Growth Replacement Stands for Parcel FW24 Wallowa-Whitman National Forest

Figure 2



# Identified Old Growth Replacement Stands for Parcel FU24 Umatilla National Forest

Figure 3



**Map Legend**

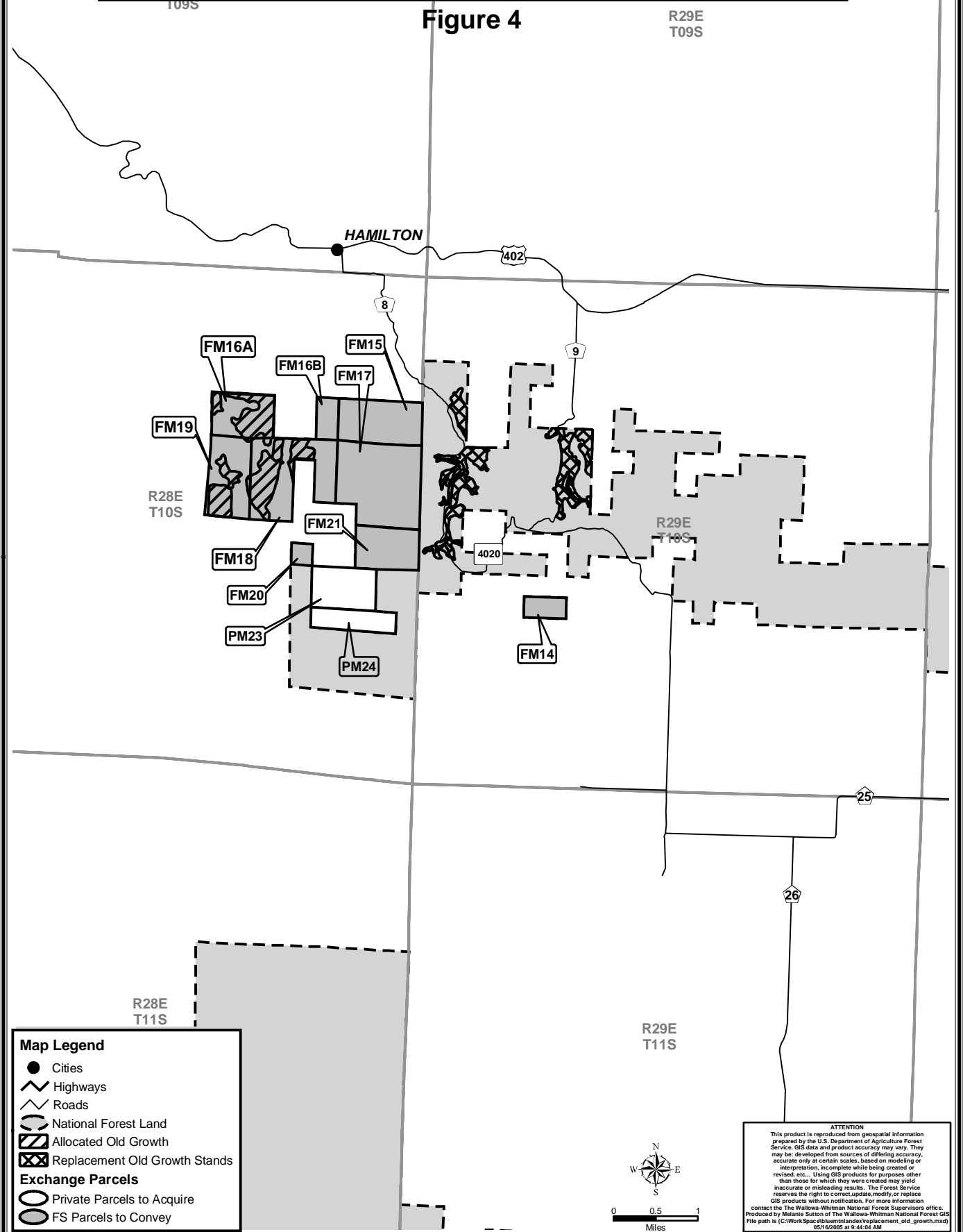
- Cities
- Roads
- Highways
- ▭ National Forest Land
- ▨ Allocated Old Growth
- ▩ Replacement Old Growth Stands
- Exchange Parcels**
- Private Parcels to Acquire
- FS Parcels to Convey

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# Identified Old Growth Replacement Stands for Parcels FM16A, FM18, & FM19 Malheur National Forest

Figure 4

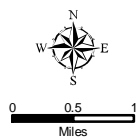


**Map Legend**

- Cities
- Highways
- Roads
- ▭ National Forest Land
- ▨ Allocated Old Growth
- ▩ Replacement Old Growth Stands

**Exchange Parcels**

- Private Parcels to Acquire
- ◐ FS Parcels to Convey



**ATTENTION**

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**Table 46. Alternative 1 – Conveyed and Acquired Late and Old Structure (LOS)**

National Forest	Watershed	Potential Vegetation	NFS LOS Acres Conveyed <sup>4</sup>	Private and State LOS Acres Acquired	Net Acres Gain (+) Loss (-)	Percent Gain Loss (-) <sup>2</sup>
Wallowa-Whitman	Big Sheep Creek	Dry UF	209	-0-	-209	-1
	Upper Wallowa	Cold UF	64	-0-	-64	-2
		Moist UF	-0-	409	+409	+1
	Bear Creek	Dry UF	7	-0-	-7	-0-
	Lostine River	Moist UF	-0-	4	+4	-0-
	Grande Ronde/ Mud Creek	Dry UF	187	26	-161	-1
	<b>Total</b>	<b>All</b>		<b>439</b>	<b>-28</b>	<b>-</b>
Umatilla	Birch Creek	Moist UF	31	-0-	-31	-0-
		Dry UF	121	-0-	-121	-1
	Lower Camus	Dry UF	470	-0-	-470	-2
	Meacham Creek	Moist UF	26	258	+232	+2
		Dry UF	346	-0-	-346	-2
	N. Fork John Day/ Potamus Ck.	Dry UF	142	-0-	-142	-0-
	Rhea Creek	Cold UF	5	-0-	-5	-1
		Moist UF	62	-0-	-62	-1
		Dry UF	5	-0-	-5	-0-
	Upper Butter Ck.	Dry UF	107	-0-	-107	-2
	<b>Total</b>	<b>All</b>	<b>1,315</b>	<b>258</b>	<b>-1,057</b>	<b>-</b>
	Malheur	Lower N. Fork John Day <sup>1</sup>	Moist UF	111	-0-	-111
Dry UF			302	-0-	-302	-8
Cottonwood Creek <sup>3</sup>		Moist UF	10	-0-	-10	Unknown
<b>Total</b>		<b>All</b>	<b>423</b>	<b>-0-</b>	<b>-423</b>	<b>-</b>

1) Malheur NF portion of Lower N. Fork John Day watershed (Dry UF) includes 38 acres of Umatilla NF.

2) Percent gain or loss is the change from existing conditions.

3) Amount of existing LOS in Cottonwood Creek is unknown.

4) NFS acres of LOS lost include Forest Plan dedicated old growth from the Wallowa-Whitman and Malheur NFs; the Umatilla NF dedicated old growth is not included because this dedicated old growth does not qualify as LOS (refer to old growth discussion.)

The Wallowa-Whitman NF would convey 467 acres, and acquire 439 acres of LOS; all of the LOS acquired and conveyed is multi-strata (three or more tree layers) (PR). The LOS conveyed includes 33 acres of Forest Plan dedicated old growth. Approximately 403 acres of dry forest LOS and 64 acres of cold forest LOS would be conveyed. Nearly 85 percent of LOS conveyed would be located in the Big Sheep and Grande Ronde/Mud Watersheds. Approximately 413 acres of moist forest LOS and 26 acres of dry forest LOS would be acquired. Over 93 percent of the LOS that would be acquired is in the Upper Wallowa Watershed. Only moist forests of the Upper Wallowa and Lostine River Watersheds would increase from the existing conditions in LOS. The other watersheds would decrease from 7 to 209 acres of LOS.

The Umatilla NF would convey 1,353 acres and acquire 258 acres of late and old structure. Of the LOS conveyed, 1,066 acres are multi-strata and 286 acres are single-strata (PR). Approximately 1,229 acres of dry forest LOS, 119 acres of moist forest LOS, and 5 acres of cold forest LOS would be conveyed. Over 73 percent of the LOS conveyed is located in Birch, Lower Camus, and Meacham Creek Watersheds. Only the moist forest of Meacham Creek would increase from the existing conditions in LOS; gaining 258 acres. The remaining watersheds would decrease from 5 to 470 acres of LOS.

All 385 acres of late and old structure that would be conveyed from the Malheur NF are Forest Plan dedicated old growth (refer to Old Growth narrative). Thirty-eight acres of LOS that would be conveyed from the Lower North Fork John Day River (Table 46) are actually part of the Umatilla NF, and are not Forest Plan dedicated old growth. No LOS acres would be acquired. The dedicated old growth that would be conveyed includes Parcel FM16A (138 acres), Parcel FM18 (165 acres), and Parcel FM19 (82 acres). All of the dedicated old growth conveyed would be multi-strata, 264 acres of dry forest and 121 acres of moist forest. All but 10 acres conveyed would be located in the Lower North Fork John Day River Watershed. The Malheur NF portion of the Lower North Fork John Day River Watershed would convey 111 acres of moist forest and 302 acres of dry forest. The remaining 10 acres of LOS conveyed would be located in the Cottonwood Creek Watershed.

The indirect and cumulative effects of conveying LOS has to do with ecological sustainability; the ability to sustain historic conditions on NFS lands within the context of naturally occurring disturbance regimes. Because native species are adapted to the disturbance regime of an area, ecosystem elements occurring within their historic range are believed to represent sustainable, resilient, productive, and healthy conditions. LOS levels outside the historic range are believed to be at greater risk of potentially losing ecosystem function, therefore putting some native species dependant on LOS at risk. Refer to the watershed, wildlife, and fisheries sections for discussions on indirect and cumulative effects to native species.

The extent to which LOS gain or loss on NFS lands influences a watershed depends on a comparison of existing LOS to historic conditions. The historic range and average mid-point have been used as benchmarks for comparing existing and historic levels. Comparison to a historic range is often used since structural stage levels naturally fluctuate over time. However, the historic mid-point is a more useful benchmark in this analysis because of the general under-representation of LOS and the best science represented by ICBEMP that emphasizes moving toward attainment of LOS at levels meeting the historic range of variability midpoint. Watersheds with less LOS than the historic mid-point are considered deficit while those with more than the historic mid-point are considered excess. LOS conveyed in watersheds already deficit is considered as having a greater adverse effect than LOS conveyed in watersheds currently in excess. Refer to Table 47 for a comparison of percent historic average LOS with existing percent LOS and the percent LOS resulting from the Proposed Land Exchange.

**Table 47. Percentage of (LOS) for Historic, Existing, and Proposed Exchange**

National Forest	Watershed <sup>1</sup>	Potential Vegetation	Historic % LOS <sup>2</sup>	Existing % LOS <sup>3</sup>	Proposed Exchange % LOS
Wallowa-Whitman	Big Sheep Creek	Dry UF	55	62	61
	Upper Wallowa	Cold UF	40	37	35
		Moist UF	45	24	25
	Bear Creek	Dry UF	55	29	29
	Lostine River	Moist UF	45	26	26
Umatilla	Birch Creek	Moist UF	45	37	37
		Dry UF	55	75	74
	Lower Camus	Dry UF	55	37	35
	Meacham Creek	Moist UF	45	17	19
		Dry UF	55	22	20
	N. Fork John Day/Potamus Creek	Dry UF	55	43	43
	Rhea Creek	Cold UF	40	54	53
		Moist UF	45	26	25
		Dry UF	55	52	52
	Upper Butter Creek	Dry UF	55	48	46
	Malheur	Lower N. Fork John Day <sup>4</sup>	Moist UF	45	18
Dry UF			55	35	27

1) Includes only those watersheds with exchange parcels (FS, State or private) having LOS.

2) Percent historic LOS is a combined average of the historic range for multi-strata and single-strata LOS.

3) Percent existing LOS is the total of both multi-strata and single-strata LOS.

4) Lower N. Fork John Day watershed includes NFS land from Umatilla and Malheur NFs.

Those watersheds gaining substantial LOS, the moist forests of Upper Wallowa River and Meacham Creek, would remain 20 and 26 percent deficit respectively. The LOS deficit in the Lower North Fork John Day Watershed would increase from 27 to 45 percent in moist forests and from 20 to 28 percent in dry forests. LOS deficits in the dry forests of Bear, Grande Ronde/Mud, Lower Camus, and Meacham Creek, would be 20 percent or greater. The LOS deficit in moist forests of Rhea Creek would also be twenty percent. None of the watersheds currently having excess LOS of a particular potential vegetation group would become deficit as a result of the Proposed Land Exchange. The dry forests of Big Sheep and Birch Creek, and cold forests of Rhea Creek would continue to have excess LOS, although each watershed has a net reduction in LOS.

Past management practices, including fire suppression and timber harvest, have resulted in a shift from single-strata LOS toward multi-strata LOS, especially in dry forests. Therefore, in addition to being deficit from the historic average, most Blue Mountain watersheds are also currently below the historic range for single-strata LOS in dry forests.

In summary by forest, the percentage LOS reduction or increase would change little in the *Wallowa-Whitman NF* watersheds. Most watersheds would remain deficit from the historic average, and below the historic range in single-strata LOS due to existing conditions. The percentage LOS reduction or increase would change little in the *Umatilla NF* watersheds. Most of the watersheds would remain deficit from the historic range in either single-strata or multi-strata



LOS, and the historic average in both structures due to existing conditions. The highest percentage LOS reduction from the Proposed Exchange occurs in that portion of the Lower North Fork John Day River Watershed on the *Malheur NF*. The watershed’s moist and dry forests would be reduced 18 and 8 percent respectively, remaining deficit from the historic average. For a detailed discussion on the change from the existing condition to what would occur from the Proposed Land Exchange refer to the Vegetation Specialist Report in the PR.

Unlike Forest Plan dedicated old growth, a forest plan amendment is not required to convey LOS on NFS lands. However it is desirable to move forests toward the historic range of variability at the landscape scale (ICBEMP). An assessment of the time required to replace conveyed LOS would disclose the anticipated duration of effects (Refer to Table 48). The longer the time required to achieve late/old structural characteristics, the greater the likely potential effects would be. Natural attainment of late and old structure characteristics would take many years. Therefore, “replacement” of LOS would not occur immediately. Since large-tree densities distinguish LOS in the Blue Mountains, attainment of a large-tree component is important. Stands having a large tree component commonly have several trees greater than 20 inches in diameter. The time required for attainment of large-trees depends on potential vegetation, current tree size and growth rate. Stands with larger, older trees on moist sites require less time to reach LOS structure than stands with smaller trees on drier sites. Because of the Eastside Screens, any future projects proposed in these watersheds would be required to consider the status of LOS before prescribing treatments. In watersheds with deficit LOS, treatments would only be prescribed if they accelerate or maintain LOS. Only dedicated old growth areas require replacement when they are lost to disturbance, conveyed in an exchange, or a better quality stand is identified. Actual “replacement” of late and old structure stands would not occur for at least 50 years (moist forests) until LOS characteristics develop. In the interim, these stands would not provide old-forest habitat. Refer to the Wildlife section for specific effects to old-forest dependent species.

**Table 48. Alternative 1 – LOS Replacement by Potential Vegetation in Watersheds**

Watershed	Potential Vegetation	LOS Acres Needing Replacement	Potential Replacement Existing Structure	Years to Attain LOS <sup>1</sup>
Upper Wallowa	Cold UF	64	MSLTU	80 - 100
Bear Creek	Dry UF	7	MSLTU	60 - 70
Grande Ronde/ Mud Creek	Dry UF	161	MSLTU	60 - 70
Birch Creek	Moist UF	31	YFMS	50 - 60
Lower Camus	Dry UF	470	YFMS	60 - 70
Meacham Creek	Dry UF	346	YFMS	60 - 70
N. Fork John Day/Potamus Creek	Dry UF	142	YFMS	60 - 70
Rhea Creek	Moist UF	62	YFMS	50 - 60
	Dry UF	5	YFMS	60 - 70
Upper Butter Creek	Dry UF	107	YFMS	60 - 70
Lower N. Fork John Day	Moist UF	121	YFMS	50 - 60
	Dry UF	302	YFMS	60 - 70

1) Years to attain LOS (average top layer tree diameter of 21 inches) assumes 1.0 to 1.2 inches diameter growth-per-decade (Dry UF), 0.8 to 1.0 inches diameter growth per decade (Cold UF), 1.2 to 1.5 inches diameter growth-per-decade (Moist UF)  
Assumes current average top layer tree diameter of 13 inches (Cold UF) and 14 inches (Moist & Warm UF)

### Old Growth

The Proposed Exchange Alternative would convey 33 acres of Forest Plan dedicated old growth from the Wallowa-Whitman NF in the Grande Ronde/Mud and Big Sheep Creek Watersheds. Replacing 30 acres of existing old growth in the Grande Ronde/Mud Watershed with 74 acres of late and old structure forest would have a positive effect because it results in a net increase of old growth acres set-aside to provide old growth habitat. Both the existing and replacement stands have similar old growth attributes. The replacement stand has sufficient amounts of large trees, snags, multiple canopy layers, and crown cover to provide suitable old growth. The location of this replacement stand appears to enhance connectivity for old growth associated wildlife species between two other allocated old growth areas, assuming the old growth allocation approach is continued in the next Forest Planning effort. In actuality, the current structure based (HRV) approach to forest management will do a better job of providing for connectivity between old growth habitat patches than provided by the old growth allocation approach. This means that even though the identified replacement old growth area appears to improve connectivity, it is a moot point considering that the HRV approach would have at least an equal or better result. These replacement old growth areas represent a net increase in MA 15 of 44 acres. The locations of the replacement areas appear to meet the distribution criteria established in Appendix M of the Wallowa-Whitman Land and Resource Management Plan (W-W LRMP 1990). Replacing a 3-acre portion of a larger old growth area in the Big Sheep Creek Watershed with 3 acres of forest, adjacent to another part of the same old growth stand, would have a positive effect because of the connectivity the replacement acres would provide (Knox). The two peninsula-shaped sections of existing old growth would be joined, ensuring the area between to be managed for providing old growth habitat.

Replacement of dedicated old growth with the stands identified above is consistent with the Wallowa-Whitman Forest Plan goals because they provide suitable old growth habitat for wildlife. The replacement stands are consistent with the Wallowa-Whitman Forest Plan standards and guidelines because they have sufficient amounts of large trees and snags (for dry forest types). In addition, replacement stands were selected from sites having similar character to the old growth stands they would replace. Because the location of the dedicated old growth would change, the Wallowa-Whitman Forest Plan would be amended to designate the replacement stands as Old Growth.

The Proposed Exchange Alternative would convey 75 acres of Forest Plan old growth from the Umatilla NF in the Upper Butter Creek watershed. Replacing 75 acres of existing dedicated old growth in Upper Butter Creek with 98 acres of forest would have a positive effect from a net increase of old growth acres set-aside to provide old growth habitat. The replacement stands are currently providing some old growth habitat and are capable of providing suitable habitat in 40 to 60 years; compared to 60 to 70 years for the existing dedicated old growth. The old growth characteristics of the two replacement stands are currently better represented than the old growth characteristics of the dedicated old growth in Parcel FU24.

Replacement of dedicated old growth with the stands identified above is consistent with the Umatilla Forest Plan goals because the replacement stands currently have better old growth characteristics and currently provide some old growth habitat characteristics for management indicator species. In addition, the replacement stands would provide suitable old growth habitat for wildlife sooner than the currently dedicated old growth. The replacement stands are consistent with the Umatilla Forest Plan standards and guidelines because the replacement habitat is better than the original dedicated old growth habitat. Because the location of the dedicated old growth

would change, the Umatilla Forest Plan would be amended to designate the replacement stands as Old Growth.

The Proposed Exchange Alternative would convey 385 acres of Forest Plan dedicated old growth from the Malheur NF in the Lower North Fork of John Day River and Cottonwood Creek Watersheds. Replacement old growth acres of multi-strata or single-strata LOS are currently limited in that portion of the Lower North Fork of John Day River Watershed. There are a sufficient amount of acres of mid-seral stands that potentially would attain late and old structure (50-60 years for moist forests and 60-70 years for dry forests) in the future. Field reconnaissance and stand assessment has identified two blocks of 358 acres that are the most similar to the old growth proposed for conveyance and are the best available replacement candidates. Given time, these stands would likely develop the minimum old growth characteristics required for tree size, snags, canopy cover, canopy layers, and down wood. Actual “replacement” of old growth would not occur for at least 50 years (moist forests) until old-forest characteristics develop. In the interim, these stands would not provide old-forest habitats. Refer to the Wildlife section for effects to old-forest dependent species. However even with time, these replacement stands are not large enough by themselves, nor are they contiguous to similar stands to form a 300-acre block that provides suitable pileated woodpecker habitat.

The Forest Plan requires dedicated old growth managed as pileated woodpecker habitat to be 300 acres or larger, although blocks of less than 300 acres are acceptable if the areas are separated by less than ¼ mile. The two identified blocks do not meet this requirement. Therefore, replacement of 385 acres of existing old growth in the Lower North Fork of John Day River Watershed with two blocks of 358 acres does not meet the Malheur Forest Plan direction for old growth. The Malheur Forest Plan would be amended by any decision to implement this alternative to allow the replacement Old Growth despite this reduction in designated pileated woodpecker habitat. In addition, because the location of the dedicated old growth would change and the replacement stands do not meet LRMP guidelines, the Malheur Forest Plan would be amended to designate the replacement stands as Old Growth. Refer to the wildlife section on late and old structure habitat for a discussion on the effects to old growth dependant species.

### **Alternative 2: No Action**

This alternative would result in no change of ownership. There would be no conveyance of Forest Plan dedicated old growth and no conveyance or acquisition of LOS. Forest Plan amendments on dedicated old growth would not be required.

Watersheds with LOS levels currently outside the historic range would continue to be at risk of compromised ecosystem function, therefore likely putting some native species at risk. Refer to Table 47, for a comparison of existing percent LOS with historic percent LOS.

### **Alternative 3: Purchase**

This alternative would only purchase high priority parcels. Forest Plan amendments on dedicated old growth would not be required. Direct effects to LOS would be minimal because only one parcel proposed for purchase has LOS. The Purchase Alternative would gain four acres (Parcel PW37) of moist upland forest, multi-strata LOS. The four acres gained would occur in the Lostine River Watershed that is currently deficit 19 percent LOS from historic levels. Of the 55,026 acres of moist upland forest in the Lostine River Watershed, 14,058 acres are LOS. The four acres gained would not appreciably change the LOS deficit. Watersheds with LOS levels

currently outside the historic range would continue to be at risk of losing ecosystem function, therefore likely putting some native species at risk. Refer to Table 47, for a comparison of existing percent LOS with historic percent LOS.

#### **Alternative 4: Deed Restriction**

Private forest management options would be limited for all conveyed Federal parcels because of the deed restriction prohibiting harvest of trees over 21 inches in diameter. This restriction retains the large-tree component of late and old structure. However, Alternative 4 does not ensure that conveyed Forest Plan dedicated old growth would continue to function as old-forest habitat. Subsequent harvest of understory trees after conveyance could eliminate a tree canopy layer and reduce crown cover, key components of old-forest habitat of multi-strata forests. Loss of a canopy layer and reduction in the crown cover affects a stand's ability to function as old-forest habitat. Refer to the Wildlife section for specific effects to old-forest dependent wildlife species. Forest Plan amendments would still be required to convey dedicated old growth. Loss of Forest Plan dedicated old growth would occur from the Wallowa-Whitman (33 acres), Umatilla (75 acres), and Malheur (385 acres) National Forests. Refer to Table 45, for a list of Federal parcels with Forest Plan old growth. The Alternative 1, Environmental Consequences section, discloses effects related to old growth replacement.

The 2,205 acres of LOS conveyed would retain the large-tree component of late and old structure due to the deed restriction. Whether the LOS conveyed remains late and old structure depends on the level of subsequent harvest. Harvest of smaller understory trees could eliminate a tree canopy layer and reduce crown cover, key components of late and old structure in multi-strata forests. Loss of a canopy layer and reduction in crown cover affects a stand's ability to function as old-forest habitat. The 287 acres of single-strata LOS would likely remain late and old structure and may function as old-forest habitat.

It is difficult to predict the level of harvest that may occur on conveyed parcels containing LOS, especially with the restriction to retain large trees. Harvest may be economically unfeasible on some stands due to lack of access and steepness of slope. Harvest of smaller understory trees on some stands may remove only particular high-value tree species, leaving sufficient amounts of other trees to constitute a canopy layer and retain adequate crown cover. Since the level of subsequent harvest cannot be accurately predicted, it is assumed that the 2,205 acres of LOS conveyed would remain as late and old structure. In terms of large live trees and the restriction on removal of >21"DBH live trees it would not necessarily preclude the loss of LOS habitat as it relates to wildlife.

The FS would acquire fewer non-Federal parcels due to a lower fair market value of Federal parcels. In this alternative, only four acquired parcels have LOS resulting in a net gain of 413 LOS acres. Refer to Table 49 for Alternative 4 LOS gained by forest.

**Table 49. Alternative 4 – Gain of Late and Old Structure (LOS)**

National Forest	Watershed	Potential Vegetation	Private and State LOS Acres Gained	Percent Gain <sup>1</sup>
Wallowa-Whitman	Upper Wallowa	Moist UF	409	+1
	Lostine River	Moist UF	4	-0-
	<b>Total</b>	<b>All</b>	<b>413</b>	<b>-</b>
Umatilla	<b>Total</b>	<b>All</b>	<b>-0-</b>	<b>-</b>
Malheur	<b>Total</b>	<b>All</b>	<b>-0-</b>	<b>-</b>

1) Percent gain is the change from existing conditions. Less than one percent gain = -0-.

The cumulative effects associated with the minimal gain in LOS under this alternative would be insignificant. All of the watersheds gaining LOS would remain below historic levels. The largest increase of LOS would occur in the Upper Wallowa watershed (409 acres). The increase would only raise LOS above existing levels by 1%.

**Alternative 5: Preferred Alternative**

**Late and Old Structure (LOS)**

Since there is a small change in structural stages between Alternative 1 and 5; the Preferred Alternative will be compared to Proposed Exchange. Refer to Table 50 for Alternative 5 changes from Alternative 1.

**Table 50. Alternative 5 Changed Late and Old Structure (LOS) acres from Alternative 1**

Watershed	Potential Vegetation	Parcel	NFS LOS Acres Not Conveyed	Private LOS Acres Not Acquired
Lostine River	Moist UF	PW37	-0-	4
Meacham Creek	Dry UF	FU3A	3	-0-
		FU3B	4	
		FU3E	50	
Upper Butter Ck.	Dry UF	FU21	68	-0-
Lower N. Fork John Day	Dry UF	FU28	38	-0-
<b>Total</b>			<b>163</b>	<b>4</b>

Four acres (parcel PW37) of private land LOS from the Lostine Watershed were not conveyed from this alternative when compared with Alternative 1. As a result, Alternative 5 would not significantly change the net gain or loss of LOS acres in the Lostine River Watershed. Alternative 5 effects on the Wallowa-Whitman would be almost the same as for Alternative 1, except that 435 acres of total private land LOS would be gained, resulting in a net loss of 32 acres of LOS. Alternative 1 has a net loss of 28 acres (Table 46).

One hundred sixty three acres of Umatilla NF land LOS from the Meacham, Upper Butter, and Lower North Fork John Day Watersheds were not conveyed when compared with Alternative 1. As a result, the NFS land LOS net acres lost would be 289 for Meacham and 39 acres for Upper Butter Watersheds. The acres lost represent about one percent of the existing LOS in each of those watersheds. In addition, 38 acres of NFS land LOS in the Lower North Fork John Day

Watersheds are not conveyed in Alternative 5 when compared with Alternative 1, resulting in a net loss of 264 acres. The acres lost represent about seven percent of the existing LOS in the Lower North Fork John Day Watershed. Refer to Table 51 for gain and loss of LOS by watershed and potential vegetation for Alternative 5.

**Table 51. Conveyed and Acquired Late and Old Structure (LOS) for Alternative 5**

National Forest	Watershed	Potential Vegetation	NFS LOS Acres conveyed	Private and State LOS Acres Acquired	Net Acres Gain (+) Loss (-)	Percent Gain (+) Loss (-)
Wallowa-Whitman	Big Sheep Creek	Dry UF	209	-0-	-209	-1
	Upper Wallowa	Cold UF	64	-0-	-64	-2
		Moist UF	-0-	409	+409	+1
	Bear Creek	Dry UF	7	-0-	-7	-0-
	Grande Ronde/ Mud Creek	Dry UF	187	26	-161	-1
	<b>Total</b>	<b>All</b>	<b>467</b>	<b>435</b>	<b>-32</b>	
Umatilla	Birch Creek	Moist UF	31	-0-	-31	-0-
		Dry UF	121	-0-	-121	-1
	Lower Camus	Dry UF	470	-0-	-470	-2
	Meacham Creek	Moist UF	26	258	+232	+2
		Dry UF	289	-0-	-289	-1
	N. Fork John Day/ Potamus Ck.	Dry UF	142	-0-	-142	-0-
	Rhea Creek	Cold UF	5	-0-	-5	-1
		Moist UF	62	-0-	-62	-1
		Dry UF	5	-0-	-5	-0-
	Upper Butter Ck.	Dry UF	39	-0-	-39	-1
	<b>Total</b>	<b>All</b>	<b>1,190</b>	<b>258</b>	<b>-932</b>	
Malheur	Lower N. Frk John Day	Moist UF	111	-0-	-111	-18
		Dry UF	264	-0-	-264	-7
	Cottonwood Creek	Moist UF	10	-0-	-10	Unknown
	<b>Total</b>	<b>All</b>	<b>385</b>	<b>-0-</b>	<b>-385</b>	

- Notes:
- 1) Percent gain or loss is the change from existing conditions.
  - 2) Amount of existing LOS in Cottonwood Creek is unknown.
  - 3) NFS acres of LOS lost include Forest Plan dedicated old-growth from the Wallowa-Whitman and Malheur NF's.
  - 4) A reduction of 38 acres of LOS lost in the Lower North Fork John Day is reflected under the Malheur NF.

### Old Growth

There would be no change between Alternative 1 and 5 in conveyance of Forest Plan dedicated old growth. Refer to Alternative 1 old growth effects narrative.

**All Alternatives – Summary**

Refer to the following Tables 48 and 49 for a summary on comparison of alternatives by a net reduction of LOS acres and by acres of old growth conveyed.

Approximately 1,508 net acres of late and old structure would be lost under the Proposed Exchange Alternative, including the conveyance of 493 acres of dedicated old growth. Forest plan amendments are not required to convey LOS (other than Forest Plan old growth) to another ownership. No LOS would be lost under the No Action Alternative. Four acres of LOS would be gained under the Purchase Alternative. Approximately 1,792 acres of LOS would be lost under the Deed Restriction Alternative. Approximately 1,349 net acres of late and old structure would be lost under the Preferred Alternative, compared to 1,508 net acres lost under Alternative 1. The difference between Alternatives 1 and 5 when comparing lost LOS would be 4 acres of private land not acquired in Alternative 5 and 163 acres of NFS land with LOS not conveyed in Alternative 5.

A reduction in the amount of LOS would not constitute an irreversible and irretrievable commitment of resources because LOS is a temporal stage of forest development that is continuously being replaced across the landscape over time.

The Proposed Exchange, Deed Restriction and Preferred Alternatives would convey 493 acres of Forest Plan dedicated old growth (Table 53). The Forest Plans of the Wallowa-Whitman, Umatilla, and Malheur National Forests would need amendments to convey dedicated old growth to another ownership. Identified old growth replacement on the Wallowa-Whitman N.F. is currently suitable habitat. Identified old growth replacement on the Umatilla N.F. does not currently meet minimum requirements for some old growth components, but is currently better habitat than the dedicated old growth stand it would replace and it is capable of providing suitable habitat in the future. Identified old growth replacement on the Malheur N.F. does not currently meet minimum requirements for most old growth components. It does not meet stand size and does not provide suitable old growth tree habitat for pileated woodpecker. No dedicated old growth would be conveyed under the No Action or Purchase Alternatives. Forest Plan dedicated old growth conveyed under the Deed Restriction Alternative would likely retain late and old structural characteristics due to the restriction requiring retention of large trees. However, this alternative does not ensure all the characteristics necessary to provide suitable old growth habitat are retained in the future. Refer to the Wildlife section for a disclosure on effects to wildlife.

**Table 52. Alternative Comparison by Net Reduction of LOS Acres**

Measurement Comparison	National Forest	Alternatives				
		1	2	3	4	5
Late and Old Structure Net Acres Gained (+) or Lost (-)	Wallowa-Whitman	-28	-0-	+4	-54	-32
	Umatilla	-1,057	-0-	-0-	-1,315	-932
	Malheur	-423	-0-	-0-	-423	-385
	<b>Total</b>	<b>-1,508</b>	<b>-0-</b>	<b>+4</b>	<b>-1,792</b>	<b>-1,349</b>

Net acres of LOS include dedicated old growth from the Wallowa-Whitman and Malheur NFs.

**Table 53. Alternative Comparison by Acres of Old growth Conveyed**

Measurement Comparison	National Forest	Alternatives				
		1	2	3	4	5
Forest Plan Old growth Acres Conveyed	Wallowa-Whitman	33	-0-	-0-	33	33
	Umatilla	75	-0-	-0-	75	75
	Malheur	385	-0-	-0-	385	385
	<b>Total</b>	<b>493</b>	<b>-0-</b>	<b>-0-</b>	<b>493</b>	<b>493</b>

Old growth lost to be replaced with currently suitable habitat (Wallowa-Whitman), or capable habitat (Umatilla), or unsuitable habitat (Malheur).

## Threatened and Endangered Vegetation Species

Management activities considered in this FEIS require an affects analysis be completed on all threatened, endangered and sensitive species. This process analyzes and documents the predicted effects of proposed management activities necessary to ensure that the action alternatives would not jeopardize the continued existence or cause adverse modification of habitat for:

- Species listed, or proposed to be listed, as endangered or threatened under the Endangered Species Act P.L. 93-205 (ESA) by the U.S. Fish and Wildlife Service. Threatened, endangered and proposed plant species that may occur in the project area were provided by the U.S. Fish and Wildlife Service (USFWS)(USDI, Fish and Wildlife Service, Letter to Karen Wood, Species list number SP # 1-4-02-SP-912, of September, 2002). Threatened, endangered or proposed plants are not known or suspected to occur on the Malheur National Forest. There are no known occurrences of endangered, threatened, or proposed, plant species within or adjacent to proposed lands to convey or acquire on the Umatilla National Forest.
- Species designated “sensitive” by USDA FS, Pacific Northwest Region. Species considered in this analysis include sensitive plants listed by the Regional Forester in the Pacific Northwest Region (R6). There are no known occurrences of sensitive plant species within or adjacent to proposed lands to convey or acquire on the Umatilla National Forest. Sensitive plants were not found on the Malheur National Forest.
- Plants considered rare or endemic in the Hells Canyon National Recreation Area (HCNRA).

Sensitive species are those species for which population viability is a concern such that additional impacts to the species may diminish species diversity goals of the FS or cause a trend toward Federal listing.

Further, to comply with the statutory language of the HCNRA Act that compels the preservation of rare and endemic plants (PL 94-199), the HCNRA Comprehensive Management Plan (CMP) defines the terms “rare” and “endemic” as applied to plants in addition to establishing standards for these plants that agency actions must incorporate. Rare plants are equivalent to FS sensitive plants known or suspected to occur in the HCNRA plus plants with disjunct (separated) populations within the HCNRA. Endemic plants are those plant species confined largely to the boundary of the HCRNA. Since some exchange parcels are within the HCNRA, this discussion will refer to sensitive plants, disjunct plants, or endemic plants where appropriate.



Field inventories were conducted on all Federal parcels to determine which, if any, sensitive, rare, and endemic species might be present. These inventories were conducted during the last 10-year period. Surveys were conducted during May through July, except for parcel FW30, which was inventoried a second time on September 11, 2003, for the presence of Spalding's catch-fly. The Threatened, Endangered, Sensitive, Rare, and Endemic Plant Reports (Yates and Riley, 2004) and field inventories are available for review in the PR.

The Oregon Natural Heritage Program database was examined for rare plant sites known to exist on non-Federal parcels to be acquired under the Proposed Land Exchange. These parcels were not field reviewed.

The boundaries of the affected environment for threatened, sensitive, rare, and endemic plants consist of the boundaries of known plant sites that fall partly or wholly on the Federal parcels located on the three National Forests and the boundaries known to occur on private and State of Oregon parcels to acquire. Some sensitive, rare, or endemic plant sites occur in numerous distinct patches growing in proximity. In these cases, the logical resource unit analysis boundary is the affected site or patch occurring on a land exchange parcel plus the nearby community of plant sites. Where necessary, these instances are described below.

### **Affected Environment**

The following Federally listed Threatened plant species were not found on NF parcels to convey: *Howellia aquatilis* (Water Howellia), *Spiranthes diluvialis* (Ute ladies' tresses), *Silene spaldingii* (Spalding's Catch-fly), and *Thelypodium howellii* var. *spectabilis* (Howell's Spectacular Thelypody).

Parcel FW8, a parcel to convey located on the Wallowa-Whitman NF contains one patch or occurrence of *Mimulus clivicola* (Bank Monkey-Flower), a FS sensitive plant. The *Mimulus clivicola* site in parcel FW8 is located in the southern portion of the HCNRA, an area where most *Mimulus clivicola* sites have been found on the forest. *Mimulus clivicola* is known to inhabit 55 patches on the Wallowa-Whitman NF. The population sizes of these patches range from 25 to over 6000 plants. Because *Mimulus clivicola* is an annual plant, population sizes may vary from year to year due to environmental factors, especially precipitation. The *Mimulus* site in parcel FW8 has a reported population size of 200 plants, which is typical of many of *Mimulus clivicola* sites found. This particular site represents less than 2% of the known *Mimulus clivicola* sites on the Wallowa-Whitman NF. This site is located in the Himmelwright Grazing Allotment, which is in vacant status; therefore livestock currently do not graze the site.

Parcel PW20A, a parcel to acquire, holds one population of *Mirabilis macfarlanei* (MacFarlane's four-o'clock). This is a Federally threatened plant locally endemic to the HCNRA in northeast Oregon and adjacent west central Idaho. The known range of MacFarlane's four-o'clock is about 29 miles by 18 miles. Eleven populations comprise the distribution of MacFarlane's four-o'clock in three principal disjunct geographic vicinities: the Snake River, Salmon River, and Imnaha River canyons. Two populations occur in the Imnaha River valley. One of these, the Buck Creek population, is found within the analysis area on private land in parcel PW20A. The second four-o'clock population in the Imnaha River canyon, the Fall Creek site, straddles both private and FS lands, with about half of the site occurring on FS land. Thus, no more than 25% of the MacFarlane's four-o'clock known to occur in the Imnaha River Canyon is located on NFS lands

that fall under the umbrella of protections afforded to threatened plants by the Endangered Species Act, the Forest Plan (FP), and the HCNRA CMP.

The Buck Creek site occupies a steep rocky slope above the Imnaha River. The population contains an estimated 200 ramets of the four-o’clock plant. A ramet is one distinctly separable stem or clump belonging to a colony-forming plant species. Barnes (1996) estimated that one MacFarlane’s four-o’clock genetic individual (or genet) averages 4.88 ramets. Based on Barnes’ findings, the Buck Creek population is estimated to hold about 40 genetic individuals or genets.

A predictive model for MacFarlane’s four-o’clock habitat (Murray 2001) identified 25.5 acres of high or moderate potential habitat in Federal parcels FW21, FW25A, and FW26. Dr. Steven Brunsfeld of the University of Idaho surveyed these parcels for the presence of MacFarlane’s four-o’clock, but no plants were found. The PR contains the complete reports of these surveys. The predictive model also identified 875 acres of high and moderate potential habitat in privately owned parcels PW10A, PW10B, PW11, PW13A, PW13B, PW13C, PW13D, PW16A, PW16B, PW16C, PW16E, PW17B, PW19C, PW20A, PW20C, PW22, PW24A, PW24B, PW24C, PW24D, PW24G, PW25A, PW25B, PW25D, PW25E, PW27A, PW27C, PW2A, PW2B, PW2C, PW3, PW4, PW48, PW5, PW8A, and PW8B. These parcels have not been inventoried, so the presence or absence of MacFarlane’s four-o’clock in private parcels (other than parcel PW20A) cannot be confirmed.

The private parcels to acquire in the Proposed Land Exchange that contain rare plant sites and one threatened species site are listed below in Table 54. The population size and the proportion of the population area located within each parcel are displayed. The three columns on the right of Table 54 display parcels that would be acquired by action alternatives.

**Table 54. Rare/Threatened Plant Sites on Land to Acquire/purchase**

Parcel	Species	Pop. Size	% Pop Area <sup>1</sup>	Remarks	Alternative		
					1/5	3	4
PW1	<i>Allium geyeri</i> var. <i>geyeri</i>	No Data	<5	HCNRA – Disjunct species	X	X	X
PW6					X	X	X
PW10A	<i>Carex hystericina</i>	4	100	HCNRA	X	X	X
PW10B					X	X	X
PW16E	<i>Carex hystericina</i>	200	100	HCNRA	X	X	X
PW17A	<i>Carex hystericina</i>	4	100	HCNRA	X		X
PW20A	<i>Mirabilis macfarlanei</i>	200	98	HCNRA - Federal Threatened Species	X	X	X
PW20B	<i>Carex hystericina</i>	No Data	100	HCNRA	X	X	X
PW23B	<i>Carex hystericina</i>	No Data	50	HCNRA	X	X	X
PW35B	<i>Platanthera obtusata</i>	No Data	10	On private land within Eagle Cap Wilderness	X		X
PW35C					X		X
PW46	<i>Phlox multiflora</i>	4,400	20 40 5	Three different patches overlap parcel PW46. La Grande RD.	X		X
PW47A	<i>Castilleja fraterna</i>	No Data	5	On private land inside Eagle Cap Wilderness	X	X	X
PW47B					X	X	X

1) Percent population Area: This figure represents the percent or proportion of the rare plant site that falls within the land exchange parcel. In some cases, less than 100 percent of the population is located within a given parcel. Where this occurs, the remaining proportion of the rare plant site is located on surrounding NFS lands.

## Environmental Consequences

The environmental consequences to rare/threatened plants anticipated from the action alternatives were determined by comparing the number and size of these plant sites to convey to the number of these sites on privately owned parcels to acquire. The Proposed Action action does not compel any subsequent ground disturbing actions, but rather transfers deeds of affected parcels.

Comparing the number and size of rare plant sites acquired versus those transferred to private ownership provides a simple measure of the direct effect of the Proposed Exchange. In some instances, only a portion of a given plant site is included within a parcel because of overlapping boundaries. The relative contribution of each rare/threatened plant site to the species' viability, to the extent such information is known, is included as part of this discussion.

### Alternative 1: Proposed Exchange

Because field surveys did not detect the following Federally listed plant species, it is assumed NF parcels to convey do not contain these species or their occupied habitat. The Proposed Exchange would have no effect to these species: *Howellia aquatillis* (Water Howellia), *Spiranthes diluvialis* (Ute ladies' tresses), *Silene spaldingii* (Spalding's Catch-fly), and *Thelypodium howellii* var. *spectabilis* (Howell's Spectacular Thelypody).

*Mirabilis macfarlanei* (MacFarlane's Four-O'clock)

The direct and indirect effects of acquiring PW20A would result in MacFarlane's four-o'clock at the Buck Creek site being placed under the laws and policies that guide management of the HCNRA and the Wallowa-Whitman NF, including the Endangered Species Act. Currently, no legally required regulatory mechanisms exist to protect threatened plants on private lands, because the Endangered Species Act (ESA) does not mandate conservation of listed plants that inhabit privately owned lands. Under Federal stewardship, however, the MacFarlane's four-o'clock site would be subject to Section 7 of the ESA, the Wallowa-Whitman NF Land and Resource Management Plan, and the HCNRA CMP. Section 7 of the ESA will require the FS to consult with the USFWS on actions that may affect the four-o'clock at this site. Further, the ESA will require the FS not to engage in actions that would jeopardize the continued existence of this or any other threatened or endangered plant. Under Federal stewardship, then, regulatory mechanisms would be in place, where none currently exist.

With the MacFarlane's four-o'clock site managed as a Federal resource, actions later taken by the Wallowa-Whitman NF in the HCNRA would not be likely to adversely affect this plant. The Record of Decision for the HCNRA CMP determined that the goals, objectives, standards, and guides in this plan were not likely to adversely affect the MacFarlane's four-o'clock. This is a finding that received written concurrence from the USFWS (Gary Miller, USFWS, May 28, 2003 letter to Karen L. Wood, Forest Supervisor).

Acquisition of parcel PW20A would triple the amount of occupied MacFarlane's four-o'clock habitat under Federal stewardship known to occur in the Imnaha River canyon. Currently, 25% of the occupied habitat is under FS management, an amount that would increase to 75% with Alternative 1. This increase would benefit MacFarlane's four-o'clock by providing the regulatory mechanisms described above. This would maintain viable populations and secure the plant from threats in the Imnaha River Canyon; one of the three geographic areas important to the recovery of the species (USFWS 2000). The Revised Recovery Plan for MacFarlane's Four-O'clock sets criteria before delisting of the species will be considered. These criteria include:

- A minimum of 11 populations are secure from threats, with stable or increasing populations trends;
- Population sizes are above the minimum necessary to maintain the viability of the species;
- Populations of MacFarlane’s four-o’clock occur throughout its current range in each of three geographic areas: the Snake, Salmon, and Imnaha River canyons; and
- Management practices reduce and control threats.

Currently, the 25% of MacFarlane’s four-o’clock occupied habitat now under Federal stewardship in the Imnaha River canyon is not likely sufficient to ensure the viability of this species in this area. The conservation of this plant presently must rely on the cooperation of landowners who hold deeds to the two four-o’clock sites in the Imnaha River canyon. The Recovery Plan for MacFarlane’s four-o’clock (Task 1.3) seeks, at a minimum, the voluntary cooperation of landowners to conserve MacFarlane’s four-o’clock habitat through conservation easements and deed restrictions on private lands. At present, conservation easements, deed restrictions, and habitat conservation plans have not been established with the private landowners in the Imnaha River canyon. The Recovery Plan also identifies direct acquisition of populations as a means to protect MacFarlane’s four-o’clock on private lands. This alternative’s acquisition of the Buck Creek MacFarlane’s four-o’clock site would accomplish one task in the Recovery Plan and increase to 75% the amount of occupied habitat in the Imnaha River canyon under Federal stewardship.

Cumulative effects are the combined effects of past, present, and reasonably foreseeable future actions when added to effects of the proposed action. Past and present actions that may have affected the Buck Creek MacFarlane’s four-o’clock site consist mainly of a long history of livestock grazing dating to the latter 19<sup>th</sup> century. Observers have reported several “well-used” cattle trails coursing through the Buck Creek four-o’clock site, but cattle have not been observed to graze the plant itself. Livestock may have caused trampling impacts, which include soil compaction, soil shearing, and the exposure and subsequent shearing by hooves of the plant’s rhizomes; impacts which have been observed at other MacFarlane’s four-o’clock sites. The historical trend of the plant at this site is not known. Although impossible to quantify, past and present private grazing at this site has likely impacted individual four-o’clock plants to some degree.

Reasonably foreseeable future actions include management actions that would be undertaken according to the goals, objectives, standards, and guidelines found in the FP and the HCNRA CMP. Future actions that potentially may affect MacFarlane’s four-o’clock would be analyzed in consultation with the USFWS. One reasonably foreseeable future action is livestock grazing in the Log Creek Allotment. The Buck Creek four-o’clock site is located on a private inholding within the Packsaddle Pasture of the Log Creek Cattle Allotment, which is administered by the Wallowa-Whitman NF. The four-o’clock site is located on private land in the northeast portion of the Packsaddle pasture, which will likely become part of the Log Creek Allotment with the acquisition of FW20A. The season of livestock use for the Packsaddle pasture follows this schedule:

April 1 – 10: 75 pairs permitted  
 April 11 – 20: 50 pairs permitted  
 April 21 – 30: 225 pairs permitted

May 1 – 10: 247 pairs permitted  
May 11: livestock move out of the Packsaddle pasture until the following year.

Future grazing under Federal administration would likely continue to adversely affect the MacFarlane's four-o'clock, particularly if grazing continued under the present scheduled season of use. Once acquired, however, the annual operating plan and grazing permit could be modified to ensure livestock grazing did not adversely affect MacFarlane's four-o'clock.

Acquisition of parcel PW20A would potentially beneficially affect the MacFarlane's four-o'clock because the site at this location would be managed to standards and guides in the FP and HCNRA CMP, where now no legal requirements to conserve the species exist. Subsequent FS management of the Buck Creek MacFarlane's four-o'clock site under the auspices of the HCNRA CMP may affect, and in some circumstances, would not adversely affect MacFarlane's four-o'clock.

### **Sensitive Vegetation Species**

The direct effect of exchanging lands between the FS and private parties would be to shift to private management on one rare plant site (*Mimulus clivicola*) and to bring under FS management all or portions of at least eleven rare plant sites (Table 54).

#### ***Mimulus clivicola***

The conveyance of parcel FW8 would result in *Mimulus clivicola* no longer being managed according to the FP and HCNRA CMP, which gives direction to maintain viable populations of rare and endemic plants. While it is somewhat speculative to predict the fate of this rare plant site once in private ownership, grazing is a traditional use in this area along the Imnaha River bottomlands. The site is currently located in a vacant grazing allotment, and so direct observations of livestock behavior in this area have not been possible. This site occupies a moderately steep slope (40%) therefore livestock may not graze in this area to the degree they would valley bottomland. Because this site represents less than 2% of the known *Mimulus clivicola* populations on the Wallowa-Whitman NF, it's contribution to the overall viability of the species is probably not important. Regardless of this site's fate once in private ownership, the conveyance of parcel FW8 may indirectly impact individuals, but would not be expected to cause a loss of species or population viability to *Mimulus clivicola*.

#### ***Carex hystericina, Platanthera obtusata, Phlox multiflora, Castilleja fraternal***

Through acquisition of parcels PW10A, PW10B, PW16E, PW17A, PW20B, PW23B, PW35B, PW35C, PW46, PW47A, and PW47B, *Carex hystericina* (5 patches), *Platanthera obtusata* (1 patch), *Phlox multiflora* (3 patches), and *Castilleja fraterna* (1 patch) would be brought under Federal stewardship and managed according to the Forest Plan and the HCNRA CMP. The *Castilleja fraterna* site would increase from 95% to 100% Federal management and the *Platanthera obtusata* patch would increase from 90% to 100% Federal management. These are not significant increases in Federal management of these rare plant sites, but overall would benefit each species, if only slightly. Both *Castilleja fraterna* and *Platanthera obtusata* are located in the Eagle Cap Wilderness Area and thus would be managed according to wilderness legislation and the Forest Plan wilderness standards and guidelines. The goal of wilderness management is to preserve the natural condition and characteristics of designated lands (LRMP 4-2).

The acquisition of PW46 would increase the proportion of three *Phlox multiflora* patches in a metapopulation of twelve patches under FS management in this area. The gained portions of these

sites by the FS would subtly benefit *Phlox multiflora* because these patches would be managed according to FP standards and guides, which require maintaining viable populations of sensitive plant species.

The acquisition of parcels containing *Carex hystericina* would benefit the species because many of the known occurrences of this plant in the Imnaha River canyon currently inhabit private lands. Adding these parcels to the NFS would add 5 more sites of this species that would be managed according to the HCNRA CMP, thereby helping to maintain viable populations of this plant.

*Castilleja fraterna* and *Platanthera obtusata* may experience an indirect or cumulative beneficial impact because these sites would be managed for wilderness values. Neither species occurs on lands that would become part of an active grazing allotment.

Cumulatively, present grazing would continue to be managed to the same standards as in the FP and HCNRA CMP; therefore, no net change in effects to *Carex hystericina* and *Phlox multiflora* would result from grazing following the FS's acquisition of the parcels containing these sites. The overall cumulative effect of bringing these two plant species under FS management *may impact individuals or habitat, but would not likely contribute to a trend toward Federal listing or cause a loss of viability to the population or species.*

#### ***Allium geveri* var. *geveri***

Two small portions that amount to less than 5% of one large *Allium geveri* var. *geveri* site are located in parcels PW1 and PW6. These parcels both occur within the Cherry Creek Allotment. Currently, the private lands where this plant is located have been waived to the FS for grazing administration. Once acquired, these lands would continue to be managed according to the terms and conditions of the permits issued for these grazing allotments and their associated annual operating plans. The effect of bringing this species under FS management would only subtly benefit *Allium geveri* var. *geveri*. Future actions managed under the standards and guidelines in the HCNRA CMP *may impact individuals or habitat, but would not likely contribute to a trend toward Federal listing or cause a loss of viability to this population or species.*

#### **Alternative 2: No Action**

Under the No Action Alternative the existing conditions described in “Affected Environment” would not change. Present NF parcels would continue under FS management. One rare plant site (Table 54) would not transfer to private ownership, and at least 11 rare plant sites, or portions thereof, would not transfer to FS management. Seventy five percent of the known occupied habitat of the threatened MacFarlane's four-o'clock in the Imnaha River canyon would continue to exist principally on private lands, where no regulatory oversight exists for the species' recovery. The population trends of the sites on private parcels are not known. Non-FS personnel at the Oregon Heritage Information Center have reported the only information available on these sites. Therefore, regardless of past use and any anticipated future use, the FS lacks the information necessary to draw any reasonable conclusions about the fate of these sites if they remain in private ownership. Any effort to do so would be highly speculative. What can be said with certainty is that, under private ownership, regulatory protections do not exist to protect or conserve these sites. That does not necessarily mean these plant sites are doomed to local extinction, but as with the action alternatives, they are more likely to be conserved under FS management because the agency has a mandate to provide for viable populations of these species.

### **Alternative 3: Purchase**

#### ***Mimulus clivicola***

Under this alternative, the FS would purchase the private parcels displayed in Table 54. No parcels would be conveyed to the private, thus the FS would continue to manage the *Mimulus clivicola* site in parcel FW8 according to FS policy and legal mandates. This site represents less than 2% of the known sites on the Wallowa-Whitman NF.

#### ***Carex hystericina, Platanthera obtusata, Phlox multiflora***

Through the purchase of the private parcels, the FS would acquire fewer plant sites than Alternative 1. One small *Carex hystericina* site (parcel PW17A) that holds just four plants, 10 percent of one *Platanthera obtusata* site in the Eagle Cap Wilderness Area (Parcels PW35B and PW35C) and portions of the three *Phlox multiflora* sites would remain in private ownership.

#### ***Allium geyeri var. geyeri, Carex hystericina, Castilleja fraterna, Mirabilis macfarlanei***

For *Allium geyeri var. geyeri*, *Carex hystericina*, *Castilleja fraterna*, and *MacFarlane's four-o'clock* the effect of Alternative 3 is the same as for Alternative 1. These species would be managed according to the standards and guidelines found in the FP and the HCNRA CMP. For all rare and endemic plants, the EIS for the HCNRA CMP found that the adopted standards and guides “*may impact individuals or habitat, but would not likely contribute to a trend toward Federal listing or cause a loss of viability to the population or species*” (FEIS, page 3-286).

### **Alternative 4: Deed Restriction**

The affected environment for threatened, endangered, sensitive, rare, and endemic plants in Alternative 4 is the same as described in Alternative 1 because the acquired parcels known to harbor these plants do not differ between Alternative 1 and Alternative 4. Alternative 4 differs from the proposed action with the incorporation of deed restrictions on conveyed parcels. Under Alternative 4, the *Mimulus clivicola* site in parcel FW8 would likely move from a state of not being grazed to one that may be grazed in the future. However, Parcel FW8, which contains the *Mimulus clivicola* site, would carry a deed restriction that requires the owner to manage the land according to the grazing standards for the Wallowa-Whitman NF and the HCNRA CMP. Because this site may provide limited access to livestock, this point may be moot. *Mimulus clivicola may impact individuals or habitat, but would not likely contribute to a trend toward Federal listing or cause a loss of viability to the population or species.*

### **Alternative 5: Preferred Alternative**

The affected environment for threatened, endangered, sensitive, rare, and endemic plants in Alternative 5 is the same as described in Alternative 1 because the acquired parcels known to harbor these plants do not differ between Alternative 1 and Alternative 5.

## **Noxious Weeds**

The objective of this section is to disclose by alternative the acres of noxious weeds present on proposed parcels to convey and acquire. Since the action alternatives do not compel any subsequent ground disturbing actions related to weeds, comparing the number and size of noxious weed sites acquired versus those conveyed provides one indicator measure of alternative effects. In addition, the cost of managing noxious weeds will be used as another indicator measure for comparison of alternatives.

## Affected Environment

Plant species considered in this analysis consist of state designated noxious weeds present on lands considered for exchange. The presence of weeds was determined by existing inventories as mapped in the Forest GIS database for noxious weeds. Table 55 displays acres by alternative of noxious weeds where such information exists on exchange parcels.

**Table 55. Acres of Noxious Weeds Present in Land Exchange Parcels**

	Alternatives				
	1	2	3	4	5
Acres To Convey	54	54		54	48
Acres To Acquire	910		294	858	903

## Environmental Consequences

Noxious weed sites acquired would be managed according to the Land and Resource Management Plans for the Wallowa-Whitman, Malheur, and Umatilla National Forests and the HCNRA Comprehensive Management Plan (CMP). Noxious weed management results in a fiscal liability associated with the net change of acres of inventoried noxious weeds present on acquired parcels. Refer to Table 56 for a comparison of fiscal liability by alternative. The costs to manage noxious weed sites average approximately \$160 per acre per year. For example, if the FS had a net increase of 100 acres of noxious weeds for a given alternative, then it would assume an additional \$16,000 per year liability to manage the additional acres of weed sites.

**Table 56. Noxious Weed Management Fiscal Liability in Land Exchange Parcels**

	Alternatives				
	1	2	3	4	5
Net weed Increase (acres)	856	0	294	804	855
Additional Cost to FS (1yr)	\$136,960	0	\$47,040	\$128,640	\$136,800

### Alternative 1: Proposed Exchange

The Proposed Land Exchange would result in the conveyance of parcels that have 54 acres of inventoried noxious weeds and the acquisition of parcels with 910 acres of mapped noxious weeds. This alternative would result in a net increase of 856 acres of noxious weeds on NFS lands in the project area. At a cost of \$160 per acre to manage the increased noxious weed sites, \$136,960 would be a fiscal liability. Over a 10-year period, the figure could exceed \$1,000,000, but would likely be somewhat less as active management would decrease the amount of acres occupied by noxious weeds.

### Alternative 2: No Action

Under this alternative, noxious weed sites would not be acquired and managed according to FS policy, therefore no change in fiscal liability would occur. The FS would continue to manage the 54 acres of noxious weed sites on lands proposed to convey under Alternative 1.



### **Alternative 3: Purchase**

Under this alternative, the FS would purchase identified privately held parcels. The increase in acres of noxious weeds that would require management by the FS would be 294 acres. The weed management liability would be \$47,040 per year. Over a 10-year period, the cost could rise to over \$470,000, but would likely be somewhat less as active management would decrease the amount of acres occupied by noxious weeds.

### **Alternative 4: Deed Restriction**

The effects of this alternative would be quite similar to Alternative 1. The FS would acquire a net increase of 804 acres of noxious weeds. The weed management liability would be \$128,640 per year. Over a 10-year period, the cost could rise to over \$1,250,000, but would likely be somewhat less as active management would decrease the amount of acres occupied by noxious weeds.

### **Alternative 5: Preferred Alternative**

The Preferred Alternative would result in the conveyance of parcels that have 48 acres of inventoried noxious weeds and the acquisition of parcels with 903 acres of mapped noxious weeds. This alternative would result in a net increase of 855 acres of noxious weeds on NFS lands in the project area. This is a net decrease of only one acre from Alternative 1. At a cost of \$160 per acre to manage the increased noxious weed sites, \$136,800 would be a fiscal liability, which is almost the same fiscal liability described for Alternative 1. Over a 10-year period, the figure could exceed \$1,386,000, but would likely be somewhat less as active management would decrease the amount of acres occupied by noxious weeds.

## **Range**

The objective of this section is to describe by alternative the likely management changes to existing allotments. In addition, probable changes in range health by alternative will be described in general terms. The analysis area for range includes the exchange parcels and all range allotments that have exchange parcels located within their boundaries.

## **Laws and Regulations Applying to the Analysis**

The pertinent laws include: 1) Bankhead-Jones Farm Tenant Act; 2) P.L. 75-210; Department of Agriculture Organic Act of 1944 P.L. 78-425; 3) Granger-Thye Act P.L. 81-478; 4) Multiple Use-Sustained Yield Act 1960, P.L. 86-517; 5) Environmental Quality Act of 1970, P.L. 91-224; 6) Forest and Rangeland Renewable Resources Planning Act of 1974; and 7) Public Rangelands Improvement Act of 1978, P.L. 95-514.

## **Affected Environment**

Livestock use on NFS lands is only authorized through a grazing or livestock use permit [26 CFR 222.3(a)]. Allotments are designated on NFS lands and other offered lands with the owners consent to form logical grazing management units [36 CFR 222.2(a)]. The FS has designated grazing allotments within the project area on all three forests and has permitted livestock with management prescribed through grazing permits, forest plan direction, as amended, allotment management plans (AMP), and annual operating instructions. Refer to the Range Specialist Report in the PR for a description of the three types of grazing permits issued by the FS. To control and distribute livestock within allotments, the FS and permittees cooperatively finance,

install, and manage livestock improvements. The improvements are amortized over a 30-year period. Although these improvements are often functional after 30 years, the FS recognizes no value in them.

There are private lands contained within grazing allotments that are often managed separately. Management prescriptions on these lands would vary depending upon the owner's objectives. Some private parcels have winter-feeding operations, irrigated pastures, and/or open range. The landowner finances facilities and improvements placed on private lands. In other situations these private lands are managed as part of the allotment. When private lands are located within an allotment and the private landowner has waived grazing rights to the FS, a private land term grazing permit is issued. In this situation the FS accepts the responsibility for grazing management on these lands and may allocate additional livestock numbers to the allotment.

Within the analysis area, livestock grazing occurs on forested lands, shrub lands, and grasslands. Though livestock graze on a multitude of environments and topographies, they display preferences to certain areas or locations. Livestock preference can be influenced by the amount, type, and nutritional value of forage, distance from water, percent slope, amount of canopy cover, etc (FSH 2209.21). Also, livestock learned experiences will contribute to distribution and forage preference. A manager can modify livestock behavior with salting, riding and herding, fencing, and other cultural practices. The intensity of livestock use will vary across the landscape depending on the physical, environmental, and cultural influences.

The health of rangeland vegetation and soils condition in the analysis area is variable. The FS classifies range health as satisfactory or unsatisfactory and uses a multitude of tools to determine vegetative health associated with permitted livestock activities. The three Forest Plans require rangelands to be managed in a satisfactory condition and assign standards and guidelines that are incorporated into grazing permits. The HCNRA Comprehensive Management Plan has a specific set of grazing standards and guidelines. The FS determines the number and seasons of livestock use based upon existing environmental conditions within allotments. Therefore, non-Federal lands within allotment boundaries typically represent range health conditions on NFS lands.

## **Environmental Consequences**

Changes in land management objectives resulting from a change in ownership can indirectly affect the health of the range resource within the project area. This analysis has identified a combination of four situations that may result from the action alternatives. They include: 1) Parcels are conveyed that are currently within an allotment; 2) Parcels are acquired that are currently within an allotment; 3) Parcels are acquired that are currently outside an allotment; and 4) Parcels are conveyed that are currently outside an allotment and are likely to be grazed in the future.

This analysis identifies how each action alternative would likely affect the management of livestock operations, livestock stocking, and facility ownership. In addition, anticipated general range health by alternative within affected allotments and on exchange parcels outside of allotments will be discussed.

Additional discussions concerning the impacts from livestock activities can be found in other resource sections of this Final EIS. For this information refer to the effects analysis in the soils, hydrology, plants, wildlife, and social and economic environment sections.

### Alternatives 1 and 5: Proposed Exchange and Preferred Alternative

Alternative 1 proposes to acquire 137 parcels representing 24,144 acres and convey 60 parcels representing 15,136 acres within 52 existing allotments. Alternative 5 proposes to acquire 128 representing 23,557 acres and convey 59 parcels representing 13,770 acres within 47 existing allotments.

Table 57 displays the distribution of acquired and conveyed parcels and parcel acreage by allotment for each Forest and Ranger District.

**Table 57. Alternatives 1 and 5 – Distribution of Acquired and Conveyed Parcels by Allotment**

Malheur National Forest			
District	Allotment	Parcel	Acres
Long Creek	Beech Creek	FM12	236
		FM13	317
	Deer Creek	FM16A	246
		FM16B	82
		FM18	480
		FM19	309
		FM20	41
	Dixie	FM3	121
		FM4	368
		FM5	326
		FM6	302
		FM7 <sup>1</sup>	7
		FM8	581
	Dixie & Roundtop	FM9 <sup>2</sup>	398
	Hamilton	FM15	325
		FM17	596
		FM21	241
King	FM14	80	
Mt. Vernon/John Day & Beech Creek	FM11 <sup>3</sup>	64	
Roundtop	FM10	314	
Prairie City	Hot Springs	FM2	16
Bear Valley	Aldrich	PM28	161
		PM29	44
	Murderers Creek	PM21	146
		PM25	161
		PM26	160
		PM27	159
		PM30	641
PM31	160		
Long Creek	Blue Mountain	PM1	33
		PM2	280
	Deer Creek	PM23	241
		PM24	159
	Dixie	PM6	124
	Long Creek/ Outside Allotment	PM7 <sup>1</sup>	7
	Mt. Vernon/John Day	PM11	328
		PM12	161
PM13		161	
PM14		314	

**Table 57. Alternatives 1 and 5 – Distribution of Acquired and Conveyed Parcels by Allotment (cont)**

<b>District</b>	<b>Allotment</b>	<b>Parcel</b>	<b>Acres</b>	
Long Creek	Mt. Vernon/John Day	PM15	80	
		PM16	124	
		PM17	162	
		PM18	481	
		PM19	623	
		PM20	483	
		PM8A	39	
		PM8B	109	
		PM9	158	
	Upper Middle Fork	PM4	40	
Prairie City	Sullens	PM3 <sup>8</sup>	160	
<b>Umatilla National Forest</b>				
<b>District</b>	<b>Allotment</b>	<b>Parcel</b>	<b>Acres</b>	
Heppner	Coalmine	FU26	189	
		Tamarack Monument	FU27	102
			FU28 <sup>8</sup>	38
N.F. John Day	Cooper Creek	FU19A <sup>8</sup>	158	
		FU19B	157	
		FU20A	403	
	Cooper Creek & Hutchinson	FU20B <sup>4</sup>	408	
	Cooper Creek	FU20C <sup>8</sup>	40	
		FU20D	41	
		FU22	37	
	F.G. Whitney	FU21 <sup>8</sup>	319	
	Hutchison & Cooper	FU23 <sup>5</sup>	242	
	Klondike	FU6B	45	
McDonald Spring	FU30	49		
Walla Walla	Butcher Creek	FU3A	710	
		FU3B	658	
		FU3C	557	
		FU3D	874	
		FU3E <sup>8</sup>	643	
Heppner	Hardman	PU22A	1080	
		Tamarack Monument	PU23	465
			PU24	161
N.F. John Day	Cunningham	PU14	640	
	Indian Creek	PU20	390	
	Klondike	PU15	319	
	Lucky Strike	PU19	152	
	Trout Meadows	PU13	108	
Walla Walla	Butcher Creek	PU10A	247	
		PU10B	240	
		PU6	14	
		PU7A	85	
		PU7B	359	
		PU7C	42	
		PU8A	40	
PU8B	40			

**Table 57. Alternatives 1 and 5 – Distribution of Acquired and Conveyed Parcels by Allotment (cont)**

<b>District</b>	<b>Allotment</b>	<b>Parcel</b>	<b>Acres</b>
Walla Walla	Butcher Creek	PU8C	81
		PU9A	63
		PU9B	32
	Butcher Creek/ Outside Allotment	PU11 <sup>2</sup>	147
	Eden	PU1A	230
		PU1B	521
		PU2	78
		PU3	238
	PU4	59	
<b>Wallowa-Whitman National Forest</b>			
<b>District</b>	<b>Allotment</b>	<b>Parcel</b>	<b>Acres</b>
HCNRA	Cayuse	FW5	39
	Log Creek	FW1D	325
		FW1E	127
La Grande	Starkey	FW18	388
Unity	Bullrun	FW19	42
Wallowa Valley	Big Sheep	FW6A	42
		FW6B	38
		FW6C	43
		FW6D	43
		FW6E	38
		FW6F	41
	Carrol Creek	FW9	422
	Divide	FW10	640
	North Powwatka	FW20	79
		FW21	83
		FW22	40
		FW23	40
		FW24	663
		FW25A	576
		FW25B	59
FW26	247		
South Powwatka	FW30	1	
HCNRA	Cayuse	PW26A	315
		PW26B	157
		PW26C	155
	Cow Creek	PW3	564
		PW4	40
		PW48	233
		PW5	40
	Dodson-Haas	PW10A	63
		PW10B	101
		PW11	41
		PW12	257
		PW13A	43
		PW13B	83
PW13C		63	
PW13D	8		

**Table 57. Alternatives 1 and 5 – Distribution of Acquired and Conveyed Parcels by Allotment (cont)**

<b>District</b>	<b>Allotment</b>	<b>Parcel</b>	<b>Acres</b>
HCNRA	Dodson-Haas	PW14	649
		PW15A	187
		PW15B	87
		PW16A	39
		PW16B	115
		PW16C	302
		PW16D	80
		PW16E	162
		PW17A	118
		PW17B	399
		PW19A	21
		PW19B	201
		PW19C	162
		PW22	41
	Grouseline	PW28	119
	Log Creek	PW18	41
		PW20A	159
		PW20B	224
		PW20C	151
		PW21A	81
		PW21B	76
		PW21C	75
		PW21D	151
		PW23A	39
		PW23B	75
		PW50	464
	Lone Pine	PW1	11
	Middlepoint	PW24A	67
		PW24B	53
		PW24C	31
		PW24D	41
		PW24E	39
		PW24F	88
		PW24G	24
		PW24H	98
		PW25A	186
		PW25B	65
		PW25C	180
		PW25E	74
		PW27A	80
		PW27C	127
	Toomey	PW2A	22
		PW2B	37
PW2C		2	
PW7A		83	
PW7B		244	
PW7C		118	
PW8A		429	
PW8B		258	
PW8C	39		

**Table 57. Alternatives 1 and 5 – Distribution of Acquired and conveyed Parcels by Allotment (cont)**

District	Allotment	Parcel	Acres
La Grande	Dark Ensign	PW46	159
	Five Points	PW42	21
	McCarty	PW44B	12
	Trout Meadows	PW45 <sup>2</sup>	59
Pine	Goose Creek	PW38	311
	Snake River	PW29	143
Wallowa Valley	Al-Cunningham	PW34A	237
		PW34B	279
		PW34C	142
	Big Sheep	PW31	183
	Buck Creek	PW39A	77
		PW39B	572
		PW39C	141
		PW39D	83
		PW40	163
	Chesnimnus	PW30	162
		PW51A	244
		PW51C	79
		PW51D	78
		PW52	253
	Doe Creek	PW33 <sup>8</sup>	161
Needham Butte	PW32	78	

- 1) FM7 – Only seven acres in Dixie Allotment
- 2) FM9 - Dixie Allotment 83 acres & Roundtop Allotment 315 acres
- 3) FM11 - Mt. Vernon/John Day Allotment 37 acres & Beech Creek Allotment 27 acres
- 4) FU20B - Cooper Creek Allotment 374 acres & Hutchinson Allotment 35 acre
- 5) FU23 - Hutchison 164 acres & Cooper Creek 78 acres
- 6) PW45 the Umatilla NF administers livestock use
- 7) PU11 - Only 147 acres in Butcher Creek Allotment
- 8) FU19A, FU20C, FU21, FU28, FU3E, PM3, and PW33 are dropped in Alternative 5

In addition to the parcels in the above table, Alternative 1 proposes to acquire 30 parcels representing 7,597 acres outside existing active allotments. This alternative would also convey 33 parcels representing 3,036 acres outside existing active allotments. Alternative 5 would acquire 26 parcels for 7,284 acres and convey 30 parcels for 2,703 acres.

Table 58 identifies only the parcels and parcel acres outside of allotments in Alternative 1 that are either currently being grazed or are intended to be grazed.

**Table 58. Parcels Outside Allotments Either Being Grazed or Intended to be Grazed**

Malheur National Forest			
To Convey	Acres	To Acquire	Acres
FM7 <sup>1</sup>	315	PM22 <sup>G</sup>	41
		PM5 <sup>G</sup>	51
		PM7 <sup>1G</sup>	156
<b>subtotal</b>	<b>315</b>		<b>248</b>
Umatilla National Forest			
FU1	5	PU11A <sup>G</sup>	200
FU10A	198	PU11B <sup>G</sup>	404
FU10B	11	PU12 <sup>G</sup>	84

**Table 58. Parcels Outside Allotments Either Being Grazed or Intended to be Grazed (contd)**

To Convey	Acres	To Acquire	Acres
FU11	39	PU16A	624
FU12	11	PU16B	1271
FU13	41	PU16C	285
FU14	39	PU16D	630
FU15 <sup>NG</sup>	39	PU16E	456
FU16 <sup>NG</sup>	164	PU16F	343
FU17 <sup>NG</sup>	80	PU16G	31
FU18 <sup>NG</sup>	160	PU16H	424
FU2 <sup>NG</sup>	160	PU21	159
FU24	162	PU22B <sup>G</sup>	545
FU25	39	PU22C <sup>G</sup>	157
FU4 <sup>NG 3</sup>	321	PU26A <sup>3</sup>	40
FU5 <sup>NG</sup>	57	PU26B <sup>3</sup>	122
FU6A	57	PU5	202
FU7	35	PU11 <sup>2G</sup>	598
FU8	40		
FU9	39		
<b>subtotal</b>	<b>1697</b>		<b>6575</b>
<b>Wallowa-Whitman National Forest</b>			
FW11	41	PW25D	175
FW12	291	PW35A	229
FW13	118	PW35B	153
FW14A	125	PW35C	76
FW14B	81	PW37 <sup>3</sup>	4
FW15 <sup>NG</sup>	31	PW44A <sup>G 3</sup>	70
FW16 <sup>NG</sup>	39	PW47A	11
FW17A <sup>3</sup>	10	PW47B	47
FW17C <sup>3</sup>	2	PW6 <sup>G</sup>	9
FW2 <sup>NG</sup>	82		
FW7	121		
FW8	83		
<b>subtotal</b>	<b>1024</b>		<b>774</b>
<b>Total Acres</b>	<b>3036</b>		<b>7597</b>

1) PU11 contains 598 acres outside and 147 acres inside the Butcher Creek Allotment

2) PM7 contains 156 acres outside and 7 acres inside the Long Creek Allotment

3) FU4, FW17A, and FW17C are dropped in Alternative 5

G - Current owner indicates livestock grazing is occurring on these acquired parcels

NG - New grazing is an intended activity on these conveyed parcels

The anticipated management implication to existing allotments resulting from Alternatives 1 and 5 are outlined in Table 59. The FS would cooperatively work with the permittees to further clarify and implement these administrative changes.

**Table 59. Alternatives 1 and 5 - Management Implications to Existing Allotments**

Allotment	Management Implications
Aldrich	No change in management
Murderers Creek	No change in management



**Table 59. Alternatives 1 and 5 – Management Implications to Existing Allotments (continued)**

Allotment	Management Implications
Beech Creek	No change in management. Conveyed NFS lands on one pasture, adjust term on/off permit to reflect changes in land ownership. No change in stocking.
Blue Mountain	No change in management
Deer Creek	Adjust allotment boundary to exclude conveyed and include acquired parcels. No change in stocking.
Dixie	Adjust allotment boundary; reduce permit by 257 AUM.
Hamilton	1/2 of western pastures conveyed. Potential change in allotment boundary. No change in stocking.
King	Conveyed all NFS lands on allotment. Cancel term on/off permit. Loss of the 3 AUM authorized through the on portion of the permit.
Long Creek	No change in management
Mt. Vernon/John Day	No change in management
Roundtop	No change in management
Upper Middle Fork	No change in management
Hot Springs	No change in management
Sullens	No change in management. Alternative 5 parcel dropped.
Coalmine	No change in management
Hardman	No change in management
Tamarack Monument	No change in management
Cooper Creek	Alternative 1 conveyed all NFS land. Cancel term on/off permit. Loss of 62 AUM authorized through the on portion of the permit. Alternative 5 Forest would cancel majority of term on/off permits, but would retain permit to graze on 218 acres.
Cunningham	No change in management
F.G. Whitney	Alternative 1 no change in management. Loss of 2 ponds “no value.” Alternative 5 parcel dropped.
Hutchison	Conveyed all NFS land on allotment. Cancel term on/off permit. Loss of 18 AUM authorized through the on portion of the permit.
Indian Creek	No change in management
Klondike	No change in management
Lucky Strike	No change in management
McDonald Spring	Conveyed all NFS land. Cancel term on/off permit for 6 AUM. Loss of one trough “no value”
Trout Meadows	No change in management
Butcher Creek	Conveyed all NFS land on 2 pastures. Acquire private on rest of allotment. Cancel term on/off permit. Increase term permit. There would be a total loss of 158 AUM (sheep) from the on portion of the permit. Loss of two ponds “no value”.
Eden	No change in management
Dark Ensign	No change in management
Five Points	No change in management
McCarty	No change in management
Starkey	Convey most NFS land on one pasture. Remove from allotment. Pasture removed from rotation. No change in stocking.
Cayuse	No change in management
Cow Creek	No change in allotment management but improvement in administration. There is a private feeding facility on PW48. Livestock feeding area discontinued and site is being restored.

**Table 59. Alternatives 1 and 5 – Management Implications to Existing Allotments (continued)**

Allotment	Management Implications
Dodson-Haas	No change in allotment management but improvement in administration. There are private feeding facilities on PW10A & B and PW13B. Livestock feeding area discontinued and site is being restored.
Grouseline	No change in management
Log Creek	No change in management. There are private feeding facilities on PW20C. Livestock feeding area discontinued and site is being restored.
Lone Pine	No change in management
Middlepoint	No change in allotment management but improvement in administration. There is private winter feeding facilities on PW24C. Livestock feeding area discontinued and site is being restored.
Toomey	No change in management
Goose Creek	No change in management
Snake River	No change in management
Bullrun	No change in management
Al-Cunningham	No change in management. There are private feeding facilities on PW34C. Livestock feeding area discontinued and site is being restored.
Big Sheep	No change in management
Buck Creek	No change in management. There are private feeding facilities on PW39B&C. Livestock feeding area discontinued and site is being restored.
Carrol Creek	Conveyed all NFS land west of Carol Creek. Cancel 42 AUM from term grazing permit. New owner does not intend to continue grazing.
Chesnimnus	No change in management
Divide	Conveyed most NFS land in one pasture. Cancel 64 AUM from term grazing permit. New owner does not intend to continue grazing.
Doe Creek	No change in management. Alternative 5 parcel dropped.
Needham Butte	No change in management
North Powwatka	Conveyed most NFS lands. Cancel term on/off permit for a loss of 113 AUM from the on portion of the permit. The private owner plans to continue grazing.
South Powwatka	No change in management. Though this parcel is the only Federal land within a private land pasture. It is so small no capacity is given to it. FS would no longer manage pasture.

Acquisition of private and State of Oregon lands within existing allotments would likely improve the ease of management. Improvements in administration would be realized through monitoring and fence and other structural improvement location. Improvements in cultural practices would be realized through salting, herding and gathering. The benefits of consolidated ownership should provide a small reduction in the costs of management along with a small benefit to the range land resources. Where private lands have been waived to the Government for control, such as through the issuance of a term private land grazing permit, this ease of management is already occurring.

Improved management can have an indirect positive affect on rangeland health through better distribution of livestock and implementation of allotment standards and guidelines. In rare cases, the current management on acquired private lands is not consistent with the goals and objectives of the allotment. Once acquired these lands would adopt the allotments goals and objectives and incorporate appropriate standards and guidelines. Under Alternative 1 there would be 24,144 acres of acquired parcels and 15,136 acres of parcels being conveyed (Alternative 5: 23,557 acquired – 13,770 conveyed). There would be no change in management for 52 of the allotments affected by this action. Even though acquired parcels may add capacity to these allotments, there would be no increase in stocking until further analysis is conducted. The FS determines stocking

capacity based on attainment or retention of satisfactory range conditions. On the 137 acquired parcels within allotments, livestock would be managed to Forest Plan standards and guidelines as applied in the term grazing permit, AMP, and annual operating instructions. Following these standards would be sufficient to protect the forage vegetation and soil resources. Indirectly there would be an improvement of rangeland management. This improvement would be greatest where acquired lands are capable and suitable and where the FS has not issued a private land term grazing permit. The allotments most benefited are the Murders Creek, Mount Vernon/John Day on the Malheur, Butcher Creek and Eden on the Umatilla and Cayuse, Cow Creek, Dodson-Haas, Log Creek, Middlepoint, Toomey, Al-Cunningham, Buck Creek, and Chesnimnus on the Wallowa-Whitman.

In addition, there would be indirect benefits to range health where livestock management practices on acquired lands are inconsistent with the allotment's prescribed management. These management situations include feeding areas or gathering corrals. Gathering areas would be evaluated and a future decision made to determine if the future use is appropriate. Use of feeding areas has been discontinued by the private landowners and would not be re-established if these lands are acquired. Site restoration activities have been initiated and would be continued with appropriate analysis. Those lands where feeding areas have been discontinued include Log Creek, Cow Creek, Dodson Haas, Middlepoint, Al-Cunningham and Buck Creek Allotments located along the Imnaha River and Cow, Horse Joseph and Buck Creeks on the Wallowa-Whitman. The associated affects from soil loss, impacts to local vegetative health and water quality would improve to a near natural rate as prescribed by the allotment management planning.

Under Alternative 1 the conveyance of 60 parcels within allotments would eliminate the need to administer five allotments effecting the cancellation of five grazing permits. In addition, the FS would no longer manage six pastures on five allotments. This would result in the reduction of FS grazing administration costs. There would be a direct effect loss of 4 ponds and one trough on conveyed lands (Alternative 5 conveys 59 parcels – would cancel 3 grazing permits, lost 4 pastures on 5 allotments and lose 2 ponds). These improvements are on pastures or allotments that would be removed from FS administration. The facilities are still functional but have exceeded their amortized value. Through the cancellation or adjustments of permits, the FS would reduce permitted stocking by 723 AUM. All parties receiving these parcels, except for parcels FW9 (Carol Creek Allotment) and FW10 (Divide Allotment) have expressed an interest in continued livestock grazing. The FS plans on completing allotment environmental analysis on the majority of the affected allotments by 2010. The consolidation of allotment lands would improve the ability to monitor and prescribe range health standards. In addition, the consolidation of allotment ownership would aid in improving livestock management prescriptions.

Under Alternative 1 approximately 2,322 acres would be acquired that are outside of active allotments and are currently being grazed (Alternative would acquire 2,245 acres currently being grazed). Once acquired, livestock grazing would be discontinued on these lands. Range health varies from satisfactory to unsatisfactory on these acquired parcels with feeding areas contributing to most unsatisfactory conditions. These areas would improve over time. Refer to the soils section for additional information on feeding areas and impacts to the soils resource.

It is not feasible to predict what changes in management would occur on the conveyed rangeland parcels outside allotments. These conveyed lands totaling 1,133 acres for Alternative 1 and 812 acres for Alternative 5 would receive a multitude of management prescriptions depending on the objectives of the owner and availability to livestock. Consolidation of these lands should assist

individual landowners in achieving their management objectives and provide opportunities to manage lands separate from FS control.

### Alternative 2: No Action

Under this alternative, there would be no change from existing conditions. Existing management would continue on all FS allotments and on private land. There would be no change in land and facility ownership or livestock management and stocking. Forest, State of Oregon and private lands would continue to be fragmented resulting in continued complications to efficient grazing management.

There would be no change to the conditions affecting range health within allotments. NFS lands would still be managed to the standards and guidelines prescribed in the forest plan and implemented through the permit, annual operating instructions, and plan of operations. Stocking on allotments would be authorized by permit regardless of land ownership.

The FS would be completing allotment administrative environmental analysis on the majority of the affected allotments by 2010. Without the consolidation of NFS lands within allotments, management analysis would be more complex than under Alternative 1.

### Alternative 3: Purchase

Alternative 3 proposes to purchase 33 parcels representing 3,699 acres within 11 existing allotments. This alternative conveys no parcels.

Table 60 displays the distribution of purchased parcels and parcel acreage by allotment for each Forest and Ranger District.

**Table 60. Alternative 3 – Distribution of Purchased Parcels by Allotment**

Allotment	Parcel	Acreage	Allotment	Parcel	Acreage
Trout Meadows	PW45 <sup>1</sup>	59	Log Creek	PW20A	159
Eden	PU1A	230		PW20C	151
Cow Creek	PW48	233		PW21A	81
Dodson-Haas	PW10A	63		PW21B	76
	PW10B	101		PW21C	75
	PW11	41		PW21D	151
	PW13A	43		PW23A	39
	PW13B	83		PW23B	75
	PW13C	63	Lone Pine	PW1	11
	PW13D	8	Middlepoint	PW25A	186
	PW16A	39		PW25B	65
	PW16C	302		PW25C	180
	PW16E	162		PW27C	127
PW19B	201	Toomey	PW2A	22	
PW19C	162		PW2B	37	
PW22	41	Snake River	PW29	143	
Grouseline	PW28	119	Buck Creek	PW39C	141

1) The Umatilla NF administers livestock use on PW45

Alternative 3 purchases an additional five parcels representing 580 acres outside active allotments. None of these parcels outside of allotments are currently being grazed.

The anticipated management implication to existing allotments resulting from this Purchase Alternative is outlined in Table 61. The FS would cooperatively work with the permittees to further clarify and implement these management actions.

**Table 61. Alternative 3 – Management Implications to Existing Allotments**

Allotment	Management Implications
Trout Meadows	No change in management
Eden	No change in management
Cow Creek	No change in allotment management but improvement in administration. There is a private feeding facility on PW48. Livestock feeding area discontinued and site is being restored.
Dodson-Haas	No change in allotment management but improvement in administration. There are private feeding facilities on PW20C and PW13B. Livestock feeding area discontinued and site is being restored.
Grouseline	No change in management
Log Creek	No change in management. There are private feeding facilities on PW20C. Livestock feeding area discontinued and site is being restored.
Lone Pine	No change in management
Middlepoint	No change in allotment management but improvement in administration. There is private winter feeding facilities on PW24C. Livestock feeding area discontinued and site is being restored.
Toomey	No change in management
Snake River	No change in management
Buck Creek	No change in management. There are private feeding facilities on PW39B&C. Livestock feeding area discontinued and site is being restored.

Purchase of private parcels and one State of Oregon parcel within existing allotments would likely improve the ease of management. Improvements in administration would be realized through monitoring and fence and other structural improvement location. Improvements in cultural practices would be realized through salting, herding and gathering. The benefits of consolidated ownership should provide a small reduction in the costs of management along with a small benefit to the range land resources. Where private lands have been waived to the Government for control, such as through the issuance of a term private land grazing permit, this ease of management is already occurring.

Improved management can have an indirect positive affect on rangeland health through better distribution of livestock and implementation of allotment standards and guidelines. In rare cases, the current management on acquired private lands is not consistent with the goals and objectives of the allotment. Once acquired these lands would adopt the allotments goals and objectives and incorporate appropriate standards and guidelines. Under this alternative there would be 3,669 acres of purchased lands. There would be no change in management for the allotments affected by this action but several allotments would have improved administration. Even though purchased parcels may add capacity to the allotment there would be no increase in stocking until further analysis is conducted. The FS determines stocking capacity based on attainment or

retention of satisfactory range conditions. On purchased parcels within allotments, livestock would be managed to Forest Plan standards and guidelines as applied in the term grazing permit, AMP, and annual operating instructions. Following these standards would be sufficient to protect the forage vegetation and soil resources. Indirectly there would be an improvement of rangeland management. This improvement would be greatest where purchased lands are on capable and suitable and where the FS has not issued a private land term grazing permit. The allotments most benefited are the Cow Creek, Dodson-Haas, Log Creek, Middlepoint and Toomey on the Wallowa-Whitman.

In addition, there would be indirect benefits to range health where livestock management practices on purchased lands are inconsistent with the allotment's prescribed management. These management situations include feeding areas or gathering corrals. Gathering corrals would be evaluated and a future decision made to determine if there future use is appropriate. Use of feeding areas has been discontinued by the private landowners and would not be re-established if these lands are purchased. Site restoration activities have been initiated and would be continued with appropriate analysis. Those feeding areas that would be purchased and have been discontinued include Log Creek, Cow Creek, Dodson Haas, Middlepoint, and Buck Creek Allotments located along the Imnaha River and Cow, Horse and Buck Creeks on the Wallowa-Whitman. The associated affects from soil loss, impacts to local vegetative health and water quality would improve to a near natural rate as prescribed by the allotment management planning.

Alternative 3 purchases an additional five parcels representing 580 acres outside active allotments. None of the parcels outside of allotments are currently being grazed therefore, there would be no effects related to grazing on these parcels.

### **Summary- Alternative 3**

The FS would improve grazing management within allotments where parcels are purchased. This alternative would block up Federal lands and improve the ability to manage the grazing resource. The benefits to the FS grazing resource would be less than Alternative 1 because Alternative 3 purchases considerably less range acres within allotments than Alternative 1 acquires. Alternative 1 also benefits the private landowner's ability to improve grazing management by conveying Federal parcels that allow consolidation of ownership, thereby improving the ability to manage the private grazing resource. The Purchase Alternative does not provide for consolidation of private grazing lands. Therefore, the FS would continue to administer all pastures or allotments and grazing permits under current administration. Alternative 3 provides less savings in administration costs than Alternative 1 since there would be minimal opportunity to reduce the administration of pastures or allotments and grazing permits. The FS plans on completing allotment environmental analysis on the majority of the affected allotments by 2010. The consolidation of allotment lands would improve the ability to monitor and prescribe range health standards and would aid in improving livestock management prescriptions, but Alternative 1 would accomplish more in this regard. There would be no direct loss of Federally owned range structure improvements under Alternative 3.

### **Alternative 4: Deed Restriction**

Alternative 4 proposes to acquire 96 parcels representing 14,131 acres within 46 existing allotments. This alternative conveys 62 parcels representing 15,136 acres. It conveys the same parcels as Alternative 1.

Table 62 displays the distribution of acquired and conveyed parcels by allotment for each Forest and Ranger District.

**Table 62. Alternative 4 – Distribution of Acquired and Conveyed Parcels by Allotment**

<b>Malheur National Forest</b>			
<b>District</b>	<b>Allotment</b>	<b>Parcel</b>	<b>Acres</b>
Long Creek	Beech Creek	FM12	236
		FM13	317
	Deer Creek	FM16A	246
		FM16B	82
		FM18	480
		FM19	309
		FM20	41
	Dixie	FM3	121
		FM4	368
		FM5	326
		FM6	302
		FM7 <sup>1</sup>	7
		FM8	581
	Dixie & Roundtop	FM9 <sup>2</sup>	398
	Hamilton	FM15	325
FM17		596	
FM21		241	
King	FM14	80	
Mt. Vernon/John Day & Beech Creek	FM11 <sup>3</sup>	64	
Roundtop	FM10	314	
Prairie City	Hot Springs	FM2	16
Bear Valley	Aldrich	PM28	161
		PM29	44
	Murderers Creek	PM21	146
		PM25	161
		PM26	160
		PM27	159
		PM30	641
PM31	160		
Long Creek	Blue Mountain	PM2	280
<b>Umatilla National Forest</b>			
Heppner	Coalmine	FU26	189
	Tamarack Monument	FU27	102
		FU28	38
N.F. John Day	Cooper Creek	FU19A	158
		FU19B	157
		FU20A	403
	Cooper Creek & Hutchinson	FU20B <sup>4</sup>	408
	Cooper Creek	FU20C	40
		FU20D	41
		FU22	37
	F.G. Whitney	FU21	319
Hutchison & Cooper Creek	FU23 <sup>5</sup>	242	

**Table 62. Alternative 4 – Distribution of Acquired and Conveyed Parcels by Allotment (contd)**

District	Allotment	Parcel	Acres
N.F. John Day	Klondike	FU6B	45
	McDonald Spring	FU30	49
Walla Walla	Butcher Creek	FU3A	710
		FU3B	658
		FU3C	557
		FU3D	874
		FU3E	643
N.F. John Day	Indian Creek	PU20	390
	Klondike	PU15	319
	Trout Meadows	PU13	108
Walla Walla	Butcher Creek	PU6	14
		PU9A	63
		PU9B	32
	Butcher Creek/ Outside Allotment	PU11 <sup>1</sup>	147
	Eden	PU1A	230
		PU1B	521
		PU2	78
		PU3	238
		PU4	59
	<b>Wallowa-Whitman National Forest</b>		
HCNRA	Cayuse	FW5	39
	Log Creek	FW1D	325
		FW1E	127
La Grande	Starkey	FW18	388
Unity	Bullrun	FW19	42
Wallowa Valley	Big Sheep	FW6A	42
		FW6B	38
		FW6C	43
		FW6D	43
		FW6E	38
		FW6F	41
	Carrol Creek	FW9	422
	Divide	FW10	640
	North Powwatka	FW20	79
		FW21	83
		FW22	40
		FW23	40
		FW24	663
		FW25A	576
		FW25B	59
	FW26	247	
South Powwatka	FW30	1	
HCNRA	Cayuse	PW26A	315
		PW26B	157
		PW26C	155
	Cow Creek	PW3	564



**Table 62. Alternative 4 – Distribution of Acquired and Conveyed Parcels by Allotment (contd)**

District	Allotment	Parcel	Acres
HCNRA	Cow Creek	PW4	40
		PW48	233
		PW5	40
	Dodson-Haas	PW10A	63
		PW10B	101
		PW11	41
		PW12	257
		PW13A	43
		PW13B	83
		PW13C	63
		PW13D	8
		PW14	649
		PW15A	187
		PW15B	87
		PW16A	39
		PW16B	115
		PW16C	302
		PW16D	80
		PW16E	162
		PW17A	118
		PW17B	399
		PW19A	21
		PW19B	201
	PW19C	162	
	PW22	41	
	Grouseline	PW28	119
	Log Creek	PW18	41
		PW20A	159
		PW20B	224
		PW20C	151
		PW21A	81
		PW21B	76
		PW21C	75
		PW21D	151
		PW23A	39
		PW23B	75
	Lone Pine	PW1	11
	Middlepoint	PW24A	67
		PW24B	53
		PW24C	31
		PW24D	41
PW24G		24	
PW24H		98	
PW25A		186	
PW25B		65	
PW25C		180	
PW25E		74	
PW27A		80	
PW27C	127		

**Table 62. Alternative 4 – Distribution of Acquired and Conveyed Parcels by Allotment (contd)**

District	Allotment	Parcel	Acres
HCNRA	Toomey	PW2A	22
		PW2B	37
		PW2C	2
		PW7A	83
		PW7B	244
		PW7C	118
		PW8A	429
		PW8B	258
		PW8C	39
La Grande	Dark Ensign	PW46	159
	McCarty	PW44B	12
	Trout Meadows	PW45 <sup>2</sup>	59
Pine	Snake River	PW29	143
Wallowa Valley	Al-Cunningham	PW34A	237
		PW34B	279
		PW34C	142
	Big Sheep	PW31	183
	Buck Creek	PW39C	141
	Chesnimnus	PW51A	244
		PW51C	79
		PW51D	78
	Needham Butte	PW32	78

1) FM7 – Only seven acres in Dixie Allotment

2) FM9 - Dixie Allotment 83 acres & Roundtop Allotment 315 acres

3) FM11 - Mt. Vernon/John Day Allotment 37 acres & Beech Creek Allotment 27 acres

4) FU20B - Cooper Creek Allotment 374 acres & Hutchinson Allotment 35 acres

5) FU23 - Hutchison 164 acres & Cooper Creek 78 ac.

6) W45 the Umatilla NF administers livestock use.

7) PU11 - Only 147 acres in Butcher Creek Allotment

8) Parcels with deed restrictions

In addition to the parcels in the above table, this alternative proposes to acquire 19 parcels representing 5,516 acres outside existing active allotments. Alternative 4 would also convey 33 parcels representing 3,036 acres outside existing active allotments, the same as Alternative 1.

Table 63 identifies only the parcels and parcel acres outside of allotments in Alternative 4 that are either currently being grazed or are intended to be grazed.

**Table 63. Parcels Outside Allotments Either Being Grazed or Intended to be Grazed**

Malheur National Forest			
To Convey	Acres	To Acquire	Acres
FM7 <sup>1</sup>	315		0
<b>subtotal</b>	<b>315</b>		<b>0</b>
Umatilla National Forest			
FU1	5	PU16B	1271
FU10A	198	PU16C	285
FU10B	11	PU16D	630
FU11	39	PU16E	456
FU12	11	PU16F	343
FU13	41	PU16G	31
FU14	39	PU16H	424
FU15 <sup>NG</sup>	39	PU21	159
FU16 <sup>NG</sup>	164	PU22B	545

**Table 63. Parcels Outside Allotments Either Being Grazed or Intended to be Grazed**

To Convey	Acres	To Acquire	Acres
FU17 <sup>NG</sup>	80	PU11 <sup>1G</sup>	598
FU18 <sup>NG</sup>	160		
FU2 <sup>NG</sup>	160		
FU24	162		
FU25	39		
FU4 <sup>NG</sup>	321		
FU5 <sup>NG</sup>	57		
FU6A	57		
FU7	35		
FU8	40		
FU9	39		
<b>subtotal</b>	<b>1697</b>		<b>4742</b>
<b>Wallowa-Whitman National Forest</b>			
FW11	41	PW25D	175
FW12	291	PW35A	229
FW13	118	PW35B	153
FW14A	125	PW35C	76
FW14B	81	PW37	4
FW15 <sup>NG</sup>	31	PW44A <sup>G</sup>	70
FW16 <sup>NG</sup>	39	PW47A	11
FW17A	10	PW47B	47
FW17C	2	PW6 <sup>G</sup>	9
FW2 <sup>NG</sup>	82		
FW7	121		
FW8	83		
<b>Subtotal</b>	<b>1024</b>		<b>774</b>
<b>Total Acres</b>	<b>3036</b>		<b>5516</b>

1) PU11 contains 598 acres outside and 147 acres inside the Butcher Creek Allotment.

G - Current owner indicates livestock grazing is occurring on these acquired parcels.

The anticipated management implication to existing allotments resulting from Alternative 4 is outlined in Table 64. The FS would cooperatively work with the permittees to further clarify and implement these management actions.

**Table 64. Alternative 4 – Management Implications to Existing Allotments**

Allotment	Management Implications
Beech Creek	No change in management. Conveyed NFS lands on one pasture. Adjust term on/off permit to reflect changes in land ownership. No loss in stocking. Applied deed restriction for nonuse season and utilization.
Blue Mountain	No change in management
Deer Creek	Adjustments in ownership but no change in management or stocking. Applied deed restriction for nonuse season and utilization.
Dixie	No change in management. Applied deed restriction for nonuse season and utilization.
Hamilton	1/2 of western pastures conveyed. Potential change in allotment boundary. Applied deed restriction for nonuse season and utilization. No change in stocking.
King	Conveyed all NFS lands on allotment. Cancel term on/off permit. Loss of 3 AUM from on portion of the permit.
Long Creek	No change in management

**Table 64. Alternative 4 – Management Implications to Existing Allotments (continued)**

<b>Allotment</b>	<b>Management Implications</b>
Mt. Vernon/John Day	No change in management
Roundtop	No change in management
Hot Springs	No change in management
Coalmine	No change in management
Tamarack Monument	No change in management
Cooper Creek	Conveyed all NFS land. Cancel term on/off permit. Loss of 62 AUM from the on portion of the permit.
F.G.Whitney	No Change in Management. Loss of 2 ponds “no value.”
Hutchison	Conveyed all NFS land on allotment. Cancel term on/off permit. Loss of 18 AUM from the on portion of the permit.
Indian Creek	No change in management
Klondike	No change in management
McDonald Spring	Conveyed all NFS land. Cancel term on/off permit for 6 AUM from on portion of permit. Loss of one trough “no value”.
Trout Meadows	No change in management
Butcher Creek	Conveyed all NFS land on 2 pastures. Reduce term on/off permit. Total loss on allotment 158 AUM (sheep). Loss of two ponds “no value”. Applied deed restriction for nonuse season and utilization.
Eden	No change in management
Dark Ensign	No change in management
McCarty	No change in management
Starkey	Conveyed most NFS land on one pasture. Remove from allotment. Pasture removed from rotation. No change in stocking. Applied deed restriction for nonuse season and utilization.
Cayuse	No change in management
Cow Creek	No change in allotment management but improvement in administration. There is a private feeding facility on PW48. Livestock feeding area discontinued and site is being restored.
Dodson-Haas	No change in allotment management but improvement in administration. There are private feeding facilities on PW10A & B. Livestock feeding area discontinued and site is being restored.
Grouseline	No change in management
Log Creek	No change in management. There is a private feeding facility on PW20C. Livestock feeding area discontinued and site is being restored.
Lone Pine	No change in management
Middlepoint	No change in allotment management but improvement in administration. There are private winter feeding facilities on PW24C. Livestock feeding area discontinued and site is being restored.
Toomey	No change in management
Snake River	No change in management
Bullrun	No change in management
Al-Cunningham	No change in management. There are private feeding facilities on PW34C. Livestock feeding area discontinued and site is being restored.

**Table 64. Alternative 4 – Management Implications to Existing Allotments (continued)**

Allotment	Management Implications
Big Sheep	No change in management. Applied deed restriction for nonuse season and utilization.
Buck Creek	No change in management. There are private feeding facilities on PW39C. Livestock feeding area discontinued and site is being restored.
Carrol Creek	Conveyed all NFS land west of Carol Creek. Cancel 42 AUM from term grazing permit. The new owner does not intend to continue grazing.
Chesnimnus	No change in management
Divide	Conveyed most NFS land in one pasture. Cancel 64 AUM from term grazing permit. The new owner does not intend to continue grazing. Applied deed restriction for nonuse season and utilization.
Needham Butte	No change in management
North Powwatka	Conveyed most NFS lands. Cancel term on/off permit. Loss of 113 AUM from the on portion of the permit. The private owner plans to continue grazing. Applied deed restriction for nonuse season and utilization.
South Powwatka	No change in management. This parcel is the only Federal land within a private land pasture. It is so small no capacity is given to it. FS would no longer manage pasture.

Acquisition of private parcels and one State of Oregon parcel within existing allotments would likely improve the ease of management. Improvements in administration would be realized through monitoring and fence and other structural improvement location. Improvements in cultural practices would be realized through salting, herding and gathering. The benefits of consolidated ownership should provide a small reduction in the costs of management along with a small benefit to the range land resources. Where private lands have been waived to the Government for control, such as through the issuance of a term private land grazing permit, this ease of management is already occurring.

Improved management can have an indirect positive affect on rangeland health through better distribution of livestock and implementation of allotment standards and guidelines. In rare cases, the current management on acquired private lands is not consistent with the goals and objectives of the allotment. Once acquired, these lands would adopt the allotments goals and objectives and incorporate appropriate standards and guidelines. Under this alternative, there would be 14,131 acres of acquired parcels and 15,136 acres of parcels being conveyed. There would be no change in management for 34 of the allotments affected by this action. Even though acquired parcels may add capacity to the allotment, there would be no increase in stocking until further analysis is conducted. The FS determines stocking capacity based on attainment or retention of satisfactory range conditions. On the 71 acquired parcels within allotments, livestock would be managed to Forest Plan standards and guidelines as applied in the term grazing permit, AMP, and annual operating instructions. Following these standards would be sufficient to protect the forage vegetation and soil resources. Indirectly there would be an Improvement of rangeland management. This improvement would be greatest where acquired lands are capable and suitable lands and where the FS has not issued a private land term grazing permit. The allotments most benefited are the Eden on the Umatilla and Cayuse, Cow Creek, Dodson-Haas, Log Creek, Middlepoint, Toomey, Al-Cunningham, Buck Creek, and Chesnimnus on the Wallowa-Whitman.

In addition, there would be indirect benefits to range health where livestock management practices on acquired lands are inconsistent with the allotment's prescribed management. These management situations include feeding areas or gathering corrals. Gathering areas would be evaluated and a future

decision made to determine if their future use is appropriate. Use of feeding areas has been discontinued by the private landowners and would not be re-established if these lands are acquired. Site restoration activities have been initiated and would be continued with appropriate analysis. Those lands where feeding areas have been discontinued include Log Creek, Cow Creek, Dodson Haas, Middlepoint, Al-Cunningham and Buck Creek Allotments located along the Imnaha River and Cow, Horse Joseph and Buck Creeks on the Wallowa-Whitman. The associated affects from soil loss, impacts to local vegetative health and water quality would improve to a near natural rate as prescribed by the allotment management planning.

The conveyance of 62 parcels within allotments would lead to reducing the need to administer one allotment affecting the cancellation of one grazing permit. In addition, the FS would no longer manage five pastures on four allotments. This likely would not result in the reduction of FS grazing administration costs because the FS would need to monitor for compliance of the five deed restrictions that apply to grazing on conveyed parcels. There would be a direct effect loss of 4 ponds and one trough on conveyed lands. These improvements are on pastures or allotments that would be removed from FS administration. The facilities are still functional but have exceeded their amortized value. Through the cancellation or adjustments of permits the FS would reduce permitted stocking by 404 AUM. All parties receiving these parcels, except for parcels FW9 (Carol Creek Allotment) and FW10 (Divide Allotment) have expressed an interest in continued livestock grazing. The FS plans on completing allotment environmental analysis on the majority of the affected allotments by 2010. The consolidation of allotment lands would improve the ability to monitor and prescribe range health standards. In addition, the consolidation of allotment ownership would aid in improving livestock management prescriptions.

Under this alternative, approximately 1,222 acres would be acquired that are outside of active allotments and are currently being grazed. Once acquired, livestock grazing would be discontinued on these lands. Range health varies from satisfactory to unsatisfactory on these acquired parcels with feeding areas contributing to most unsatisfactory conditions. The areas would improve over time. Refer to the soils section for additional information on feeding areas and impacts to the soils resource.

It is not feasible to predict what changes in management would occur on the conveyed rangeland parcels outside allotments. These lands totaling 1,133 acres would receive a multitude of management prescriptions depending on the objectives of the owner and availability to livestock although, the deed restrictions in this alternative would assist in maintaining or improving range health where required to address significant issues. Consolidation of these lands should assist individual landowners in achieving their management objectives and provide additional opportunities to manage lands but some management activities may be restricted due to FS monitoring for deed covenant compliance.

#### **Summary- Alternative 4**

The FS would improve grazing management within those allotments where parcels are acquired. This alternative would block up Federal lands within allotments and eliminate grazing on parcels acquired outside of active allotments. The total benefits to rangeland health may be more than Alternative 1 because of the required deed covenants on conveyed parcels outside of grazing allotments. Although, this benefit is somewhat offset by the FS acquiring considerably less acreage than Alternative 1, resulting in a lost opportunity for additional FS consolidation of land. Alternative 4 conveys the same amount of acres as does Alternative 1, but the private land owners and the State of Oregon are somewhat restricted in management options due to the deed covenants applied to conveyed range land. FS monitoring of these deed covenants coupled with the lost opportunity for consolidation of lands within allotments would increase FS administrative costs over what would occur under Alternative 1.

## Transportation

The objectives of this section are: 1) To describe the existing roads on all of the parcels under consideration; 2) to describe the effects of potential changes to motorized access under the action alternatives and; 3) to identify estimated deferred maintenance and annual maintenance costs associated with the roads affected by each action alternative; 4) To describe the effects of acquisition of private and State of Oregon lands and conveyance of Federal lands on public access, and 5) to describe effects of the exchange on existing access agreements.

The analysis area includes all of the land within parcels that are being considered in the Proposed Land Exchange. It includes all of the existing roads that have been documented within the exchange parcels. Some discussion of roads outside the parcels is included if acquiring easements for those roads are necessary to allow road access to NFS lands.

On the parcels to convey, relatively good information about specific roads and road conditions is available. On State of Oregon and private parcels to acquire, only limited information about specific roads and road conditions is available. This information was not detailed enough to conduct an interdisciplinary roads analysis. Consequently, the following assumptions were made for any roads where the FS would acquire jurisdiction through the Proposed Land Exchange:

- Any deferred road maintenance activities that are related to public safety, protection of cultural resources, protection of Threatened and Endangered Species, or related to providing functional drainage would be implemented as soon as possible following the Proposed Exchange.
- Other deferred road maintenance may be implemented within the first 10 years following the completion of the Proposed Land Exchange.
- Roads to be acquired that are currently closed for public access would remain closed.
- Roads to be acquired that are currently open for public access would remain open and maintained for High Clearance vehicles; exceptions to this would be made only for roads that need to be closed because of concerns related to public safety issues.
- The jurisdiction of State and Federal Highways and any FS roads that are currently maintained for passenger car use would not change, so any maintenance costs associated with those roads are not included in this section.
- Most problems identified in the field data sheets for roads on parcels that could potentially be acquired can be corrected by spot blading and constructing or installing drainage such as waterbars on closed roads and self maintaining structures such as drain dips and grade sags on roads to be left open. Spot rocking would be used in drain dips; grade sags and wet spots lacking drainage. Limited stream crossing information was available on road/stream crossings, so further field evaluations are needed at those locations. Appropriate analysis will be completed on those projects that require routine road maintenance on a site-specific basis.
- High clearance recreation road maintenance guidelines were used to determine deferred maintenance needs for all High Clearance roads that would be left open. The deferred maintenance needs were based only on administrative and recreational uses; additional road work and funding would be needed on most roads prior to commercial use.
- At some future date, the acquired roads would be subject to an interdisciplinary roads analysis, but this type of analysis is not likely to take place immediately following completion of the Proposed Land Exchange. The outcome of that analysis would determine long-term management strategies for the acquired roads, which could range from major improvements to decommissioning depending on the determined need for the road.

- Use and maintenance of conveyed roads (those roads leaving Federal jurisdiction) would be in accordance with Oregon State Forest Practices Act standards and guidelines where right of way has not been reserved. Federal dollars can be used to maintain roads on non-Federal lands where right of way has been reserved. Right of way is reserved on roads where there is a need to protect any Federal or public interests associated with the road. Deed restrictions associated with roads would also be considered to address the significant issues.

Other assumptions were necessary to address the effects of the land exchange on access across involved lands. Acquisition of some private and State of Oregon parcels eliminates a need, and potential cost, to acquire roaded legal access across them. Conveyance of certain Federal lands eliminates the need, and potential cost, to acquire roaded legal access to them. In analyzing these effects the following assumptions were made:

- It is estimated that there are approximately 100 miles of FS system roads lacking easements across parcels that could be acquired in the Proposed Exchange. Access needs and costs were estimated only on those roads presently identified as needing legal right-of-way.
- While legal (not roaded) access may exist to some of the Federal parcels to be conveyed (across adjoining Federal lands) this assessment considers roaded, legal access.
- Where management prescription is for non-roaded access, trail considerations are described.
- Prescriptive rights may exist on some of the roads or trails crossing private and State of Oregon lands to be acquired. However, these untested rights were not considered to be perfected. Acquisition of these parcels would eliminate any future actions that would potentially be necessary to perfect these rights.
- All private and State of Oregon lands would be acquired with legal, roaded access.
- Roads crossing FS lands that could be conveyed, but still needed for access to adjoining Federal lands, would be reserved.

The Land Exchange Handbook, filed in the PR, directs Forest Supervisors to conduct an analysis of the effects and subsequent actions required as a result of a Proposed Land Exchange within a Road Right-of-Way Construction and Use Agreement (Cost Share) Area. The proposed Blue Mountain Land Exchange involves the exchange of Umatilla and Wallowa-Whitman NF lands that lie within the boundaries of the Boise Cascade-Umatilla and Boise Cascade-Wallowa-Whitman Road Right-of-Way Construction and Use Agreements and two Road Maintenance Agreements between the Umatilla National Forest and Pioneer Resources, LLC, dated May 9, 1995 and October 30, 1997. Cooperators to the above referenced potentially affected agreements are Boise Cascade Corporation and Pioneer Resources, LLC. The two Agreements with Boise Cascade Corporation will be terminated in the near future since Boise Cascade Corporation sold all of their lands in these Agreement areas. Deferred maintenance obligations of Boise Cascade Corporation will be handled independent of this Proposed Land Exchange.

The Proposed Land Exchange involves lands located only in the State of Oregon, and therefore would not affect the Umatilla National Forest Memorandum of Agreement on Access with the Washington Department of Natural Resources.

### **Laws and Regulations Applying to the Analysis**

Laws and regulations include: 1) FS Handbook 7709.58 – Forest Transportation Maintenance Handbook; 2) Highway Safety and Standards Act; 3) FS Manual 7700 – Transportation Systems and; 4) Draft Land Exchange Handbook, FSH 5409.13, 32.16.



## Affected Environment

There are a wide variety of transportation systems and facilities in and near the exchange parcels. These include interstate highways, U.S. highways, State of Oregon roads, county roads, NFS roads (arterial, collector, and local) and private roads. Facilities located in or near the exchange parcels include electrical transmission lines, bridges, private structures, and railroads.

Roaded access to and across the exchange parcels depends on jurisdictional status of the roads. Some roads are open some are not. Interstate Highways, State Highways and County Roads are open to the general public. Roads across Federal lands and FS system roads across private and State of Oregon lands (where US has an acquired easement) are open to the public at the discretion of the Secretary of Agriculture. Some FS system roads are closed to the public for a variety of reasons such as resource protection, public safety, road density guidelines, etc. On private or State of Oregon lands involved in the exchange, unless the FS has acquired an easement, use by the public is by permission only and is totally at the discretion of the landowner.

There are 263 parcels being considered in the land exchange, including 94 NF parcels, 13 State of Oregon owned parcels, and 156 privately owned parcels. Tables 94 and 95 have narratives describing access considerations and other related land uses for exchange parcels. All specific road information by parcel is stored in tables located in the PR. Eighty of the parcels have no existing roads. The roadless parcels include 41 NF parcels, 4 State of Oregon-owned parcels, and 35 privately owned parcels. The 183 parcels that are roaded have a total of about 227 miles of road. Approximately 129 miles of the roads are currently open for public access, and approximately 98 miles are currently closed to public access.

The 53 NF parcels that are roaded have about 34 miles of open roads and 41 miles of closed roads. The 121 privately owned parcels that are roaded have about 87 miles of open roads, and 55 miles of closed roads. The nine roaded parcels under State of Oregon ownership have about 8 miles of open roads and 3 miles of closed roads.

Within all the roaded parcels, approximately 121 road miles are within 300 feet of Class 1 through 4 streams (about 31 miles on NF parcels, 84 miles on private parcels, and 5 miles on State of Oregon parcels). Within this same group of roads, approximately 71 road miles are within 150 feet of Class 1 through 4 streams (about 17 miles on NF parcels, 51 miles on private parcels, and 3 miles on State of Oregon parcels).

The roads on NF parcels were usually constructed to FS standards (typically at least 12 feet wide), and have functional drainage, but some of the roads have some documented deferred maintenance needs. Based on available information, the roads currently under State and private jurisdiction on the State of Oregon and private parcels were constructed to a variety of standards, so the road widths, drainage systems, and overall road conditions are highly varied. Many of the roads are less than 12 feet wide, and many are in need of drainage improvements and other deferred road maintenance activities.

All the roads that would potentially be acquired or conveyed through the Proposed Land Exchange are currently either open to High Clearance vehicles or closed by a Forest Order and/or a physical barrier (i.e. vegetation, locked gates, earth berms, blocked by cut or fill slopes, or other means). Most of these roads have low traffic volumes unless they are primary access roads or are associated with recreation activities like hiking trails or dispersed recreation site.

On roads that could potentially be acquired, the overall road surfaces are generally in good condition. The roads that do have problems are usually related to road segments that lack functional drainage, or where recent logging has occurred impacting road and drainage features. These roads are primarily located

within a few select watersheds. The problem areas tend to be concentrated within 300 feet of streams and on short segments of roads with steep grades.

## Environmental Consequences

The direct and indirect net effects to roads for each alternative will be expressed in terms of total road miles gained or lost, miles of open road that provide public motorized access for High Clearance vehicles gained or lost, miles of closed roads gained or lost, road/stream proximity on road miles gained or lost, and net changes in annual and deferred maintenance costs based on road miles gained or lost.

Available information related to road conditions and needed maintenance for a deferred maintenance cost on proposed acquired roads was limited to field data sheets. Cost estimates for closed roads include surface blading, constructing water bars, and in some cases reestablishing closure devices. Cost estimates for roads proposed to remain open for high-clearance vehicle use include surface blading, installing drain dips, grade sags, and installing culverts where erosion problems were identified at live stream crossings. Cost estimates for culverts documented as damaged are for repair or replacement with similar sized structures. The majority of the deferred maintenance costs are related to installing new drainage structures and reshaping the road surfaces. Some spot rocking of drainage structures and wet spots to correct the drainage problems are also included in the cost estimates.

For all of the roads that could potentially be acquired, the deferred maintenance costs were calculated to be approximately \$105,000 (PR). Because those estimates were based on limited information and did not include overhead or contracting costs, actual total costs for completing the work are estimated to be in the range of \$100,000 to \$200,000. This range of values reflects the uncertainty of the actual work and the costs that might be needed. More detailed road condition surveys would be required to determine precisely what improvements are needed and the costs to do the improvements.

Calculated deferred maintenance cost estimates are higher on roads potentially acquired than on roads potentially conveyed, which is consistent with the assumption that the FS maintains system roads to higher standards than most private landowners.

The deferred maintenance cost estimates for roads that would potentially be conveyed were \$363 per mile for closed roads, and \$1,040 per mile for open, high-clearance roads. The costs used for open, high-clearance roads are based on 2004 maintenance contracts on the Malheur National Forest. The costs for closed roads were based on average deferred maintenance figures currently in the Malheur Forest INFRA database.

The estimated annual maintenance costs for acquired and conveyed roads were determined by comparing estimates from the Wallowa-Whitman and Malheur National Forest Road Managers. Closed roads were assigned a cost of \$35 per mile, open (High Clearance) roads were assigned a cost of \$245 per mile, and open (Low Clearance) roads were assigned a cost of \$670 per mile.

The direct and indirect net effects to roads for each alternative are displayed in Table 65. A summary of estimated costs by forest is located in the PR.

**Table 65. Roads Summary by Alternative**

	Alternatives				
	1	2	3	4	5
Acquired (miles)	101	0	8	53	96
Conveyed (miles)	60	0	0	60	56
Net Gain or Loss (miles)	+ 41	0	+ 8	- 7	+40
Reserved (miles)	10	0	0	10	10
Acquired Roads Closed for Safety (miles)	2.5	0	0	0	2.5
Acquired Deferred Maintenance Costs	\$100,000 to \$200,000	0	\$2,000 to \$4,000	\$50,000 to \$100,000	\$100,000 to \$200,000
Acquired Annual Maintenance Costs	\$14,523	0	\$442	\$6,150	\$13,986
<b>Acquired Roads within 300 foot Stream Buffer</b>					
Total Miles	55.9	0	5.5	33.2	54
Closed Miles	29.7	0	5.1	12.7	28.5
Open Miles	26.2	0	.4	20.5	25.5
<b>Acquired Roads within 150 foot Stream Buffers</b>					
Total Miles	34.8	0	3.4	19.9	33.6
Closed Miles	18.9	0	3.1	12	18.2
Open	15.7	0	.3	7.9	15.4

### Effects Common to all Action Alternatives

Within the 183 roaded parcels considered in the Proposed Land Exchange, there are about 66 miles of road that are currently under County, State of Oregon, Federal Highways or FS jurisdiction, where no changes in jurisdiction would occur under any of the alternatives. These road miles include reserved roads on NF parcels that would be conveyed with the exchange alternatives.

Any deferred road maintenance activities that are related to public safety, protection of cultural resources, or protection of Threatened and Endangered Species, or related to providing functional drainage would be implemented as soon as possible following implementation of any action alternatives. Closures of acquired roads that are currently open that have been identified as having public safety concerns would be implemented immediately after acquisition.

Other deferred road maintenance may be implemented within the first 10 years following acquisition.

### Alternative 1: Proposed Exchange

Under this alternative, the FS would acquire jurisdiction over approximately 101 miles of road, and convey jurisdiction over about 60 miles of road, which would result in a net gain of about 41 miles of

roads. The FS would reserve jurisdiction on approximately 10 miles of existing roads on conveyed parcels, to maintain access to other forest roads or lands. Approximately 2.5 miles of the acquired roads that are currently open have been identified as needing to be closed for public safety reasons.

The acquired roads include approximately 56 miles of roads within 300 feet of class 1 through 4 streams (30 miles of closed roads and 26 miles of open roads). Of these roads, approximately 35 road miles are within 150 feet of class 1 through 4 streams (about 19 miles of closed roads and 16 miles of open roads).

Total costs for all three forests are estimated to range from \$100,000 to \$200,000. Most of the potentially acquired roads in need of deferred maintenance work on the Malheur N. F. are located in the Beech Creek watershed. This type of work is mostly in the Wall Creek and Meacham Creek Watersheds on the Umatilla N. F., and most of this work is located in the Lower Imnaha River watershed on the Wallowa-Whitman N. F. The estimated cost of annual maintenance work on acquired parcels is approximately \$14,523 (Table 65). A summary of estimated costs by forest can be found in the PR.

Estimated costs for acquiring rights-of-way to access public lands and acres accessed under Alternative 1 are displayed in Table 66.

**Table 66. Alternative 1 – R/W Acquisition Costs and Acres Accessed**

<b>Private and State Parcels with Identified Right-of-Way Need</b>		
<b>Parcel Number</b>	<b>Estimated Cost to Acquire</b>	
PU1A&B	None	
PW39A&B	None	
PW47A&B	None	
PW38	None	
PW29	None	
PW1, 2A&B	None	
PU7B&C	None	
PU15	None	
PU19	None	
PU14	None	
PU23	None	
PM1	None	
<b>Federal Parcels Lacking Access</b>		
<b>Parcel Number</b>	<b>Estimated Cost to Acquire Needed Access</b>	<b>Acres Lacking Access</b>
FM2	None	16
FW9	None	422
FW20, 21 & 24	None	832
FW15&16	None	70
FW12	None	291
FU2, 3A-E, 5	None	3,659
FU7	None	35
FU15 & FU16	None	203
FU8, 9-14, 22, 30	None	374
FU17	None	80
<b>Totals</b>	<b>None</b>	<b>5,982</b>

The cost-share agreements with Boise Cascade Corporation will be terminated. Therefore, the Land Exchange would not effect this Agreement.

Pioneer Resources LLC would not be acquiring or granting lands as part of the Proposed Land Exchange but lands previously owned by Pioneer would be involved in all alternatives. The Umatilla National Forest has not entered into maintenance agreements with Pioneer’s successors in interest to these roads. Road maintenance obligations of the successors in interest are being handled on an “as used” or “as hauled” basis. The outstanding deferred maintenance obligations of Pioneer Resources have been satisfied via separate agreement. Cost share easements do encumber some of the lands proposed for acquisition by the United States. These easements would merge with title. Cost share easements previously granted by the United States on adjacent NFS lands to access these parcels have either been terminated via separate agreement with Pioneer Resources or would become mute, as they relate to the exchange parcels, when the FS acquires title. There are no costs or other effects associated with this Agreement to be considered.

### Alternative 2: No Action

Under this alternative, no exchange or purchase of private parcels would occur. Changes to roads under FS jurisdiction would be subject to NEPA from another analysis of proposed management actions. Efforts towards achieving access to public lands would be continued in accordance with Forest Plan direction and budgets.

Estimated costs for acquiring rights-of-way to access public lands and acres accessed under Alternative 2 are displayed in Table 67. Alternative 2 would have no effect to cost share agreement areas.

**Table 67. Alternative 2 – R/W Acquisition Costs and Acres Accessed**

<b>Private and State Parcels with Identified Right-of-Way Need</b>		
<b>Parcel Number</b>	<b>Cost Estimated to Acquire</b>	
PU1A&B	\$10,000	
PW39A&B	\$10,000	
PW47A&B	\$10,000	
PW38	\$10,000	
PW29	\$10,000	
PW1, 2A&B	\$10,000	
PU7B&C	\$10,000	
PU15	\$10,000	
PU19	\$10,000	
PU14	\$10,000	
PU23	\$10,000	
PM1	\$10,000	
<b>Federal Parcels Lacking Access</b>		
<b>Parcel Number</b>	<b>Estimated Cost to Acquire Needed Access</b>	<b>Acres Lacking Access</b>
FM2	\$10,000	16
FW9	\$10,000	422
FW20, 21 & 24	\$20,000	832
FW15&16	\$20,000	70
FW12	\$50,000	291
FU2, 3A-E & 5	\$20,000	3,659
FU7	\$20,000	35
FU15 & FU16	\$20,000	203
FU8, 9-14, 22, 30	\$120,000	374
FU17	\$30,000	80
<b>Totals</b>	<b>\$440,000</b>	<b>5,982</b>

### Alternative 3: Purchase

Under this alternative, the FS would acquire jurisdiction over approximately 8 miles of road, and would not convey jurisdiction over any roads, which would result in a net gain of about 8 miles of roads. The FS would not need to reserve jurisdiction on any roads, to maintain access to other forest roads or lands. None of the acquired roads that are currently open have been identified as needing to be closed for public safety reasons.

The acquired roads include approximately 5.5 miles of roads within 300 feet of class 1 through 4 streams (5.1 miles of closed roads and .4 miles of open roads). Of these roads, approximately 3.4 road miles are within 150 feet of class 1 through 4 streams (about 3.1 miles of closed roads and .3 miles of open roads).

All three forests estimated costs of deferred maintenance work to mitigate existing road problems on acquired roads. They are in the range of \$2,000 to \$4,000. The estimated cost of annual maintenance work on purchased parcels is around \$442 (Table 68). A summary of estimated costs by forest can be found in the PR.

The Malheur National Forest would have no purchased parcels, therefore no acquired roads. On the Umatilla N. F., there are no identified deferred maintenance needs to mitigate existing road problems on acquired roads. On the Wallowa-Whitman N. F., none of the acquired roads that are currently open have been identified as needing to be closed for public safety reasons.

Estimated costs for acquiring rights-of-way to access public lands and acres accessed under Alternative 3 are displayed in Table 68. Alternative 3 would have no effect to cost share agreement areas.

**Table 68. Alternative 3 – R/W Acquisition Costs and Acres Accessed**

Private and State Parcels with Identified Right-of-Way Need		
Parcel Number	Estimated Cost to Acquire	
PU1A	None	
PU1B	\$10,000	
PW39A&B	\$10,000	
PW47A&B	None	
PW38	\$10,000	
PW29	None	
PW1, 2A&B	\$10,000	
PU7B&C	\$10,000	
PU15	\$10,000	
PU19	\$10,000	
PU14	\$10,000	
PU23	\$10,000	
PM1	\$10,000	
Federal Parcels Lacking Access		
Parcel Number	Estimated Cost to Acquire Needed Access	Acres Lacking Access
FM2	\$10,000	16
FW9	\$10,000	422
FW20, 21 & 24	\$20,000	832
FW15&16	\$20,000	70
FW12	\$50,000	291
FU2, 3A-E & 5 HERE	\$20,000	3,659
FU7	\$20,000	35
FU15 & FU16	\$20,000	203
FU8, 9-14, 22, 30	\$120,000	374
FU17	\$30,000	80
<b>Totals</b>	<b>\$420,000</b>	<b>5,982</b>

### Alternative 4: Deed Restriction

Under this alternative, the FS would acquire jurisdiction over approximately 53 miles of road, and convey jurisdiction over about 60 miles of road, which would result in a net loss of about 7 miles of roads. The FS would reserve jurisdiction on approximately 10 miles of existing roads on conveyed lands, to maintain access to other forest roads or lands. None of the acquired roads that are currently open have been identified as needing to be closed for public safety reasons.

The acquired roads include approximately 33.2 miles of roads within 300 feet of class 1 through 4 streams (12.7 miles of closed roads and 20.5 miles of open roads). Of these roads, approximately 19.9 road miles are within 150 feet of class 1 through 4 streams (about 12 miles of closed roads and 7.9 miles of open roads).

All three forests estimated costs of deferred maintenance work to mitigate existing road problems on acquired roads. They are in the range of \$50,000 to \$100,000. The estimated cost of annual maintenance work on acquired parcels is around \$6,150 (Table 69). A summary of estimated costs by forest can be found in the PR.

Since the Malheur Forest would not acquire new roads, there would be no deferred maintenance or annual maintenance work. Most of the potentially acquired roads in need of deferred maintenance work on the Umatilla N. F. are located in the Wall Creek and Meacham Creek Watersheds. Most of this work is located in the Lower Innaha River watershed on the Wallowa-Whitman N. F.

Estimated costs for acquiring rights-of-way to access public lands and acres accessed under Alternative 4 are displayed in Table 69. Alternative 4 would have no effect to cost share agreement areas.

**Table 69. Alternative 4 – R/W Acquisition Costs and Acres Accessed**

Private and State Parcels with Identified Right-of-Way Need		
Parcel Number	Estimated Cost to Acquire	
PU1A	None	
PU1B	\$10,000	
PW39A&B	\$10,000	
PW47A&B	None	
PW38	\$10,000	
PW29	None	
PW1, 2A&B	None	
PU7B&C	\$10,000	
PU15	None	
PU19	\$10,000	
PU14	\$10,000	
PU23	\$10,000	
PM1	\$10,000	
Federal Parcels Lacking Access		
Parcel Number	Estimated Cost to Acquire Needed Access	Acres Lacking Access
FM2	None	16
FW9	None	422
FW20, 21 & 24	None	832
FW15&16	None	70
FW12	None	291
FU2, 3A-E & 5	None	3,659
FU7	None	35
FU15 & FU16	None	203
FU8, 9-14, 22, 30	None	374
FU17	None	80
<b>Totals</b>	<b>\$80,000</b>	<b>5,982</b>

### Alternative 5: Preferred Alternative

Under this alternative, the FS would acquire jurisdiction over approximately 96 miles of road, and convey jurisdiction over approximately 56 miles of road, which would result in a net gain of about 40 miles of roads. The FS would reserve jurisdiction on approximately 10 miles of existing roads on conveyed parcels, to maintain access to other forest roads or lands. Approximately 2.5 miles of the acquired roads that are currently open have been identified as needing to be closed for public safety reasons (Table 65).

The acquired roads include approximately 54 miles of roads within 300 feet of class 1 through 4 streams (28 miles of closed roads and 26 miles of open roads). Of these roads, approximately 33 road miles are within 150 feet of class 1 through 4 streams (about 18 miles of closed roads and 15 miles of open roads).

Total costs for all three forests are estimated to range from \$100,000 to \$200,000. Most of the potentially acquired roads in need of deferred maintenance work on the Malheur N. F. are located in the Beech Creek watershed. This type of work is mostly in the Wall Creek and Meacham Creek Watersheds on the Umatilla N. F., and most of this work is located in the Lower Imnaha River watershed on the Wallowa-Whitman N. F. The estimated cost of annual maintenance work on acquired parcels is approximately \$13,986 (Table 65). A summary of estimated costs by forest can be found in the PR.

Estimated costs for acquiring rights-of-way to access public lands are similar to Alternative 1 (Table 65). Since FU3E would not be acquired in the Preferred Alternative, 643 fewer acres would be accessed than would occur in Alternative 1 (Table 70).

The Preferred Alternative would have no effect to cost share agreement areas (refer to the discussion under Alternative 1).

**Table 70. Alternative 5 – R/W Acquisition Costs and Acres Accessed**

<b>Private and State Parcels with Identified Right-of-Way Need</b>		
<b>Parcel Number</b>	<b>Estimated Cost to Acquire</b>	
PU1A&B	None	
PW39A&B	None	
PW47A&B	None	
PW38	None	
PW29	None	
PW1, 2A&B	None	
PU7B&C	None	
PU15	None	
PU19	None	
PU14	None	
PU23	None	
PM1	None	
<b>Federal Parcels Lacking Access</b>		
<b>Parcel Number</b>	<b>Estimated Cost to Acquire Needed Access</b>	<b>Acres Lacking Access</b>
FM2	None	16
FW9	None	422
FW20, 21 & 24	None	832
FW15&16	None	70
FW12	None	291
FU2, 3A-D, 5	None	3,016
FU7	None	35



**Table 70. Alternative 5 – R/W Acquisition Costs and Acres Accessed (continued)**

<b>Federal Parcels Lacking Access</b>		
FU15 & FU16	None	203
FU8, 9-14, 22, 30	None	374
FU17	None	80
<b>Totals</b>	<b>None</b>	<b>5,339</b>

## Fisheries

The objective of this section is to describe the various fisheries within the analysis areas and disclose the potential effects to these resources by alternative. The analysis areas used includes individual exchange parcels, 47 watersheds (5<sup>th</sup> field HUC), and subwatersheds with the highest concentration of exchange parcels. The analysis area includes portions of 13 subbasins, across four river basins. Of the 47 fifth level HUCs involved in the Proposed Land Exchange, six account for 50% of the exchange acres, and twelve account for 75% of the exchange acres. This indicates that many watersheds involve extremely minor acreages that would not represent measurable changes to fisheries resources. However, there are fifteen subwatersheds (sixth level HUC) that involve at least 5% of their area in the Proposed Exchange. These subwatersheds warrant closer examination. The same approach in determining effects was taken in the Hydrology, Wetland and Floodplains section. Refer to that section for additional information about these fifteen subwatersheds.

The fisheries evaluated include non-listed fish, Mid-Columbia and Snake River steelhead trout, Mid-Columbia and Snake River Chinook salmon, bull trout, and westslope cutthroat trout. These fisheries are addressed in the order mentioned above.

## Affected Environment

The affected environment is adequately described in the Vegetation, Hydrology, Wetland and Floodplains, Water Rights, Soils, Range and Transportation sections. This section does not repeat this information but refers the reader to these sections as deemed appropriate. The following is a discussion related to management activities that potentially affect fisheries within the analysis area.

Potential effects to steelhead, Chinook salmon, bull trout, and westslope cutthroat trout focuses on four primary areas of management: grazing by livestock, logging, roads, and water rights. The mechanisms involved in these activities that could affect fisheries are described below and referenced in the Environmental Consequences narrative. Alternatives are compared by the miles of fish habitat being conveyed and acquired rather than repeat specific effects of each management activity or mechanism. Therefore, gain/loss in stream miles of habitat by alternative along with professional judgments are considered measurement indicators for comparing relative effects caused by livestock grazing, logging, roads, and water rights.

## Effects from Livestock Grazing

All watersheds in the Proposed Land Exchange have some level of livestock grazing. FS rangelands are managed to standards outlined in PACFISH/INFISH. PACFISH and INFISH establish riparian management objectives (RMO) and provide standards and guidelines designed to attain or maintain RMOs. RMOs exist for pool frequency, water temperature, large woody material, substrate sediment, bank stability, lower bank angle, and width to depth ratio. AMPs are taken through the Level I consultation process. Specific standards and monitoring are agreed to in this process. The standards for range and riparian conditions would not change as a result of the Proposed Land Exchange. Acres would be added and subtracted from allotments, AUMs would be reduced in some allotments, but regardless of

these changes the standards agreed to in previous consultations would not change. The management implications related to allotment changes disclosed in the Range section do not necessarily represent changes (positive or negative) to range or riparian conditions. The following list of likely negative effects from grazing have all been considered and mitigated in existing biological assessments for AMPs.

The most likely negative effect that grazing poses to fisheries habitat are as follows:

- Retarding development of a shrub layer next to streams by cattle “lounging” in riparian areas for too long and/or at improper times of year. This could lead to increases in water temperature as shade is reduced or prevented from developing.
- Hoof shear and overgrazing of streamside grasses and forbs can contribute to bank instability, changing stream morphology at a localized scale, creating point sources for sediment and substrate embeddedness. These effects can ultimately lead to reduced quality of fish habitat for spawning, foraging, migration, and rearing.
- Intense and focused cattle use in riparian habitat conservation areas (RHCA) degrade riparian habitat through compaction, denuding of vegetation, point sources of nutrients, and establishment of undesirable weeds. Livestock trailing, bedding, salting, loading, and handling facilities are some of the focused uses that are detrimental to RHCAs. These activities near streams can lead to degraded water quality, sediment and nutrient input to streams, and damage to stream banks that cumulatively decrease fish production and survival.
- Direct damage to redds can occur if cattle are permitted to graze along spawning streams while fish are spawning or emerging. This occurs when cattle travel in or across streams. There is the potential for direct damage to redds where fish eggs are crushed or knocked loose and flushed downstream. There is also the possibility for cattle to disrupt spawning behavior of fish by keeping males from fertilizing eggs, or by chasing females from redds while in the process of depositing eggs. These effects can result in direct mortality of eggs and reduced fish production from the affected spawning cycle(s).

Federal lands that have permitted livestock grazing are generally maintained in better condition than non-Federal lands that are grazed. This is largely due to the standards and guidelines that govern grazing on public lands, and the monitoring and oversight provided by the interested public and regulatory agencies. There are no state laws that govern grazing near streams on privately owned lands. There is also no outside oversight for grazing on private lands, other than permitting of confined area feeding operations. This conclusion is based on 10 years of observations by Mark Penninger in central and northeastern Oregon, and applies mainly to larger landowners who allow grazing on their lands secondary to timber management objectives. For the above stated reasons, acquired parcels and conveyed parcels that remain part of allotments are expected to improve over time in regard to achieving RMOs. Federal parcels conveyed outside of allotments (except those in Alternative 4) are expected to degrade over time if subjected to livestock grazing.

The FS would continue to administer allotments to assure PACFISH/INFISH standards and guidelines are met and that resources are meeting or moving toward a satisfactory condition; RMOs in the case of riparian areas. If there is a change in the ability of managers to maintain desired conditions, adjustments in stocking would be made through administrative or environmental analysis of AMPs. It takes the FS time to make these adjustments. For this reason, it is not automatically assumed that a reduction in AUMs in an allotment as described in the Range section would result in improved range conditions within a short time.

## Effects from Forest Management

Logging of mid and late structural forested stands could result in adverse effects to fisheries habitat. The majority of adverse effects can be reduced or eliminated through retention of stream buffers. The following documents findings and assumptions made in evaluating effects to fisheries from forest management.

- Removal of trees that contribute to stream shade or could be recruited as large woody material in the channel can lead to degraded stream conditions. Increased stream temperatures can result from reduced shade. Reductions in future large woody material can lead to decreased pool frequency, less cover for fish, and decreased structural complexity in streams. These indirect effects result in less usable fish habitat, increased watershed efficiency (a negative effect related to the rate that water escapes a landscape), and overall lower productivity for fish.
- Harvesting activities result in soil compaction, soil displacement, accelerated erosion and weeds. When harvesting outside of RHCAs and mitigating with proper restoration techniques harvesting may have little or no influence on streams. However, if harvesting activities are not mitigated or occur in RHCAs this activity would contribute sediment to streams, change seasonal run-off patterns, and ultimately reduce fish habitat quality.
- Created openings in forested stands may lead to changes in transpiration and the timing and rate of snow melt, which can lead to changes in water yield and peak flows. These effects are not being discussed in detail in this analysis because recent reviews of literature demonstrate that the relationship is highly variable (Stednick, 1995 and Scherer, 2001).

Logging on private lands with mid and late structural forested stands would progress at a rate determined by timber markets and landowner objectives. It is assumed that private timber operations would adhere to standards in the Oregon Forest Practices Act. Timber management on FS lands would proceed at a rate determined by Forest priorities and stand conditions. PACFISH buffers would be applied to all logging on public lands. The PACFISH/INFISH standards contain considerations for managing within RCHA's where such actions would help in the attainment of RMOs. These buffers are considered adequate to protect fish habitat. Buffers on private lands would be retained at least to the minimum required by the Oregon Forest Practices Act. Buffers on private lands would be marginal for protection of fisheries resources, except in Alternative 4 where deed restrictions call for the same stream buffers as applied to FS lands. The Oregon Forest Practices Act specifics are covered in detail in "Oregon's Forest Protection Laws, An Illustrated Manual", pages 21-33 (Logan 2002) located in the PR.

FS stream and wetland protection measures are more protective of water and fisheries resources than the state of Oregon standards. The state regulations allow for the removal of some shade producing trees, removal of some future large woody material from streams, and a narrower buffer of vegetation to filter sediment from runoff.

The effects of upland logging are difficult to assess in terms of actual effects to fish populations, but it is reasonable to assume an increased likelihood of negative effects with increased acres of logging. It is also reasonable to assume that PACFISH/INFISH stream buffers include a greater margin of protection than the narrower buffers afforded by the Oregon Forest Practices Act. Therefore, logging on FS lands would pose less of a risk to fisheries than logging on private lands.

## Effects from Roads

There are many road and access related issues that are being evaluated in the Proposed Exchange. Some site-specific decisions concerning roads are beyond the scope of this FEIS. The Road section of this FEIS

disclosed the following assumptions made to evaluate roads by alternative: 1) “Any deferred road maintenance activities related to public safety, protection of cultural resources, or protection of Threatened and Endangered species, or related to providing functional drainage would be implemented as soon as possible following the Proposed Land Exchange”, 2) “Roads to be acquired that are currently closed for public access would remain closed.” and 3) “Roads to be acquired that are currently open for public access would remain open and maintained for High Clearance vehicles, except where roads need to be closed for public safety reasons”.

Roads are relevant to fisheries in the following ways:

- Roads located within RHCAs often occupy up to half of the riparian area. This restricts lateral channel migration and full use of the floodplain.
- Roads create barriers to fish movement where culverts are undersized, too steep, or perched.
- Native surface and gravel surface roads often contribute sediment to nearby streams, particularly when drainage structures are absent or poorly maintained. This can contribute to increased substrate embeddedness, thereby reducing effectiveness of spawning habitat or contributing to mortality of fish eggs.
- Roads can increase the drainage network on a watershed scale. When roads become hydrologically connected to streams, watershed efficiency increases. The result is more rapid movement of water from landscapes because roads become conduits for water, rather than water infiltrating through the soil and being slowly released over a longer time period. The effect to fish is changes in water quantity and peak flow timing that can interrupt migration, decrease available refugia, and create seasonal in-stream barriers to fish movement.

Based upon the documented assumptions in the Road analysis, the most significant effects to listed fisheries would be addressed on acquired roads within one year of this Proposed Exchange. Other less direct effects to fisheries would be addressed later (first decade) and would depend on availability of funding and Forest priorities. Roads that are acquired by the FS are more likely to be maintained. This would result in reduced sediment, culverts replaced and maintained to accommodate fish passage, and “draw bottom roads” obliterated or relocated to restore floodplain function.

Roads that remain in private ownership are generally not maintained to the same standards as roads on NF lands. Roads conveyed from NF to private could expect to be maintained only to address immediate needs for logging or access by the landowner. Drainage structures are likely to be less frequently maintained and one would expect no decrease in roads within RHCAs on private lands. On non-Federal forest lands, OAR Chapter 340, Division 41 #11 is in effect.

*Forestry on State and Private Lands:* For forest operations on State of Oregon or private lands, water quality standards are intended to be attained and are implemented through BMPs and other control mechanisms established under the Forest Practices Act. (OARS 527.610 to 527.992) and rules there under, administered by the ODF. Therefore, forest operations that are in compliance with the Forest Practices Act requirements are deemed in compliance with this Division. DEQ will work with the ODF to revise the Forest Practices program to attain water quality standards.

Although BMPs are intended for forest operations on non-Federal lands, very little oversight is available to enforce these requirements. Also, some of the poor road conditions found on private lands are not associated with “forest operations” and would not fall under the authority of the Oregon Forest Practices Act. Differences in effects from roads between alternatives are assessed in terms of road miles within 300 feet of streams. Roads within 300 feet of a stream are more likely to contribute to the detrimental effects discussed above. There would be little additional benefit to this analysis by disclosing the road distance

from streams based on stream classes 1-4. Table 65, located in the Road section, is a summary of roads by alternative. This table displays total open and closed acquired road miles within 300 foot and 150 foot stream buffers by alternative.

### **Effects from Water Rights**

Water rights are a complex topic that involves legal, environmental, and economic aspects. The relevance of water rights to fisheries relates to in-stream water being available for fish in sufficient quantities and timing that do not interfere with life history requirements of fish and their food sources. Over-allocated water resources can leave streams dry or with inadequate flows to support fish during parts of the year, generally during summer and fall. The Water Rights Environmental Effects Report (PR) documents what is currently known about water rights in the Proposed Land Exchange parcels.

Some key considerations regarding water rights include:

- The official position of the U. S. Forest Service as stated by the Chief, Principle 1: Water Uses on NFS lands: “We recognize and respect the authority of states to allocate water available for appropriation. We respect valid, existing water rights and will manage water resources on NFS lands to minimize impacts adversely affecting the exercise of such rights” (Bosworth 2004).
- Federal reserved water rights would be lost on conveyed property, and would not accompany acquired property. This is a negligible consideration since courts rarely uphold Federal reserved water rights.
- Water rights (other than Federal reserved rights) would be transferred with land parcels.
- The FS generally does not cancel water rights held by the agency.
- Specific decisions about changes to water rights, abandoned water rights for example, would not be made early enough in the EIS process to incorporate specifics into this analysis of effects.
- Only three streams would be affected by modeled flow reductions of 5% or more under the Proposed Exchange: Joseph Creek, Meacham Creek, and Middle Fork John Day River. Water uses on many streams appear to have been in non-use status. Cancellation would likely protect an existing condition of restored streamflow.

The Water Rights section states that 81 land exchange parcels contain water rights or water developments in Alternative 1 and 76 in Alternative 5. Of these, 19 water rights on lands proposed for acquisition and one on a conveyed parcel in alternatives 1 and 5 appear to have been in non-use status for more than five years.

### **Environmental Consequences**

The largest scale on which listed salmonids is analyzed is the Distinct Population Segment (DPS) in the case of steelhead trout, Chinook salmon, and bull trout. These scales cover too large of an area to allow meaningful discussion of effects for most projects. Therefore, the effects analysis focuses on smaller scales where local changes to habitat can be assessed. The fifth level Hydrologic Unit Code (HUC) is used as the next step down in scale from DPS. Occasionally the sixth level HUC is referenced. The parcel is the smallest scale addressed in the analysis.

### **Non-Listed Fish**

There are several species of fish within this analysis area that occur in waters also occupied by Federally listed bull trout, Chinook salmon and steelhead. Redband trout, westslope cutthroat trout, and resident

rainbow trout are recognized as either sensitive or management indicator species on the three national forests involved in the Proposed Land Exchange. Streams in this analysis area also support numerous species of non-listed fish, both native and introduced (sculpin, suckers, catfish, largemouth and smallmouth bass, shiners, etc.). Practically all waters occupied by these species also hosts at least one of the Federally listed fish species. These streams are protected by standards outlined in PACFISH and INFISH. The FS implements stream protection standards according to PACFISH or INFISH regardless of the presence of listed fish species. Therefore, streams that only support non-listed resident fish receive the same protection as other streams that support listed species. For this reason only steelhead trout, Chinook salmon, and bull trout will be analyzed in detail.

### Mid-Columbia and Snake River Steelhead Trout

The Snake River and Mid-Columbia populations of steelhead trout (*Oncorhynchus mykiss*) are listed as Threatened under the Endangered Species Act. These two populations represent DPSs; units by which National Marine Fisheries Service (NMFS) tracks status and recovery of listed anadromous fish populations.

Table 71 shows the watersheds (5<sup>th</sup> level HUC), how many miles of steelhead habitat exist, and miles of habitat within exchange parcels. These miles include all categories of habitat including spawning/rearing and migratory.

**Table 71. Alternatives 1 and 5 – Miles of Steelhead Habitat by 5<sup>th</sup> HUC Watershed**

<b>Malheur National Forest</b>				
Beech Creek	40.53	FM11 FM12 PM8B	0.08	0.09 0.37
Big Creek	26.34	PM5	0.76	
Camp Creek	18.41			
Cottonwood Creek	8.50			
Laycock Creek	39.09	PM20	1.15	
Long Creek	11.52			
Lower NF John Day River	21.45	FM18		0.25
Murderer's Creek	32.74	PM21	1.22	
Strawberry Creek	26.31	FM4 FM6 FM7 FM8		1.19 1.02 0.69 0.74
Upper John Day River	10.54			
Middle SF John Day River	8.79			
Upper Middle John Day River	26.57	PM2	2.07	
<b>Umatilla National Forest</b>				
Big Creek	5.99	PU20	0.57	
Birch Creek	5.17			
Lower Camas Creek	12.98			

**Table 71. Alternatives 1 and 5 – Miles of Steelhead Habitat by 5<sup>th</sup> HUC Watershed (continued)**

Watershed Name	Miles of Steelhead Habitat	Miles of Steelhead Habitat in Proposed Exchange		
		Parcel	Acquired	Conveyed
Meacham Creek	58.31	FU2		1.22
		FU3A		0.59
		FU3B		0.30
		PU11	1.08	
		PU9A	0.57	
		PU9B	0.11	
NF John Day R/Big Creek	17.04	PU16D	0.19	
		PU16E	1.16	
		PU16F	0.71	
NF John Day R/Potamus Cr.	35.48	PU21	0.44	
Upper Camas Creek	38.98	PU15	0.66	
Upper NF John Day River	27.53	PU13	0.15	
Wall Creek	31.02	PU22B	0.93	
<b>Wallowa-Whitman National Forest</b>				
Bear Creek	26.65			
Big Sheep Creek	56.65	FW10		0.09
		FW6C		0.08
		PW31	1.03	
		PW32	0.56	
Chesnimnus Creek	78.94	PW51A	0.50	
		PW51C	0.25	
		PW51D	0.32	
Grande Ronde R/Five Points	98.93			
Grande Ronde R/Mud Creek	69.08			
Little Sheep Creek	54.86	PW24A	0.52	
		PW24B	0.49	
		PW24C	0.64	
		PW24D	0.54	
		PW24H	0.55	
		PW25D	0.12	
Lostine River	28.08			
Lower Imnaha River	101.18	PW1	0.10	
		PW10A	0.67	
		PW10B	0.31	
		PW13A	0.20	
		PW13B	0.32	
		PW13C	0.24	
		PW13D	0.22	
		PW16A	0.30	
		PW16C	0.37	
		PW16E	0.97	
		PW19B	1.17	
		PW19C	1.13	
		PW20A	0.67	
		PW20C	0.15	
		PW2A	0.20	
		PW2B	0.11	
		PW3	1.85	
		PW48	1.43	

**Table 71. Alternatives 1 and 5 – Miles of Steelhead Habitat by 5<sup>th</sup> HUC Watershed (continued)**

Watershed Name	Miles of Steelhead Habitat	Miles of Steelhead Habitat in Proposed Exchange		
		Parcel	Acquired	Conveyed
Lower Wallowa River	36.57			
Meadow Creek	136.43	FW18 PW44A PW44B PW46	0.35 0.25 0.92	0.66
Middle Imnaha River	66.13	PW25A PW25B PW25C PW25D PW27C	0.36 0.92 0.98 1.00 0.61	
Middle Wallowa River	15.11			
Upper Imnaha River	57.47			
Upper Joseph Creek	78.13	PW34A PW34B PW34C	1.00 1.30 1.38	
Upper Wallowa River	32.02			
<b>Totals:</b>	<b>1,439.52</b>		<b>36.85</b>	<b>7.29</b>

**Alternatives 1 and 5: Proposed Exchange and Preferred Alternative**

Alternative 1 and 5 would acquire approximately 37 miles of steelhead habitat, 11.50 miles in the Mid-Columbia DPS and 25 miles in the Snake River DPS. Also, 6.5 and 0.8 miles of steelhead habitat would be conveyed in the Mid-Columbia and Snake River DPS's respectively. This would result in a net increase in steelhead habitat coming under FS management of 5.0 and 24.2 miles for the Mid-Columbia and Snake River DPS's respectively. To put these figures into perspective, there are 35 fifth level HUCs that contain exchange parcels with steelhead habitat. These 35 HUCs contain nearly 1,400 total miles of steelhead habitat. Thirty-seven miles of stream proposed for acquisition represents about 2.6% of the habitat in the watersheds involved. This represents a negligible amount at the DPS scale. Seven miles of habitat proposed for conveyance represents .5% of available habitat. Table 71 shows the miles and distribution of steelhead habitat over the three forests involved in Alternatives 1 and 5.

The net increase in steelhead habitat coming under FS management would lead to improvements in fisheries habitat through correction of point sources for sediment from poorly designed/located roads, improved livestock grazing practices near streams on acquired parcels, and wider future stream buffers in FS logging areas. Under Alternatives 1 and 5, the 37 miles of steelhead habitat would be managed to higher environmental standards. Monitoring of habitat and fish populations would be more likely to occur. These positive effects would represent minor contributions to recovery of steelhead habitat at the DPS scale. Although, positive effects could result in greater hatching rates and fingerling survival in specific acquired streams with steelhead habitat. An example would be the Upper, Middle, and Lower Imnaha River. This river has a total of 18.7 miles of steelhead habitat that would be acquired in Alternatives 1 and 5.

Strawberry Creek includes conveyance of 3.64 miles of steelhead habitat in the Mid-Columbia DPS on Bear and Hall Creeks, tributaries to the John Day River approximately five miles northwest of Prairie City. Steelhead redd surveys by ODFW in Bear Creek indicate a low but stable spawning population up until approximately six years ago when a downward trend began. No redds have been detected in the Bear Creek index area in five of the last six years. This apparent downward trend does not reflect a similar trend in the balance of the Upper Main John Day River basin, indicating possible site specific changes in



spawning within the Bear Creek system. In fact, the development of beaver dams in the lower reaches of Bear Creek may have impeded upstream migration of spawning steelhead resulting in these recent declines. Year to year differences in survey conditions that effect detection rates of redds, or steelhead spawning outside of the index survey area can not be ruled out in explaining this recent downward trend. Bear and Hall Creeks are in relatively poor condition due to the presence of roads within riparian areas, culverts that are barriers to fish passage, and detrimental effects to riparian vegetation and stream banks from grazing by cattle. In 2002 a fish passage device was installed on lower Bear Creek to address a partial barrier posed by an irrigation ditch. Despite the multitude of factors affecting this system, water temperature remains low and capable of supporting the native salmonids that inhabit this system. The coolest water appears to originate from the upper reaches of these creeks within Forest Service lands (Allan Miller 2005). Cool water temperatures are promising from the standpoint of potential to restore fish habitat quality in this system. The problems that exist in these creeks on Forest Service lands appear to have persisted for several decades and there is no evidence that active restoration has been attempted. Riparian fencing is apparent on the lower private reaches of Bear Creek, and they appear to be a combination of exclosures and riparian pastures. If parcels FM4, FM6, FM7 and FM8 are conveyed to private ownership the likelihood of fish habitat restoration occurring is lower than if they remain under Forest Service management. Additionally, with accelerated logging of the uplands, less road maintenance, and no grazing standards, the rate at which riparian conditions are degraded is likely to increase when FM4, FM6, FM7 and FM 8 are conveyed.

The Butcher Creek subwatershed (6<sup>th</sup> Level HUC) would convey 10.5% of its total acres and acquire 6.6% of its total acres, for a total acre net reduction of approximately 3.9%. The Bear Creek subwatershed would convey 20.2% of its total acres, and no acres would be acquired. The Upper Deer Creek subwatershed in the Lower North Fork John Day River watershed would convey 12% of its total acres and acquire 1.4% of its total acres for a total net reduction of approximately 10.6%. These three 6<sup>th</sup> Level HUC subwatersheds represent the greatest potential for negative effects to steelhead from Alternatives 1 and 5. The potential for negative effects comes from appreciable percentages of subwatersheds being conveyed to private owners that would likely implement less protective management standards.

Alternatives 1 would acquire 56 miles of road within 300 feet of streams and Alternative 5 would acquire 55 miles of road within 300 feet of streams (a negligible difference between the two alternatives). The acquisition of these roads would offer the greatest opportunity for restoration or mitigation of road effects to water quality. Not all of these roads are adjacent to steelhead habitat, but the measurement indicator of total miles of road within 300 feet of streams provides a good index to compare with other alternatives.

Alternatives 1 and 5 would acquire 81 and 76 parcels with water rights and/or developments respectively, and would convey 17 (Alt 1) and 15 (Alt 5) parcels with water rights and/or developments. Twenty (Alt 1) and nineteen (Alt 5) of the water rights on acquired parcels and one on a conveyed parcel have been in non-use status for more than five years. Future use of the water right on the conveyed parcel is under the jurisdiction of OWRD. These alternatives would have the greatest potential for bringing attention to the greatest number of presumed abandoned water rights, which could lead to their cancellation. If cancelled, this would help ensure that in-stream water is not over allocated in the future.

### **Summary- Alternatives 1 and 5**

When comparing all alternatives, Alternatives 1 and 5 would represent the greatest potential benefit to steelhead trout based on the amount of habitat that would be acquired. Although some detrimental effects would likely result from roads and logging on conveyed parcels, the majority of these effects would be upslope and pose minor indirect effects to steelhead trout.

### **Alternative 2: No Action**

This alternative would retain ownership patterns as they currently exist and no steelhead habitat would be acquired or conveyed.

The indirect effects of not exchanging the proposed parcels are related to forgone opportunities to consolidate ownership boundaries that would increase management efficiencies on public land relative to steelhead habitat. The No Action Alternative would forego an opportunity to acquire approximately 37 miles of steelhead habitat and would not address restoration needs required by the FS to comply with the Endangered Species Act. For example, 56 miles of road within 300 feet of streams would remain under private ownership. This alternative would prevent the FS from addressing site-specific problems with culverts and sediment sources.

The missed opportunity to improve management on 37 miles of steelhead streams represents discountable negative effects when considered at the DPS scale for either the Snake River or Mid-Columbia DPS. Under Alternative 2, adverse effects that likely would influence steelhead fisheries such as increased sediment to streams from poorly maintained/designed roads, intensive livestock grazing, holding facilities near streams, and logging to Oregon Forest Practices Act standards would continue. These possible effects are generally slight and not measurable at the fifth level HUC scale.

#### **Summary- Alternative 2**

When comparing all alternatives, Alternative 2 represents the least benefit to steelhead trout because no habitat would be acquired. Opportunities to acquire and substantially restore habitat would be foregone.

### **Alternative 3: Purchase**

Alternative 3 would purchase 0.71 miles of steelhead habitat within the Mid-Columbia DPS and 8.56 miles in the Snake River DPS. No steelhead habitat would be conveyed in this alternative.

There would likely be improvements in steelhead habitat conditions on the 9.27 miles following acquisition, but these positive effects would be miniscule relative to the DPS scale. Any positive effects would likely not be realized in increased survival or production of steelhead. Five and a half miles of road within 300' of streams would be acquired with Alternative 3. The opportunities for stream restoration (related to roads) and mitigation of road effects to water quality are minimal with this alternative. The small scale of potential improvements to roads in Alternative 3 would have a negligible influence on steelhead populations.

Under Alternative 3, logging of merchantable private forestlands would continue on parcels not purchased. These acres would be subject to the less protective stream buffers required by the Oregon Forest Practices Act. Steelhead streams located within these commercial forestlands would likely be protected from direct effects of logging. Although, the narrow riparian buffers would provide less protection from unexpected events that can compromise or invalidate narrow stream buffers. Wildfire, insects, disease, wind, and floods are more likely to compromise a narrow stream buffer than a wider one.

#### **Summary- Alternative 3**

When comparing all alternatives, Alternative 3 ranks below Alternatives 1, 4 and 5 relative to benefits to steelhead trout. This alternative would only purchase minor amounts of steelhead habitat and would convey no habitat.

#### **Alternative 4: Deed Restriction**

Alternative 4 would acquire 33.3 miles of steelhead habitat, 8.3 miles in the Mid-Columbia DPS and 25 miles in the Snake River DPS. Conveyed steelhead habitat would be the same as Alternative 1 and 5.

An important difference between Alternatives 4 and 1 is that all conveyed lands would be managed the same as FS administered lands in regard to streamside habitat. PACFISH buffers would apply to logging projects and livestock grazing would be restricted in spawning habitat during critical periods to protect redds and emerging fish. Also, livestock grazing standards and monitoring requirements on parcels outside of allotments would match those required on FS lands. These requirements would be accomplished through deed restrictions, essentially protecting fisheries to the same level as on public lands.

Alternative 4 would acquire 33.2 miles of road within 300 feet of streams. This would allow for opportunities to repair or obliterate roads that are having a negative effect to fisheries or water quality, but not as much opportunity as available under Alternative 1 and 5.

Less than half the acres of the forested stands would be acquired in this alternative due to the reduced value of Federal parcels with perpetual deed restriction requirements. The merchantable stands not acquired and near steelhead streams would likely be logged according to Oregon Forest Practices Act requirements. Although more acres would be harvested in Alternative 4 than any other alternative, the effects to water quality and riparian condition would likely be less than Alternative 1 and 5 and more than Alternative 2. The Hydrology, Wetland, and Floodplain section reached this conclusion because of the deed restrictions that apply to conveyed parcels.

#### **Summary- Alternative 4**

When comparing all alternatives, Alternative 4 is considered a close second to Alternative 1 and 5, when considering benefits to steelhead trout. Alternative 4 would acquire slightly fewer miles of steelhead habitat than Alternative 1 and 5. Also, Alternative 4 would provide the same protections to riparian habitat on conveyed lands as provided on FS lands. The minor difference between this alternative and Alternative 1 would be the less protective management standards for upslope activities on parcels not conveyed. These private commercial forest parcels could pose an indirect negative effect to steelhead trout when logged.

#### **Mid-Columbia and Snake River Chinook salmon**

Chinook salmon (*Oncorhynchus tshawytscha*) within the Snake River basin is listed as Threatened under the Endangered Species Act. Chinook salmon also occur in the Mid-Columbia basin and are not listed under ESA. However, Chinook habitat in the Mid-Columbia basin is recognized as essential fish habitat (EFH) under the Magnuson-Stevens Fishery Conservation and Management Act, as amended. Effects to Chinook are the same as those discussed for steelhead but different amounts and locations of habitat are involved.

Roads within 300' of Chinook habitat are minimal and were not analyzed in detail because the potential effect is negligible.

#### **Alternatives 1 and 5: Proposed Exchange and Preferred Alternative**

These alternatives would acquire 14 miles of Chinook habitat in the Snake River DPS and 1.70 miles in the Mid-Columbia DPS. No Chinook habitat would be conveyed, except for minute corners of six parcels (FW6A-F) that overlap the RHCA along Big Creek (Table 72). These NF parcels along Big Creek are not practical to manage individually or collectively due to their small size and scattered distribution.

**Table 72. Alternatives 1, 4 and 5 – Miles of Spring Chinook Habitat by 5<sup>th</sup> HUC Watershed**

<b>Watershed Name</b>	<b>*Miles ONTS</b>	<b>Parcels</b>	<b>Acquired (miles)</b>	<b>Conveyed (miles)</b>
<b>Snake River DPS</b>				
Big Sheep Creek	24.23	FW6C PW31	1.03	0.08
Grande Ronde R/Mud Cr	3.45		0	0
Little Sheep Creek	6.97	PW24A PW24B PW24C PW24D PW24H	0.52 0.49 0.64 0.54 0.55	
Lostine River	24.80		0	0
Lower Imnaha River	28.92	PW1 PW10A PW10B PW13A PW13B PW13C PW13D PW16A PW16C PW16E PW19B PW20A PW20C PW2A PW2B	0.10 0.67 0.31 0.20 0.32 0.24 0.22 0.30 0.37 0.97 1.17 0.67 0.15 0.20 0.11	
Lower Wallowa River	23.66		0	0
Middle Imnaha River	26.02	PW25A PW25B PW25C PW25D PW27C	0.32 0.92 0.98 1.00 0.61	
Upper Wallowa River	23.53		0	0
Grande Ronde R/Five Points Cr	6.04		0	0
Meadow Creek	10.43	PW44A	0.35	
Meacham Creek	1.13		0	0
<b>Mid Columbia DPS</b>				
U.M. John Day River	10.87	PM2	1.74	0
Upper John Day River	10.88		0	0
Big Creek	9.14		0	0
<b>Totals:</b>	<b>210.07</b>		<b>15.7</b>	<b>0.08</b>

\*ONTS - *Oncorhynchus tshawytscha*

The acquisition of 15.7 miles of Chinook habitat holds potential for improved management by the FS through more protective standards for forest, range, and road management. Improvements on acquired parcels could result in increased fish production. Improvements could result in recovery of degraded riparian habitat, restored fish passage, livestock excluded from spawning habitat, and successional recovery of upland forests. Refer to the Hydrology, Wetland, and Floodplain section (effects analysis) for a detailed discussion on environmental consequences to water quality and stream condition under

Alternative 1. Stream condition and water quality are important factors used in assessing effects to the Chinook salmon fishery.

**Summary- Alternative 1 and 5**

When comparing all alternatives, Alternative 1 and 5 would represent the greatest potential benefit to Chinook salmon based on the amount of habitat that would be acquired. Although some detrimental effects would likely result from roads and logging on conveyed parcels, the majority of these effects would be upslope and pose minor indirect effects to salmon.

**Alternative 2: No Action**

Ownership patterns would not change under this alternative.

Approximately 15.7 miles (14 miles in Snake River DPS and 1.7 miles in Mid-Columbia DPS) of Chinook salmon habitat would remain in private ownership, forgoing opportunities for the FS to address degraded habitat conditions on parcels that would have been acquired under Alternative 1.

This alternative would perpetuate existing conditions that could negatively affect Chinook production and survival in the Imnaha River. These conditions include, but are not limited to: cattle handling corrals in RHCAs, noxious weeds in uplands and RHCAs, culverts that pose barriers to fish movement, minimal riparian buffers in forested areas, and cattle grazing in spawning habitat while Chinook are present. Refer to the Hydrology, Wetland, and Floodplain section (No Action effects analysis) for related information.

**Summary- Alternative 2**

When comparing all alternatives, this alternative represents the least benefit to Chinook salmon because no habitat would be acquired. Opportunities to acquire and restore 15.7 miles of Chinook habitat would be foregone.

**Alternative 3: Purchase**

Alternatives 3 would purchase 9.85 miles of Chinook habitat and no parcels would be conveyed. Table 73 identifies which purchased parcels in Alternatives 3 would have spring Chinook habitat and total miles of purchased habitat by watershed and parcel.

**Table 73. Alternative 3 – Miles of Spring Chinook Habitat by 5<sup>th</sup> HUC Watershed**

Watershed Name	*Miles ONTS	Parcels	Purchase (miles)
<b>Snake River DPS</b>			
Big Sheep Creek	24.23		0
Grande Ronde R/Mud Cr	3.45		0
Little Sheep Creek	6.97	PW25D	0.12
Lostine River	24.80		0
Lower Imnaha River	28.92	PW10A	0.67
		PW10B	0.31
		PW13A	0.20
		PW13B	0.32
		PW13C	0.24
		PW13D	0.22
		PW16A	0.30
		PW16C	0.37
		PW16E	0.97

**Table 73. Alternative 3 – Miles of Spring Chinook Habitat by 5<sup>th</sup> HUC Watershed (continued)**

<b>Watershed Name</b>	<b>*Miles ONTS</b>	<b>Parcels</b>	<b>Purchase (miles)</b>
<b>Snake River DPS</b>			
Lower Imnaha River		PW19B PW20A PW20C PW2A PW2B	1.17 0.67 0.15 0.20 0.11
Lower Wallowa River	23.66		
Middle Imnaha River	26.02	PW25A PW25B PW25C PW25D PW27C	0.32 0.92 0.98 1.00 0.61
Upper Wallowa River	23.53		0
Grande Ronde R/Five Points Cr	6.04		0
Meadow Creek	10.43		0
<b>Totals</b>	<b>178.05</b>		<b>9.85</b>

\*ONTS - *Oncorhynchus tshawytscha*

Potential positive effects would result from 9.85 miles of habitat being purchased. Although no Chinook habitat would be conveyed, improvements in management of upstream habitat on purchased parcels could result in a slight positive effect to Chinook habitat. This positive effect would be negligibly small.

### **Summary- Alternative 3**

In comparing all alternatives, Alternative 3 ranks below Alternatives 1, 4 and 5 when considering benefits to Chinook salmon. This alternative would only acquire minor amounts of Chinook salmon habitat and would convey no habitat.

### **Alternative 4: Deed Restriction**

Alternative 4 would acquire 15.7 miles and convey .08 miles of habitat. Conveyed and acquired parcels would be the same as Alternative 1 and 5.

Only Big Sheep Creek Watershed (.08 miles in parcel FW6C) would convey Chinook habitat (Table 73). All parcels conveyed by Alternative 4 would have a deed restriction that would apply FS standards to all streams. These deed restrictions essentially result in no change in regard to the minimal Chinook habitat conveyed. Potential positive effects would result from 15.70 miles of habitat being acquired for Alternative 4. Although minimal Chinook habitat would be conveyed, overall improvements in management of upstream habitat from acquired parcels could result in a slight positive effect to Chinook habitat. This positive effect would be negligibly small.

### **Summary- Alternative 4**

In comparing all alternatives, Alternative 4 is considered a close second to Alternatives 1 and 5 when considering benefits to Chinook salmon. Alternative 4 would acquire the same miles of Chinook salmon habitat as Alternative 1 and would convey a minimal amount of habitat. Alternative 4 would provide the same protections to riparian habitat on conveyed lands as provided on NF lands. The minor difference between Alternative 4 and Alternative 1 would be the less protective management for upslope activities on parcels not conveyed. These private commercial forest parcels would pose an indirect effect to salmon when logged.

## Bull Trout

Bull trout (*Salvelinus confluentus*) are listed as threatened under the ESA throughout the Proposed Land Exchange analysis area. The USFWS has delineated Proposed Critical Habitat (PCH), which generally represents the highest quality habitat (occupied and unknown) and all habitat thought to be necessary for recovery of the species. Habitat capable of supporting bull trout, but is not identified as PCH, is uncommon and considered negligibly important to the species overall. The effects analyses focused on PCH when addressing bull trout, however all aquatic features (streams, rivers, ponds, lakes, etc.) on FS administered lands are managed to standards outlined in PACFISH or INFISH, which are considered adequate for the protection of fisheries, water quality, and riparian function.

Effects to bull trout from the Proposed Land Exchange would be similar to those discussed for steelhead and Chinook with a few exceptions. Although, some bull trout habitat is identified that does not support either of the anadromous species discussed thus far. Bull trout spawn at a different time of year than most of the steelhead and Chinook runs in northeast Oregon. Therefore, bull trout have different timing considerations for instream work or livestock grazing along spawning and rearing habitat.

Table 74 contains miles of spawning/rearing (SR) and foraging/migratory/over wintering (FMO) habitat that could be affected by the Proposed Land Exchange. Miles of stream potentially affected are miniscule relative to the total amount of habitat available. The PR contains tables showing total miles of bull trout habitat in fifth code hydrologic units. The Proposed Rule for Bull Trout Critical Habitat states that approximately 18,175 miles of streams and 498,782 acres of lakes and reservoirs are proposed as critical habitat for the Columbia River DPS. Of these, approximately 3,391 miles of streams and 44,670 acres of lakes and reservoirs are located in Oregon; the remainder is distributed between Washington, Montana, and Idaho.

**Table 74. Alternative 1 – Miles of Bull Trout FMO and SR by 5<sup>th</sup> HUC Watershed**

Watershed Name	Parcels	Miles of FMO		Miles of SR	
		Acquired	Conveyed	Acquired	Conveyed
Upper MF John Day River	PM2			1.19	
Meacham Creek	PU11			1.05	
	PU9B			0.08	
	PU9A			0.16	
	FU1		0.05		
Middle Imnaha River	PW27C	0.56			
	PW25B	0.91			
	PW25A	0.36			
	PW25C	0.96			
	PW24A	0.47			
	PW25D	1.16			
Lower Imnaha River	PW20C	0.49			
	PW20A	0.49			
	PW16E	0.83			
	PW16C	0.41			
	PW16A	0.31			
	PW13D	0.26			
	PW13C	0.02			
	PW13B	0.32			
	PW13A	0.19			

**Table 74. Alternative 1 – Miles of Bull Trout FMO and SR by 5<sup>th</sup> HUC Watershed (continued)**

Watershed Name	Parcels	Miles of FMO		Miles of SR	
		Acquired	Conveyed	Acquired	Conveyed
Lower Imnaha River	PW10A	0.53			
	PW10B	0.42			
	PW2B	0.08			
	PW2A	0.17			
	PW1	0.10			
Little Sheep Creek	PW24D	0.51			
	PW24C	0.57			
	PW24B	0.50			
Lostine River	PW37			0.11	
Big Sheep Creek	FW6C		0.9		
<b>Totals:</b>		<b>10.62</b>	<b>0.14</b>	<b>2.59</b>	<b>0</b>

Table 75 displays a comparison of miles of bull trout habitat involved in the alternatives evaluated in detail.

**Table 75. Miles of Bull Trout FMO and SR by Alternative**

Alternative	Miles of FMO in 5th Level HUCs		Miles of SR in 5th Level HUCs	
	Acquire	Convey	Acquire	Convey
Alt. 1 Proposed Exchange	11.50	0.14	2.59	0
Alt. 2 No Action	N/A	N/A	N/A	N/A
Alt. 3 Purchase	8.57	0	0.11	0
Alt. 4 Deed Restriction	11.50	0.14	2.59	0
Alt. 5 Preferred Alternative	11.50	0.14	2.59	0

### Alternatives 1 and 5: Proposed Exchange and Preferred Alternative

This alternative would acquire 11.50 miles and 2.59 miles of FMO and SR habitat respectively. No SR habitat would be conveyed and 0.14 miles of FMO habitat would be conveyed.

The addition of approximately 14.09 miles of bull trout habitat to FS management would likely have minor beneficial effects to bull trout through improved management of roads, upland forests, and livestock grazing. The amount of habitat improvement would likely not be great enough to increase fish production or survival of juvenile fish. Alternatives 1, 4 and 5 would have similar effects and represent the greatest potential of all alternatives for improvement of bull trout habitat.

### Alternative 2: No Action

The existing ownership pattern would continue. Bull trout habitat would remain under current management regimes.

This alternative would forego opportunities to improve management on nearly 14.09 miles of bull trout habitat. Merchantable timber would be logged from private lands not conveyed. This anticipated logging would be substantial for the subwatersheds that involve >5% of their area in the Proposed Land Exchange. The PR has tables describing these watersheds in detail. Under this alternative, NF parcels in Butcher Creek, Bear Creek, and Upper Deer Creek subwatersheds would be retained by the FS but



merchantable timber would likely be logged on private parcels in Dry Gulch, Butcher Creek, Bark Cabin Creek, and Texas Bar. The Hydrology, Wetlands and Floodplains section describes effects to water quality, riparian condition, and water yield when describing effects for the No Action Alternative.

**Alternative 3: Purchase**

Alternative 3 would purchase 8.57 and 0.11 miles of FMO and SR habitat respectively. No bull trout habitat would be conveyed.

A total of nearly nine miles of bull trout habitat would come under a more protective management regime, which could lead to slight increases in riparian habitat recovery. The minor amount of recovery that would occur on these streams (mostly FMO habitat) would be too small to increase fish production or survival of juvenile fish. The beneficial effects of this alternative are greater than Alternative 2, but less than Alternatives 1, 4 and 5.

**Alternative 4: Deed Restriction**

Like Alternative 1, this alternative would acquire 14.09 miles and 2.59 miles of FMO and SR habitat respectively. No SR habitat would be conveyed, and 0.14 miles of FMO habitat would be conveyed.

The difference between Alternative 4 and other action alternatives is that deed restrictions would apply to 0.14 miles of FMO habitat. The deed restrictions could lead to improvements in habitat conditions over time. Improvements in habitat would likely be negligible because the parcels involved (FW6C and FU1) are very small and contain only five acres each of upland forests. The corners of six other conveyed parcels (FW6A, FW6B, FW6D, FW6E, FW6F and FW9) overlap into the RHCA of Big Sheep Creek but do not actually involve exchange of stream habitat. These parcels include small segments of floodplain associated with seasonally wet meadows that are less than 20 feet wide and located in remote areas with little development pressure. Deed restrictions on these parcels would have immeasurably minor positive effects to bull trout. When considering these minor differences between Alternatives 4, 1 and 5, these alternatives would have the same beneficial effects to bull trout and a discountable risk of negative effects.

**Affected Environment - Regional Forester’s Sensitive Fisheries Species**

Table 76 contains the R-6 Sensitive fish and amphibian species that could exist within the analysis area. The entire analysis area (minimum convex polygon formed by outermost parcels) was used for the purpose of assessing effects to these sensitive species. Potential effects from the Proposed Land Exchange are discussed to the extent practicable, given that little to no survey or distribution information exists for most of these sensitive species. Westslope cutthroat trout is addressed in more detail due to its limited distribution within the project area and the fact that habitat for this species is involved in the exchange.

**Table 76. R-6 Sensitive Fish and Amphibian Species**

Common Name	Scientific Name
<b>Fish</b>	
Malheur Mottled Sculpin	<i>Cottus bairdi ssp.</i>
Margined Sculpin	<i>Cottus marginatus</i>
Chinook salmon	<i>Oncorhynchus tshawytscha</i>
Westslope Cutthroat Trout	<i>Oncorhynchus clarki lewisi</i>
Interior Redband Trout (All stocks)	<i>Oncorhynchus mykiss ssp.</i>
<b>Amphibians</b>	
Northern Leopard Frog	<i>Rana pipiens</i>
Columbia Spotted Frog (OR only)	<i>Rana luteiventris</i>

## Environmental Consequences - Regional Forester’s Sensitive Fisheries Species

Habitat capable of supporting sensitive species was used as an indicator of effects to these species. It was assumed that more protective management standards would apply to acquired sensitive species habitat; therefore a beneficial effect would result. It was further assumed that conveyed habitat would come under a less protective set of management standards thereby resulting in a potential negative effect. An estimate was provided as to whether the amount of habitat being acquired would be greater or less than what would be conveyed. Due to the number of sensitive species, the broad range of habitats involved, and the uncertainty of habitat requirements for some species, effects descriptions are very general. These effects are described in terms of increase, decrease, or no change in habitat.

The right hand column in Table 77 is labeled “Net Change Federal” which indicates whether there would be a net increase, decrease or no change in the amount of habitat coming under NF management. An increase (acquired) represents a “positive effect”, a decrease (conveyed) represents a “negative effect”, and no change represents “no effect”. A more in-depth species by species analysis would be of little value because a majority of these R-6 sensitive species are associated with lower elevation streams, marshlands, grasslands, or specific riparian habitats that are absent or scarcely represented in the analysis area.

Habitat was considered in relatively broad terms when estimating whether habitat would be acquired or conveyed for a particular species. All species resulted in either “no change” or an “increase” in habitat being acquired except for westslope cutthroat trout which would experience a “decrease”. Where an increase occurred in habitat, the net increase was substantial, precluding the need to analyze at a finer scale.

**Table 77. R-6 Sensitive Fish and Amphibian Species Effects Analysis**

Fish	Natural Heritage Rank <sup>1</sup>	WA Status	OR Status	Federal Status	Year Desig.	MNF	UNF	WWNF	Net Change Federal
<i>Cottus bairdi</i> ssp. Malheur Mottled Sculpin	T3		SC		86	D			No Change
<i>Cottus marginatus</i> Margined Sculpin	G3 N3	S	SV		00		D		No Change
<i>Oncorhynchus tshawytscha</i> Mid Columbia River Spring-run Chinook salmon					97	D	D		Increase
<i>Oncorhynchus clarki lewisi</i> Westslope Cutthroat Trout	T3 N2				00	D	D	D	Decrease
<i>Oncorhynchus mykiss</i> ssp Interior Redband Trout (All stocks)			SV		86	D	D	D	Increase
<b>Amphibians</b>									
<i>Rana pipiens</i> Northern Leopard Frog	S2-OR S1-WA	C	SC		00		S	S	Increase
<i>Rana luteiventris</i> Columbia Spotted Frog (OR only)	S2-OR	C		C	00	D	D	D	Increase

Refer to PR for additional information

### **Alternatives 1, 3, 4 & 5: Proposed Exchange, Purchase, Deed Restriction and Preferred Alternative**

All action alternatives are similar enough in regard to fish and amphibian sensitive species to address together. All sensitive species except westslope cutthroat trout would experience an increase or no change in habitat coming under more protective management standards. These alternatives would potentially benefit most sensitive species and would not result in a trend toward Federal listing or a reduction in species viability. The action alternatives ranked in order of greatest to lowest potential benefit to these sensitive species are: 5, 1, 4 and 3.

### **Alternative 2: No Action**

This alternative would not result in a trend toward Federal listing or a reduction in species viability for any R-6 sensitive species. However, this alternative would forego opportunities to acquire and potentially restore habitat for several sensitive species.

### **Westslope Cutthroat Trout**

The westslope cutthroat trout (*Oncorhynchus clarki lewisi*) is a Region-6 sensitive species and its range in Oregon is restricted to the John Day River Basin. The John Day River “populations are disjunct from the greater contiguous distribution in the Upper Missouri and Columbia basins of Montana and Idaho” (ODFW 2005).

The US Fish and Wildlife Service has been petitioned to include the westslope cutthroat trout under protection of the Endangered Species Act. In 2000, the US Fish and Wildlife Service determined that listing was not warranted, due to the species wide distribution, available habitat in public lands and conservation efforts underway by state and Federal agencies.

Alternatives 1, 4, and 5 would convey 1.24 miles of westslope cutthroat trout habitat in the Bear Creek population (FM4 and FM6) and 0.46 miles in the Beech Creek population (FM11 and FM12). There are 2.20 miles of fish bearing stream in the Bear Creek parcels (FM4 and FM6), but only 1.24 miles are recognized as habitat for westslope cutthroat trout habitat. No currently occupied habitat for westslope cutthroat trout would be acquired by any of the alternatives. The PR has a map of the westslope cutthroat trout habitat involved in the Proposed Exchange.

According to the Oregon Native Fish Status Report, the westslope cutthroat trout populations in Bear Creek and Beech Creek are two of the most at risk in the John Day River basin. Of the six criteria used to assess the 17 populations in the John Day River basin, Bear Creek fails four of the criteria and Beech Creek fails three (Table 78). Distribution, abundance, productivity, and hybridization are the criteria ranked as “fail” for the Bear Creek population, while reproductive independence and existence are the two criteria ranked “pass”. Bear Creek is “unknown” in regard to whether non-native trout have been stocked there, but this stream is accessible to non-native trout in the John Day River which results in a “fail” rating for the hybridization criterion. Bear Creek is estimated to support cutthroat trout in 5% of their historic distribution.

The Beech Creek population fails the distribution, abundance, and hybridization criteria. Beech Creek is known to have been stocked with non-native trout in the past and is accessible by other non-native fish species in the John Day River system which results in a “fail” rating for the hybridization criterion. The current distribution of cutthroat trout in the Beech Creek population is estimated to be 15% of the historic distribution. Table 78 displays the ratings by criteria that results in a “vulnerable, at risk” status according to ODFW’s Native Fish Status Review (2005).

ODFW’s Oregon Native Fish Status Review highlights the fact that the Bear Creek population is “reduced and rapidly declining”, and is comprised of fewer than “50 reproductive adults”. The Beech Creek population is “reduced, but stable”, and “significantly below” the site potential for this species.

Both Beech Creek and Bear Creek populations pass the reproductive independence criterion since neither population experiences introgression from hatchery cutthroat trout.

**Table 78. Criteria and Ratings for the Bear Creek and Beech Creek Populations of Westslope Cutthroat Trout**

Criteria	Bear Creek Population	Beech Creek Population
Existing population	Pass (resident population, non-migratory)	Pass (resident population, non-migratory)
Distribution	Fail (5% of historic)	Fail (15% of historic)
Abundance	Fail (< 50 adults, significantly below site potential)	Fail (50-500 adults, significantly below site potential)
Productivity	Fail (reduced, declining rapidly)	Pass (reduced, but stable)
Independence	Pass (introgression minimal)	Pass (introgression minimal)
Hybridization	Fail (Unknown)	Fail (Stocked)

### Alternatives 1 and 5: Proposed Exchange and Preferred Alternative

These alternatives would convey 1.24 miles of westslope cutthroat trout habitat in the Bear Creek population (FM4 and FM6) and 0.46 miles in the Beech Creek population (FM11 and FM12). No currently occupied habitat for westslope cutthroat trout would be acquired by either of these alternatives. These miles of habitat would go to a less protective management scenario, thus would be subjected to greater risks of degradation from logging, roads, and grazing.

Any habitat degradation would be a step in the direction of local extirpation for these two populations. The relatively minor amount of habitat to be conveyed in the Beech Creek population (0.46 of 22.56 miles) would not likely have a measurable effect in the short-term. However, considering the tenuous condition of this population, any loss of habitat quality could accelerate its rate of decline toward extirpation. Less protective stream buffers afforded by the Oregon Forest Practices Act, continued grazing by livestock at or near the current level, and allowing the existing road problems (culverts that impede fish passage, roads occupying riparian habitat, and sediment from roads) to persist would constitute a loss of habitat quality.

The Bear Creek population is at high risk of local extirpation under the current ownership pattern and management scenario. If conveyed, the less protective stream buffers afforded by the Oregon Forest Practices Act, continued grazing by livestock at or near the current level, and allowing the existing road problems (culverts, roads occupying riparian habitat, and sediment from roads) to persist would accelerate the rate of population decline toward local extirpation.

Indirect effects are the projected logging, grazing and road management that would occur under private ownership following the Proposed Exchange. Past logging, the existing road system, fluctuations in local beaver populations, stocking of non-native trout species, irrigation, and grazing by livestock represent the past and current activities that have affected cutthroat habitat and populations in Bear Creek and Beech Creek. Future actions would change if these parcels are conveyed to private ownership. Forested stands containing merchantable timber would be logged within the first decade. Also, the likelihood of road/riparian problems being corrected would be low, and grazing would likely continue without the oversight and monitoring that would occur if these parcels were to remain with the Forest Service. The

past effects have led to the tenuous condition of these cutthroat populations. The conveyance of cutthroat trout habitat would represent an incremental negative effect to these populations.

### **Alternatives 2, 3, and 4: No Action, Purchase and Deed Restriction**

Alternative 4 would apply Forest Service management standards and guidelines to conveyed parcels, therefore management that could affect stream habitat would be nearly identical to Alternative 2.

Alternative 3 would not convey westslope cutthroat trout habitat. Essentially all three alternatives would have the same effect to cutthroat trout since no habitat would be conveyed to a less protective management scenario. Under these alternatives 1.24 miles of cutthroat habitat (total of 2.20 miles of fish bearing streams) in Bear Creek and 0.46 miles in Beech Creek would continue to receive the current level of protection.

Indirect effects for alternatives 2, 3 and 4 are similar to those discussed for alternatives 1, and 5, with the following exceptions: 1) There would be a higher likelihood that habitat degraded by roads, past logging, and grazing would be restored, particularly under Alternative 2. 2) Alternative 4 would likely result in the continuation of the existing conditions, but would not accelerate the rate of degradation that could occur under the less protective management standards of alternatives 1 and 5.

The Bear Creek and Beech Creek populations of westslope cutthroat trout could continue to decline toward local extirpation under alternatives 1 and 5, but the rate of decline would be less under alternatives 2, 3 or 4.

## **Wildlife**

The objective of this section is to document relevant information on the existing wildlife habitat condition and disclose the effects assessment for each alternative evaluated in detail. The wildlife evaluated includes Rocky Mountain elk, lynx, bald eagle, old growth associated wildlife species and the Regional Forester's sensitive species list for reptiles, mammals and birds. These species will be addressed in the order listed above.

The gray wolf was not evaluated because it is considered as "extirpated" in Oregon. The Blue Mountain land exchange would not affect gray wolf populations. A pack of gray wolves has been confirmed on the Idaho side of Hells Canyon NRA (Nez Perce National Forest) administered by the Wallowa-Whitman National Forest. However, no populations currently exist in Oregon. No denning or rendezvous sites have been identified or are known to exist in Oregon (USFS Reference # 1-7-04-SP-0098). In the likely event that wolves in the future re-colonize northeastern Oregon, most FS management activities are compatible with wolf protection and recovery. The action alternatives would not preclude or negatively affect the future recovery of this species in Oregon. This information is consistent with a Wallowa-Whitman Forest Supervisor letter on gray wolf listing, dated April 27, 1999.

The analysis area covers a broad range of biophysical and geophysical conditions from canyon grasslands along the Imnaha River to mixed conifer montane settings in the John Day River basin. Habitats represented support a variety of wildlife, some of which are of special interest due to their legal status (threatened or endangered), usefulness as management indicators or value as game animals. Not only does this analysis area represent a broad range of habitat conditions, but it is also distributed over an area approximately 90 by 150 miles. Exchange parcels range in size from 0.56 acres (FW30) to 1,271.15 acres (PU16B). Some parcels are isolated while others are aggregated into several hundred contiguous acres. For these reasons, it is difficult to define meaningful and logical areas for use in evaluating wildlife species. The logical analysis area will generally not conform to conventional projects that are smaller in scope and involve specific planned activities that alter the environment.

Since the action alternatives do not directly involve actual changes to the environment, some assumptions have been made in order to discuss potential effects. These assumptions are based on existing law and observed practices.

- Forested parcels (and forested portions of parcels) containing merchantable timber (generally >9" average d.b.h.) being conveyed from FS to private would be logged to standards in the Oregon Forest Practices Act within 10 years. It is common practice for private forests in northeastern Oregon to be logged to a commercial thinning or clearcut with reserve tree prescription. Larger diameter trees are usually targeted for harvest on private lands, whereas prescriptions on Federal lands generally focus on retention of the largest trees and removal of smaller, dead, defective and poor form trees. The results are typically a higher basal area with a large tree component on Federal land and a lower basal area with a lower average tree diameter retained on private lands.
- Non-forest or grassland parcels being conveyed to private would be grazed by domestic livestock (usually cattle) for at least a part of the year.
- Access by the general public would not change appreciably following the Proposed Exchange, Purchase and Deed Restriction alternatives. Gated roads on private parcels would remain gated following acquisition and roads currently open to the public on private lands would remain open following acquisition. This is a consideration for potential disturbance as it relates to elk distribution.

### **Laws and Regulations Applying to the Analysis**

Federal lands are subject to more stringent management standards designed to protect and conserve natural resources than privately owned lands. Also, a significant amount of oversight exists for public land agencies. This oversight helps ensure the legally mandated management standards are applied. Although some standards exist for private lands, there is often little incentive to adhere to such standards and little or no oversight.

### **Affected Environment Rocky Mountain Elk**

Elk are the most popular and economically important game species in northeastern Oregon. They occur throughout the area influenced by the Proposed Land Exchange. Elk are habitat generalists and can be found using grasslands, shrub steppe, conifer forests, and alpine areas. This broad range of habitats makes it impossible to key in on a specific habitat type and discuss potential effects in a meaningful way for a proposed project of this magnitude. Elk are recognized as management indicators on all three Forests. Elk populations achieving the state management objectives are indicators of good forage/cover arrangements and quality mule deer habitat.

Elk habitat is most commonly discussed in terms of winter and summer range. Winter ranges are generally below 3,500 feet elevation and encompass all aspects and habitat types. The remainder of habitat above 3,500 feet and occupied by elk is considered summer range. Transitional range is sometimes recognized where elk stage near the upper elevation limits of winter range and the lower limits of summer range. Forest Plans in northeastern Oregon contain land allocations and specific standards and guidelines for selected winter and summer ranges. Such allocations recognize elk habitat as a higher priority than other resources. General forestland allocations that encompass the majority of summer elk ranges also have management standards and guidelines specific to maintaining some level of elk habitat, usually at moderate levels.

Specific key elk habitat conditions beyond forest stand structure are not available for most of the parcels in this analysis area. Specifics on elk habitat conditions associated with scattered small parcels and fragmented arrangements would only have limited utility in this analysis.

### **Environmental Consequences Rocky Mountain Elk**

Habitat effectiveness index (HEI) is the measurement indicator required by the three forest plans for site-specific projects that change the arrangement of forage and cover, cover quantity, and the amount and distribution of roads open to vehicular traffic. The Proposed Land Exchange project is not suited to this analysis because of the scattered small parcels and fragmented parcel arrangements over a very large analysis area. Also, the anticipated private management plans are not detailed enough to provide the specific changes to elk habitat and vehicle access conditions necessary for determining meaningful HEI values. Wildlife biologists' professional judgments based upon the Forest Plans allocation of winter and summer range, personal observation of locally important elk habitat, distribution of elk, efficiencies in management and hunter access were used to assess effects on elk numbers and compare alternatives. The following discussion provides the important background information for comparison of alternatives.

On parcels proposed for acquisition, the FS has identified approximately 12,776 acres of winter range and 18,908 acres of summer range. Forest Plans identified approximately 11,925 Federal acres of winter range and 6,249 Federal acres of summer range to convey.

#### **Powwatka Ridge/Wildcat Creek – Parcels FW20 through FW25B, FW30, PW 39, and PW40**

This area is mostly winter range and currently presents challenges for land managers due to the somewhat fragmented ownership pattern. FW22, FW23, and FW30 are small NF parcels surrounded by private land, an arrangement that makes access by the public difficult and management impractical. Parcels FW20, FW21, and FW24-26 are relatively large parcels that are contiguous with other NF lands. This grouping of parcels represents a combination of positive and negative effects to elk habitat. The acquisition of parcels PW39 and PW40 and the conveyance of FW22, 23, and 30 would be advantageous to the FS in regard to managing elk habitat and hunter access. The conveyance of FW24-26 would result in a loss of 1,713 acres of NF winter range, and the acquisition of PW39-40 would result in a gain of 1,036 acres of winter range. The net change is a reduction of approximately 677 acres of NF winter range.

#### **Imnaha River North (downstream from town of Imnaha) – Parcels PW1 through PW23**

Although not identified as winter range in the Wallowa-Whitman Forest Plan, this area functions as important winter range for elk, mule deer and bighorn sheep. These parcels are grasslands adjacent to the Imnaha River and provide low elevation range for big game during harsh winters. Sizable herds of mule deer and bighorn sheep can be found on portions of these ranges year round. Fences, noxious weeds and hunter access represent problems with these parcels. Acquisition of these parcels would facilitate restoration and improvements of this winter range.

#### **Imnaha River South (upstream from town of Imnaha) – Parcels PW24A through E, PW25, and PW27**

This area is grasslands adjacent to the Imnaha River and function as winter range for mule deer, elk, and bighorn sheep. Acquisition of these parcels would consolidate ownership boundaries, thereby increasing management efficiencies that would benefit wildlife (deer, elk, and bighorn sheep).

#### **Meacham/Butcher Creek – Parcels FU2 through FU5, and PU5 through PU12**

These parcels are an important part of the summer range within the Meacham Creek area of the Mt. Emily Game Management Unit (GMU). The NF parcels represent the highest quality cover within a several square mile area. The steepness of surrounding topography, difficult access, and forested cover combine to make the headwaters of Butcher Creek a high quality security area for elk and other wildlife. This area

also provides a valuable connection between Meacham Creek and the Five Points Creek area, which subsequently represents the best connection between the Starkey and Mt. Emily GMUs. The private parcels in this area have been logged and contain a mix of forage and hiding cover. Public access on these private lands is strictly controlled. It would be advantageous to acquire PU5 through PU12 to begin restoring habitat, ensure landscape connectivity, and increase management efficiencies through boundary consolidation. However, it would be detrimental to convey FU2 through FU5 because of the likelihood of them being logged and the potential for further restrictions to public access.

#### **Swiss Flat (North of Ukiah) – Parcels FU6 through FU14, FU19 through 24, and FU30**

This area is winter range. These small isolated parcels are surrounded by a large expanse of private land. This ownership pattern is nearly impossible to effectively manage. Many of these parcels are likely too small to serve as “stepping stones” to facilitate connectivity across a largely inhospitable environment for forest dwelling species (Gobar 2004). Management of big game ranges in this area would be simplified if the NF would convey these parcels.

#### **Coalmine Hill – Parcel FU26**

This parcel is located on the exterior boundary of the Umatilla National Forest and is 189 acres of summer range. Conveying this parcel would not contribute to increased efficiencies for managing elk habitat. The parcel contains high quality cover, security, connectivity, and is a known elk calving area. Approximately 400-700 elk spend much of their time on the adjacent private land but move to NF land when disturbed (VanWinkle 2004). Motorized access into this area is prohibited. The combination of cover and low disturbance make this a security area that influences elk distribution in a positive way. Logging on adjacent private lands has eliminated cover for elk. Conveyance of this parcel would likely result in it being logged within the next 10 years. Harvesting of Parcel FU26 would result in further degradation of elk habitat in this area.

#### **NF John Day River/Bridge Creek – Parcels PU16A through H**

These parcels represent 3,440 acres of relatively low elevation elk range that functions as winter range in most years and occasionally transitional or summer range. The acquisition of this group of parcels would compliment elk management efforts on the nearby Bridge Creek State Wildlife Area. Bridge Creek supports the largest wintering population of elk in northeastern Oregon. Improved management of forage, cover, and human access on these parcels could improve elk distribution and habitat utilization on this important winter/transitional area.

#### **North Finger/West Fork Deer Creek – Parcels FM15 through FM20**

This area represents the only cover over a large landscape that has been heavily logged. These parcels also represent the western extent of public access for hunting and viewing elk in this vicinity. These parcels are contiguous with other NF lands and their conveyance would not contribute appreciably to consolidating ownership boundaries in order to increase management efficiencies of elk habitat. The acquisition of PM23 and PM24 would add to the contiguousness of NF lands in this vicinity, but are less important in regard to increasing management efficiencies of big game habitat than nearby FM15 through FM20. Conveyance of FM15 through FM20 would be detrimental to public elk herds because of the subsequent loss of cover, reduced access by the public (all forms of access for viewing and hunting), and the potential for a negative influence on elk distribution in this vicinity (per Kranich and Miller 2004).

#### **Bear Creek/Hall Creek (NW of Prairie City) – Parcels FM4 through FM10**

These parcels represent 2,506 acres of winter range. These parcels are largely disconnected from nearby NF lands except where FM4, 8, and 9 share a boundary with the Forest. These parcels are largely characterized by dry upland forests that provide a moderate to low level of cover, but considerably more than adjacent private timber lands and naturally open grasslands. Ochoco Lumber indicated that they



would log these parcels “as needed”. It would be reasonable to assume that the merchantable timber on these parcels would be logged within 10 years if conveyed. These parcels would likely not provide cover following logging. Conveyance of these parcels would improve management efficiencies of NF lands, although elk use of the area may be altered as a result of the expected accelerated rate of logging. Conveyance of these parcels would simplify management of elk habitat on the adjacent contiguous public land strictly from a land ownership standpoint. However, the cover and connectivity (between distant cover and forage areas) provided by the forested portions of these parcels are locally important to wintering elk and deer.

### **South Finger – PM13 through PM20**

Acquiring private parcels along the southern edge of the “South Finger” would improve the FS’s ability to manage an important winter range for mule deer and elk.

### **Alternative 1: Proposed Exchange**

This alternative would result in a net increase of 851 acres of acquired winter range and a net increase of 12,698 acres of acquired summer range. This change in winter and summer range ownership would be a direct effect of Alternative 1.

The indirect effects of the changes in ownership include more efficient management of big game ranges where NF boundaries are consolidated; making planning, project implementation, and monitoring more efficient. Fragmented ownership patterns make management of elk habitat difficult due to the variety in personal values and objectives of private landowners. Larger scale projects like aerial fertilization, shrub and tree planting, prescribed burning, access management, and noxious weed treatments are more efficiently accomplished on contiguous tracts of land under a single ownership. Fragmented ownerships inevitably lead to one or more land owners who are not interested in such projects, incapable or unwilling to make the financial investment, or sometimes unwilling to cooperate with the government on a common goal for shared resources. Less ownership fragmentation generally leads to fewer fences. Barbed wire fences that separate ownerships, allotments, and pastures can often be reduced when a fragmented ownership pattern is consolidated. Some mortality to elk (and other wildlife) results when they become entangled in fences. Young calves are most susceptible to this risk. Alternative 1 would result in the greatest potential of all the alternatives for reduction of fences and associated risks to wildlife.

Alternative 1 includes the following parcel groupings that would be beneficial to elk habitat management: Powwatka Ridge/Wildcat Creek; Imnaha River North; Imnaha River South; Swiss Flat, NF John Day River /Bridge Creek; and portions of Bear Creek/Hall Creek. The effect of these groupings being acquired would be an improved ability by Oregon Department of Fish and Wildlife (ODFW) and FS to manage habitat, elk distribution, and hunters.

Alternative 1 also includes the following parcels groupings that would complicate management of elk habitat or lead to habitat degradation from anticipated logging: Meacham/Butcher Creek, Coalmine Hill, portions of Bear Creek/Hall Creek, and North Finger/WF Deer Creek. The indirect effects of these groupings being conveyed would contribute to poor elk distribution, a loss of important cover stands, and reduced public access for viewing and hunting elk.

The FS would acquire approximately 101 miles of road and convey about 60 miles, for a net increase of 41 miles (refer to Transportation section). This increase of FS road miles in a scattered distribution over this large project area does not represent a measurable effect in regards to elk habitat and security.

Cover provided by mid and late seral forest structure would likely be reduced to forage (less than 40% canopy closure) on lands conveyed as indicated by the private participants’ management plan surveys and

past practice. Alternative 1 could result in reductions in cover within the next 10 years over an estimated 9,615 acres. Cover is assumed to be provided by forested habitat in the following structural stages: stem exclusion closed canopy, under story reinitiation, multi-strata large trees uncommon, multi-strata large trees common, young forest multi-strata and old forest multi-strata. This reduction in cover would be somewhat offset because the acquired forested parcels that are currently providing forage would begin to function as cover within the next 10 to 20 years.

### **Summary- Alternative 1**

Alternative 1 and 5 represent the second greatest benefit to elk habitat of all alternatives evaluated in detail. Over the long-term this alternative acquires the most summer and winter range. Alternative 1 acquires considerable miles of roads that could be managed with elk habitat in mind in six of the important parcel groupings important to elk. The drawbacks of Alternative 1 are the projected decrease in cover within the first decade (9,615 acres) and the conveyance of important parcel groupings in Meacham/Butcher Creek, Coalmine hill, and the North Finger (Hamilton Ridge).

### **Alternative 2: No Action**

This alternative would result in a continuation of the current ownership patterns. The amount of summer and winter range under NF management would not change. Existing difficulties presented by current ownership patterns would persist, however elk populations would not suffer long-term or irretrievable negative effects from Alternative 2.

By continuing the current ownership patterns, Alternative 2 does not address the purpose and need of consolidating Federal lands to provide for more efficient management of National Forest System lands. Elk that currently reside on private lands to be conveyed under Alternative 1 would continue to be largely unavailable to the public for hunting and viewing. Cover on private and lands would continue to be reduced through logging. The large majority of forested private parcels has been logged and functions as forage for elk. These conditions would likely exist in perpetuity.

Alternative 2 would retain important elk habitat areas in public ownership. The following areas would allow for management efficiency, increased probability of habitat enhancements and restoration, and provide access to the public for hunting and viewing of elk: Meacham/Butler Creek (FU2 through FU5); Coalmine Hill (FU26); and North Finger/WF Deer Creek (FM15 through FM20). This alternative would also keep the following important elk habitat areas in private ownership, which complicates landscape scale habitat management and access by the public: Imnaha River South (PW24A-E, PW25, and PW27); Imnaha River North (PW1 through PW23); Meacham/Butler Creek (PU5 through PU12); NF John Day River/Bridge Creek (PU16A-H); and North Finger/WF Deer Creek (PM23 and PM24). The following public land parcels would remain in public ownership, which perpetuates problems associated with managing small, isolated land parcels: Swiss Flat (FU6 through FU14, FU19 through FU24, and FU30); Bear Creek/Hall Creek (FM4 through FM10). Improves management efficiencies, but would lend to localized detrimental effects to elk.

Road densities would remain unchanged. Currently 43 sixth level sub watersheds exceed the threshold of 2.5 miles per square mile. This density is recognized as an upper limit for road densities in habitat managed for elk (PR).

### **Summary- Alternative 2**

Alternative 2 is third in the ranking of benefits to elk habitat of all alternatives evaluated in detail. The main benefits to elk from this alternative would be the retention of all important parcel groupings and a

decreased likelihood of cover being reduced on lands retained by the FS. The drawback of this alternative would be the foregone opportunity to acquire some important parcel groupings and convey some groupings that currently complicate management of elk habitat.

### **Alternative 3: Purchase**

This alternative would result in the purchase of 714 acres of winter range and 3,515 acres of summer range. This increase in winter and summer range ownership would be a direct effect of Alternative 3.

This alternative would contribute to minor improvements in land management efficiencies through minor consolidation of land boundaries, but not to a degree that would improve the FS's ability to improve elk habitat at a measurable scale.

Cover would continue to be reduced on approximately 8,824 acres of private lands that would not be purchased under Alternative 3. Approximately 791 acres of cover purchased by the NF would continue to function as cover and contribute to a desirable distribution of elk herds. These purchased acres would be eligible for FS treatments (logging) in the future, but elk cover and habitat effectiveness would be management considerations in future FS plans to change the cover/forage arrangement. These cover stands would be more likely to continue functioning as cover under NF management than under private ownership.

Changes to access by the general public would be relatively minor with this alternative. The FS would gain jurisdiction on eight additional miles of road and would not convey jurisdiction over any roads (Refer to Transportation section). These changes are too small to represent a measurable change in FS road densities that would be meaningful in an analysis of elk habitat. Also, the potential for a decrease of barbed wire fences would be negligible under Alternative 3.

### **Summary- Alternative 3**

Alternative 3 represents the greatest benefit to elk habitat in the short and long-term because it would involve a net increase in both summer and winter range and would not convey parcel groupings important to elk. The main drawback of Alternative 3 would be the lost opportunity for cover to develop in 10 to 20 years on 8,824 acres because these private lands would not be purchased under Alternative 3.

### **Alternative 4: Deed Restriction**

This alternative would result in a net decrease of 61 acres of winter range and a net increase of 5,483 acres of acquired summer range. This change in winter and summer range ownership would be a direct effect of the Deed Restriction Alternative.

Alternative 4 would result in an estimated 6,649 acres of cover coming into FS stewardship. These acres would be managed with elk habitat as a primary consideration. If left in private ownership, these acres of cover would likely be converted to foraging areas within 10 years following the exchange. However, 9,231 acres of cover would be conveyed, resulting in a potential net decrease in cover of 2,582 acres. An appendix in the PR displays the potential change in cover as a result of future logging under this alternative. These changes in cover are negligible at the Blue Mountains scale but could have detrimental effects at the local scale. Loss or reductions in cover from logging can have a dramatic effect on the distribution of elk. This is particularly important near the outside boundaries of National Forests where activities on NF lands can push elk onto adjacent private lands where problems arise with fence damage, crop depredation, haystack damage, and over-utilization of limited winter range forage. Another effect of elk moving off NF lands would be that they are not available for viewing and hunting, a reasonable expectation by forest visitors to Blue Mountain Forests. Relatively dense conifer cover influences the

distribution of elk, particularly during hunting seasons, by providing security and mitigating the effects of extreme weather (very hot, cold, windy or snow accumulation).

The following parcel groupings are acquired in Alternative 4 and would increase management efficiency, positively influence elk distribution, and improve the public's access to elk on public lands: Powwatka Ridge/Wildcat Creek; Imnaha River North and South; Swiss Flat; NF John Day River/Bridge Creek; and Bear Creek/Hall Creek. Improves management efficiencies, but would lend to localized detrimental effects to elk.

The following parcel groupings are conveyed/acquired under Alternative 4 and would decrease management efficiency of elk habitat, perpetuate poor elk distribution, and decrease the public's access to elk on public lands: all NF parcels and a portion of the private parcels in the Meacham/Butcher Creek grouping; Coalmine Hill; Bear Creek/Hall; and North Finger/WF Deer Creek (all NF parcels would be conveyed, but neither of the private parcels would be acquired).

Alternative 4 would acquire (jurisdiction on) approximately 53 miles of roads and would convey about 60 miles, for a net reduction of around seven miles of road (Refer to Transportation section). These changes in FS road densities are negligible in terms of effects to elk habitat.

#### **Summary- Alternative 4**

Alternative 4 would represent the lowest level of benefits to elk habitat and security of all the alternatives. The benefits of this alternative would be a net increase in summer range (5,483 acres) and a relatively low amount of projected cover loss in the first decade (2,582 acres). The drawbacks of this alternative would include a net reduction in winter range (61 acres), a net decrease of 7 miles of FS roads, and the conveyance of important parcel groupings in Meacham/Butcher Creek, Coalmine Hill, and North Finger/WF Deer Creek.

#### **Alternative 5: Preferred Alternative**

The effects of Alternative 5 are nearly identical to those discussed for Alternative 1 except for some negligible reductions in acreages. Discussions on parcel groupings are similar to Alternative 1. Alternative 5 and 1 represent the second greatest benefit to elk habitat of all alternatives evaluated in detail.

#### **Canada Lynx**

The Canada lynx (*Lynx canadensis*) is listed as threatened under the Endangered Species Act (1973, as amended). The following analysis will be included in the Biological Assessment (BA) for this project.

A Lynx Conservation Assessment and Strategy (LCAS) was developed based on science from the 1999 publication "Ecology and Conservation of Lynx in the United States" by Ruggiero et al. These publications represent the most credible and applicable science concerning the ecology and management of lynx and lynx habitat in the contiguous United States. All mapping and information regarding management of this species is based on these documents.

Plant associations represent key criteria in defining the potential of an area to function as lynx habitat. The subalpine fir, mountain hemlock (rare in NE Oregon), and the cold/dry lodgepole pine associations comprise "primary" vegetation that contributes to lynx habitat. "Secondary" vegetation comprised of the grand fir and cool/moist lodgepole pine plant associations, where it is "immediately adjacent to or intermingled with" primary vegetation may also contribute to lynx habitat (LCAS 2000).

The Lynx Steering Committee prepared a letter dated August 22, 2000, for the Regional Foresters and Forest Supervisors responsible for managing lynx habitat in the contiguous United States. The letter documented criteria for mapping lynx habitat and clarified an earlier letter that originally outlined mapping criteria.

Lynx habitat was mapped according to the criteria and recommendations in the August 22, 2000, letter and was subsequently agreed to by the respective USFWS level I consultation contacts for the forests involved in this Proposed Land Exchange. All identified lynx habitat in this section was taken directly from the latest iteration of lynx habitat mapping.

### Affected Environment Canada Lynx

Lynx habitat within parcels is delineated from timber stand exam data; however, habitat is not classified in some parcels because no data exists. Where habitat suitability is not known, a judgment was made based on biophysical conditions and surrounding habitat. For instance, no vegetation data exists for parcel PW35C. However, the parcel is known to meet the elevation and plant community criteria for lynx habitat. Additionally, three sides of this parcel are bordered by denning habitat. From this information one could surmise that the habitat within parcel PW35C is at least potential habitat for lynx, although it could be in an unsuitable condition. Examination of aerial photographs from the late 1990s, and personal communication with ODFW personnel from Enterprise, Oregon indicate that no logging has been done on PW35C that would render it unsuitable. This process was used to determine habitat suitability for parcels where actual data on lynx habitat was absent. Table 79 summarizes which Federal and private parcels are involved with lynx habitat, which lynx analysis units (LAU) they are in, and what is known about habitat conditions at the LAU scale. Maps of the parcels that contain lynx habitat are located in the PR.

**Table 79. LAU Acres Summary by Habitat Category and Percentage of LAU Represented in Each Category**

LAU (Parcels containing or adjacent to lynx habitat)	Total Forage in LAU	Total Denning in LAU	Total Unsuitable in LAU	Total Lynx Habitat in LAU
Meadow (PU16B)	24,050 (44%)	8,825 (16%)	21,946 (40%)	54,821
NF John Day River (PU13, PW45)	17,634 (47%)	10,830 (29%)	9,192 (24%)	37,656 (+2,451 no data)
Upper Willowa River (FW13, PW35A-C)	3,845 (21%)	13,111 (73%)	1,027 (6%)	17,983
Upper Imnaha River (PW28)	6,169 (18%)	24,231 (69%)	4,649 (13%)	35,049 (+7,012 no data)
LostineR./Deer Creek Tribs South (FW17A, FW17C, PW37)	1,537 (9%)	15,528 (88%)	624 (3%)	17,689

Of the five LAUs involved in this proposed project, only one (Meadow) is deficient in suitable lynx habitat. The Meadow LAU currently contains 60% suitable lynx habitat; 10% less than the minimum requirement established in the LCAS (Ruediger 2000). The large majority of these unsuitable acres are a result of the 1996 Tower Fire. The area burned by the Tower Fire is regenerating predominantly to lodgepole pine and is on track to achieve minimum suitable foraging habitat by 2010.

All five LAUs exceed the minimum (10%) recommended percentage of denning habitat. The percentages and acres of denning are listed in Table 79.

The following site-specific information is helpful in concluding what may occur under Alternative 1 on private lands relative to Lynx habitat. PU16B is on the periphery of lynx habitat and contains an unknown, but predictably minor amount of lynx habitat. This parcel is also on the periphery of the elevational and plant community zone necessary for lynx habitat. Past logging (mostly commercial thinning) has resulted in unsuitable conditions for lynx on this parcel. This condition would persist as long as timber production is a priority on the property. The minor acreage in PU16B that has potential to develop into suitable lynx habitat is negligible when considering its size and position in relation to the LAU. PU13 and PW45 are adjacent to one another in the North Fork John Day River LAU. These parcels are also near the periphery of lynx habitat and represent minor acreages relative to the LAU. PW35A-C is a combination of denning and non-habitat. Extremely steep, rocky slopes and stringers of forest, talus, and avalanche chutes characterize this area. The steepness and ground conditions contribute to high logging costs that would discourage many private landowners from managing the timber on these parcels. Although unlikely, helicopters could be utilized for logging this area. PW28 is a 119-acre parcel with 28 acres of denning habitat on a NE exposure. PW37 is a 3.54-acre parcel within a 10,709-acre patch of denning habitat. The minute size of this parcel makes it negligible when discussing lynx habitat unless it represents an outstanding feature or important location deserving of more detailed consideration. This parcel contains no outstanding features that make it any more important than other denning habitat within the Lostine River/Deer Creek Tribes South LAU.

### Environmental Consequences Canada Lynx

The LAU is the logical resource unit for addressing effects to Canada lynx. The Proposed Land Exchange involves eleven parcels that contain habitat for threatened Canada lynx (Table 80).

#### Alternatives 1, 3, 4 & 5: All Action Alternatives

Differences between action alternatives would be negligible when evaluating at a scale meaningful to an analysis of lynx habitat. Alternatives 1, 4 and 5 would involve an increase of at least 231 acres of denning habitat and Alternative 3 would represent an increase of at least 32 acres of denning habitat. No foraging habitat would be involved in the private land proposed for acquisition. See Table 80 for a comparison of action alternatives.

Three NF parcels representing 80 acres of denning and 26 acres of foraging habitat would be conveyed in alternatives 1, 4 and 5; no lynx habitat would be conveyed in Alternative 3.

**Table 80. Parcels Containing Lynx Habitat (Alternative Comparison)**

Parcel # (Total Acres)	Alt. 1, 4 & 5 Acres & Habitat Category	Alt. 3 (Purchase) Acres & Habitat Category
PU16B (1271)	No data	0
PU13 (108)	No data	0
PW45 (49)	No data	No data
PW37 (4)	4 denning	4 denning
PW35A (229)	122 denning	0
PW35B (153)	77 denning	0
PW35C (76)	No data	0
PW28 (119)	28 denning	28 denning
<b>Total</b>	<b>At least +231 acres of denning</b>	<b>At least +32 acres of denning</b>
FW13 (118)	-68 denning, -26 forage	0
FW17A (10)	-10, denning	0
FW17C (2)	-2, denning	0
<b>Total</b>	<b>-80 denning, -26 forage</b>	<b>0</b>

Alternatives 1, 4 and 5 would result in a 125-acre net increase of lynx habitat (foraging and denning combined) and a net increase of 32 denning acres in Alternative 3. The FS would analyze and manage these acres to the standards outlined in the LCAS. Also, any projects planned in or around these acquired NF lands would be subject to oversight through public scoping as part of the NEPA process; and through the consultation process with USFWS. There is no requirement of private landowners to consider lynx habitat in management of their lands.

There is no way to assess what these changes in management control mean to the viability or future recovery of lynx populations. There is little reliable information that allows for an analysis of reasonably foreseeable actions that could contribute to indirect effects from the Preferred Alternative. However, professional judgment suggests the best and worst-case scenarios on lynx habitat for all action alternatives do not represent a measurable benefit or detriment to lynx or lynx habitat. This finding is based on: 1) the minute acreages involved over five LAUs; 2) the fact that most of these acres are on the periphery of core lynx habitat; and 3) because none of the lynx habitat involved represent outstanding features or important locations deserving of more detailed consideration.

### **Alternative 2: No Action**

Alternative 2 would retain the existing ownership pattern of lynx habitat.

The No Action Alternative would result in the continued application of standards from the LCAS to lynx habitat on NF lands. Parcels FW13, FW17A and FW17C would remain under Federal management and continue to be considered parts of the LAUs in which they occur. Future management activities affecting the ability of these parcels to function as lynx habitat would be assessed at the LAU scale. The USFWS would be consulted in accordance with the Endangered Species Act, as amended.

Parcels PU16B, PU13, PU45, PW37, PW35A-C, and PW28 would remain in private ownership; therefore, considerations for lynx habitat in future management activities would remain at the discretion of the landowner. Forested private lands are subject to Oregon Administrative Rules (OAR) that ensures compliance with the Oregon Forest Practices Act. These OARs were not designed with conservation of lynx habitat in mind. While OARs are considered adequate to maintain productive forestlands, they are not sufficient to ensure suitable conditions for lynx. However, the private lands that contain lynx habitat in this Proposed Exchange are relatively small and generally located on the periphery of core lynx habitat areas. For these reasons, the parcels involved in the Proposed Land Exchange are not considered essential or critical for lynx conservation.

### **Summary- 1, 3, 4 and 5: All Action Alternatives**

The continuation of current management regimes on private and public lands involved in the all action alternatives would not have an appreciable affect on lynx or their habitat. The current public lands would continue to be considered part of the larger LAU and managed to standards set fourth in the LCAS. The minor acreages of lynx habitat on private lands would likely be maintained in unsuitable conditions through logging as long at they remain in private ownership, except for PW35A-C and PW37 for the reasons stated in the Affected Environment narrative. If all private lands containing lynx habitat in the Proposed Exchange were logged to the greatest intensity allowed by state law, the indirect effect to lynx would be negligible. Also, the indirect effect of continued management for lynx on the NF parcels would not contribute appreciably to the conservation and recovery of lynx.

### **Bald Eagle**

Bald eagles in the lower 48 states were first protected in 1940 by the Bald Eagle Protection Act and then were Federally listed as endangered in 1978. The recovery plan for the Pacific states was completed in

1986 (USFWS 1986b). In 1995, the bald eagle was reclassified as threatened in all of the lower 48 States. Habitat protection and management, the ban on use of DDT (Greier 1982) and reduced direct persecution due to education were followed by a population increase. The bald eagle was proposed for delisting on July 6, 1999. A decision on whether to delist the bald eagle is pending (64 FR 36453).

Roosts, nests, and foraging perches on public lands are protected through standards outlined in the Pacific Bald Eagle Recovery Plan, as directed in the FS Manual (FSM 2670.1) and through consultations with the USFWS. The sites on private and State of Oregon lands have protections afforded by the Oregon Forest Practices Act and through Section 10 of ESA that is fulfilled through the Habitat Conservation Plan process. The Oregon Forest Practices Act offers protection to roosts and nests comparable, but not equal to protections provided on public lands.

### **Affected Environment - Bald Eagle**

The entire state of Oregon is within the Seven State Pacific recovery area. The Blue Mountain Land Exchange proposal is within Management Zone 9. The Pacific Bald Eagle Recovery Plan outlines goals by management zone that are used to measure recovery. Management Zone 9 has a recovery population goal of eight nesting pairs, producing at least 1.0 young per nest for a five-year average (USFWS 1986). Nesting success in 2003 for Management Zone 9 was five occupied sites with 1.62 young per site (Isaacs 2003). At least one new nest site was identified in 2004 in Zone 9 (Shaw Reservoir). There are no Proposed Land Exchange parcels within several miles of this nest.

Wintering populations of bald eagles regularly occur in low densities throughout the area of the Proposed Land Exchange. The few nesting pairs of bald eagles in the Blue Mountains winter relatively close to their nesting territories. The bald eagles that winter in northeastern Oregon are usually associated with communal winter roosts. Although these roosts are predictably used from year to year, eagles will also congregate at food sources and use diurnal roosts nearby until the food source is gone.

The most comprehensive and current source of information on nesting bald eagles in Oregon is the Results of the 2003 Bald Eagle Nest Survey compiled by Frank Isaacs and Robert Anthony of the Oregon Cooperative Fish and Wildlife Research Unit. There are twenty-one nests documented for the counties (Baker, Grant, Umatilla, Union, and Wallowa) that contain land exchange parcels. Of these, eleven could be considered within the vicinity (considering a minimum convex polygon containing all land exchange parcels) of the proposed Blue Mountain Land Exchange.

Records from the Oregon Department of Fish and Wildlife, ODF, Frank Isaacs (Oregon Cooperative Fish and Wildlife Research Unit), and FS were queried to identify known bald eagle roosts and nests within the vicinity of the Proposed Land Exchange. Known roosts and nests were mapped and compared to the location of Federal, State of Oregon, and private parcels. Approximately 74 roosts and five nests are located within the minimum convex polygon that defines the area of the exchange. All roosts or nests within one mile of a land exchange parcel were examined in detail to assess the potential effects that could result from the Proposed Land Exchange. One nest and three roosts are within a mile of at least one parcel. Table 81 contains details on which parcels, nests and roosts are involved.

**Table 81. Bald Eagle Roosts and Nests within a Mile of Proposed Exchange Parcels**

<b>Roosts</b>	<b>Nests</b>	<b>Parcel Number</b>	<b>Distance</b>
	Dry Creek (628)	PU26A	< 0.25 mile
	Dry Creek (628)	PU26B	On boarder
	Dry Creek (628)	FU28	< 0.50 mile
	Dry Creek (628)	FU27	< 0.75 mile



**Table 81. Bald Eagle Roosts and Nests within a Mile of Proposed Exchange Parcels (contd)**

Roosts	Nests	Parcel Number	Distance
Wenaha River		PU1B	1 mile
Horse Canyon		PU16F	0.25 mile
Bear Creek (BLM)		FM10	0.50 mile

## Environmental Consequences Bald Eagle

### Alternative 1: Proposed Exchange

Under this alternative, the NF would acquire PU26A (40 acres) and PU26B (122 acres). This acquisition could improve the future management of the Dry Creek nest by increasing the ability of the FS to monitor eagle use, manage potential disturbance around the nest, and accelerate development of alternate nest, roost, and perch trees.

The Dry Creek nest tree is very near the border of parcel PU26B and 0.25 miles from PU26A. These parcels have been heavily logged and would not provide suitable structures for roosting, nesting, or perching for several decades. Acquisition of PU26A and PU26B would allow their inclusion into a nest site management plan for this site. A nest site management plan involves more detail than a typical written plan submitted to ODF by a private party, as required by the Oregon Forest Practices Act when logging is proposed near a nest or roost. However, parcels FU27 and FU28 are less than 0.75 miles from the Dry Creek nest and would represent the best quality replacement habitat in case the existing nest stand would be lost due to fire, wind, insects, or trespass logging. FU27 and FU28 are contiguous with other NF land and would contribute to the long-term viability of nesting bald eagles in this vicinity. These parcels would likely be logged following conveyance. They are far enough away from the Dry Creek nest to not be subject to requirements of OARs for bald eagle nests.

The three roost sites within a mile of parcels would be protected in the short-term (estimated 20 years) whether the Proposed Land Exchange occurs or not. OARs protect roosts on private and State of Oregon land and the Endangered Species Act protects those on NF lands. The only difference between protections afforded roosts on private and State of Oregon versus NF ownerships is that long-term protection is more likely under Federal management since OARs do not provide for replacement roosts in case existing ones are lost.

### Summary- Alternative 1

This alternative would improve management options for the Dry Creek nest in the long-term through acquisition of PU26A and PU26B, but potentially important replacement bald eagle resources would be lost on conveyed parcels FU27 and FU28. Alternative 1 would have negligible influence in terms of short-term effects to known bald eagle sites. There would be a potential long-term effect in losing replacement nest and roost trees on parcels FU27 and FU28. However, this potential negative effect would not likely be important enough to influence the rate at which recovery goals are achieved in Management Zone 9.

### Alternative 2: No Action

This alternative would retain the existing ownership pattern around eagle nests and roosts. Eagle sites near private and State of Oregon land would likely be protected, at least in the short-term through OARs. Long-term needs of these sites may not be met since OARs do not adequately address replacement and future nest and roost trees.

OARs apply to eagle sites on private and State of Oregon lands and are designed to protect known bald eagle resource sites (nests, roosts, perch trees, staging trees, etc.) from disturbance and destruction. The only known eagle nest that could be affected by future management within a mile of a land exchange parcel is the Dry Creek nest (628). The OARs would continue to apply to any management actions on parcels PU26A and PU26B. These regulations are generally accepted as adequate to protect eagle resource sites, at least in the short-term (20 years). The long-term viability of this eagle resource site would be unknown under the current OARs because the focus of the OARs is on protecting existing nests. OARs do not project future needs in case a nest is lost. PU26A and PU26B have been heavily logged and would not be capable of supporting an eagle nest or roost for several decades. Parcels FU27 and FU28 would represent the closest and best quality habitat capable of supporting nesting or roosting bald eagles should the Dry Creek nest stand be lost. These conditions would likely persist into the long-term since FU27 and FU28 would remain in public ownership.

There would be a slight chance that some potential replacement roost, perch or nest trees could be lost to logging on PU16F if the parcel remains in private ownership, but the risk to eagles would be low. This low risk is based on the location of the highest quality roost trees within a riparian management area for a “large, type F” stream like the North Fork John Day River. Also, ample options for roosts, perches and nest trees exist along the NF John Day River, many of which are located on NF and State of Oregon lands.

FM10 contains some suitable replacement roost trees if the Bear Creek roost were to be lost. The Bear Creek roost is located on BLM land and receives the same considerations under the Endangered Species Act as it would if it were located on NF land.

### **Summary- Alternative 2**

Alternative 2 would negligibly influence the viability of bald eagles in Management Zone 9 in the short-term (20 years). The retention of FU27, FU28 and FM10 in NF ownership would be positive for the long-term viability of known bald eagle sites, but would not likely be important enough to influence the rate at which recovery goals are achieved in Management Zone 9. There are no NF timber sale operations in the vicinity of the Dry Creek nest or the Bear Creek, Horse Canyon or Wenaha River roosts that would contribute to indirect effects under this alternative. Ongoing recreation, road maintenance, and fire suppression activities are considered in the FS management of known bald eagle sites and would not contribute to adverse indirect effects under Alternative 2.

### **Alternative 3: Purchase**

Alternative 3 would acquire PU16F (343 acres) located 0.25 miles from the Horse Canyon bald eagle roost. All other private parcels near eagle nests or roosts would remain in private ownership and subject to protections provided by the OARs.

The minor positive effects of PU16F coming under public ownership would be negligible in regard to viability of the Horse Canyon roost and to the welfare and recovery of bald eagles in Management Zone 9. The effects of this alternative are very similar to the No Action Alternative.

### **Alternative 4: Deed Restriction**

The potential effects to bald eagles would be quite similar between this alternative and Alternative 1. The differences are outlined below:

- The deed restrictions placed on FU27, FU28, and FM10 would prohibit the logging of green trees > 21” d.b.h. This would retain the larger most suitable trees for future replacement of roosting, nesting and perching trees that are lost.
- Parcel PU16F would be acquired by the NF but this would mean little to no difference in management. The Horse Creek roost is on the south side of the North Fork John Day River on private property within a “Large, type F” riparian management area. The OARs regarding bald eagle roosting resource sites further protect it. This site is already identified in a Resource Management Plan for the private property containing the roost.
- The NF would not acquire parcel PU1B. There would be no difference in potential effects between all alternatives for the Wenaha Roost because PU1B is nearly one mile from the roost and NF and State of Oregon lands surround the roost. State of Oregon is the current owner of PU1B. ODFW is aware of and sensitive to the needs of eagle roosts.
- Parcels PU26A and PU26B would not be acquired by the NF in this alternative. The Dry Creek nest would likely receive similar short-term protection (20 years) whether PU26A and PU26B remain private or become public. However, long-term viability of the nest through retention of replacement nest trees would not be ensured since FU27 and FU28 are conveyed.

### **Alternative 5: Preferred Alternative**

Under this Alternative Parcels PU26A (40 acres), PU26B (122 acres) would not be acquired, and FU28 (38 acres) would not be conveyed. Effects to bald eagles from Alternative 5 are the same as those described for Alternative 1 except 162 fewer acres would be acquired, and 38 fewer acres would be conveyed near important eagle sites.

### **Old Growth Associated Wildlife Species**

Management requirements for management indicator species (MIS) are assessed on the National Forest scale in the three Forests’ respective Land and Resource Management Plans (LRMP). Each Forest’s LRMP provides the legal authority to change dedicated old growth areas through the Forest Plan amendment process. The requirements to maintain the integrity (habitat quality, patch size, spacing) of the allocated old growth network in the event of dedicated areas being exchanged is specified in these Forest Plans. The methods used to assess forest structure are described in the Vegetation Section of this FEIS. The Vegetation section also describes historical range of variability, which will be referred to under Environmental Consequences. HRV is part of a structure based analysis method used in the Interior Columbia Basin Ecosystem Management Project (ICBEMP) to classify vegetation and develop relationships to families and groups of wildlife species. The application of an HRV analysis is recognized as the standard classification system for characterizing the composition and structure of vegetation at broad scales, and specifically to characterize broad-scale patterns of disturbance regimes and succession dynamics over a diverse array of forest and rangeland conditions (ICBEMP, Vol. 1, pg . 16, 2000).

Old growth habitat will be discussed in terms of dedicated old growth {Management Areas C1, C2 (Umatilla), 13 (Malheur), and 15 (Wallowa-Whitman)}, and late/old structure (LOS) which is derived from the HRV analysis. Habitat in either category is intended to provide habitat for the old growth associated wildlife communities (ICBEMP Families numbers 1 and 2), but the two categories have different administrative implications. Additionally, dedicated old growth areas may be currently suitable or capable (of developing into suitable old growth in the future), whereas LOS denotes a stand’s current condition.

The old growth associated wildlife species referred to in this old growth discussion are the same as those in Families 1 and 2 from ICBEMP GTR-485. Table 82 contains the families and groups of wildlife

species from GTR-485 that will be referred to throughout this effects analysis. Source habitats are used in ICBEMP to assess changes in habitat quality and availability from early European to the current period. Changes in source habitat are an important factor in assessing changes in distribution of wildlife species, groups or families as defined in ICBEMP. Source habitat is defined as “those characteristics of macro vegetation that contribute to stationary or positive population growth for a species in a specified area and time” (Wisdom, ICBEMP GTR-485, pg.4, 2000).

**Table 82. Species, Groups, and Families of Old Growth Associated Wildlife Species**

Species	Group	Family	Family Name
White-headed woodpecker	1	1	Low-elevation old forest
White-breasted nuthatch			
Pygmy nuthatch			
Lewis' woodpecker (migrant)	2	2	
Blue grouse (winter)	4	2	Broad-elevation old forest
Northern goshawk (summer)	5		
Flammulated owl			
American marten			
Fisher			
Vaux's swift	6		
Williamson's sapsucker			
Pileated woodpecker			
Hammond's flycatcher			
Chestnut-backed chickadee			
Brown creeper			
Winter wren			
Golden-crowned kinglet			
Varied thrush			
Silver-haired bat			
Hoary bat			
Boreal owl	7		
Great gray owl	8		
Black-backed woodpecker	9		
Olive-sided flycatcher	10		
Three-toed woodpecker			
Northern flying squirrel	13		

The analysis of LOS will utilize the same time frames described in the Vegetation Section. Short-term is considered less than 25 years, and long-term is greater than 50 years. Only the fifth level HUCs containing exchange parcels with LOS and/or dedicated old growth areas are analyzed.

### Affected Environment

Trends in declines of old growth habitats for wildlife in Families 1 and 2 (low elevation old forest and broad elevation old forest) are documented in ICBEMP, GTR-485, Vol. 3, Table 3. For the Blue Mountains Ecological Reporting Unit there has been a 61%, 72%, 60%, and 12% loss in old growth habitat from historic conditions for families 1 and 2, groups 1, 2, 4, and 5, respectfully. Group 3 is not included in this discussion because it contains one species, the western grey squirrel, which does not inhabit the area of this land exchange. It is assumed the old growth associated species have declined in direct proportion to this loss of habitat in the Blue Mountains. ICBEMP acknowledges widespread

declines across the basin for pileated woodpecker, white-headed woodpecker, pine marten, and three-toed woodpecker. Unfortunately, we have very little information on population status/trends on these species for the Blue Mountains, hence the emphasis on habitat.

Northern goshawk is also a species of interest because it is specifically addressed in the LRMPs, protected under Oregon law, and by the Migratory Bird Treaty Act. The LRMPs contain specific standards for managing active goshawk nest sites.

In northeastern Oregon trees  $\geq 21$ " d.b.h. are generally considered "large", and represent an essential component of mature and old growth forests. An exception is for dedicated lodgepole pine areas set up for northern three-toed woodpeckers where the large tree diameter is considered to be  $\geq 12$ " d.b.h. These larger trees eventually die and are recruited as snags and logs that provide foraging, nesting and denning substrate for a variety of wildlife species. Large-diameter trees also provide the most suitable structures for raptor nests, nests for arboreal mammals, and cavities for the widest range of species from nuthatches to black bears. Smaller trees do not possess the dimensional characteristics, structural complexity, or decay associated with larger trees, making them poorly suited as nesting and foraging substrate for many wildlife species.

Refer to the Vegetation Section for a detailed description of the upland forest vegetation in the analysis area.

## **Environmental Consequences**

Northern goshawk, pileated woodpecker, northern three-toed woodpecker, and American marten (formerly pine marten) are management indicators of LOS and rely on some form of old growth or mature forest habitat for at least part of their life history. As indicators, these species represent habitat for broader wildlife communities that share similar habitat preferences or requirements. These species are also members of Family 2, Group 5 (goshawk & marten), 6 (pileated), and 11 (three-toed woodpecker) (Wisdom 2000). For this analysis the amount of LOS habitat being acquired or conveyed will be an indicator of the effects to the old growth indicator species, and an indicator of the amount of habitat available for the wildlife species in Families 1 and 2.

Management Requirements exist specifically for management indicator species and are relevant to dedicated old growth areas only. There are approximately 939 dedicated old growth areas on the three Forests representing approximately 169,953 acres. Six parcels totaling 493 acres for conveyance in Alternatives 1 and 5 contain dedicated old growth areas.

A network of dedicated old growth areas (sometimes referred to as allocated old growth areas or "units") was established through a coordinated effort between the three Forests to ensure distributional requirements (Umatilla LRMP 1990), with the intent of maintaining viable populations of the old growth management indicator species and the wildlife communities associated with old growth habitat, Families 1 and 2. This network represents "management requirements" referred to above. The size, spacing, structural characteristics, and total acreage were considered minimum to maintain the viability of old growth management indicator species. Old growth habitat in riparian, wilderness, and backcountry areas are considered to provide a significant amount of habitat that contributes to the viability of these management indicator species. Since the network of dedicated old growth areas are typically surrounded (sometimes isolated for decades) by unsuitable habitat conditions, it is very important that the pieces of the network be maintained to at least retain refugia for the wildlife species they were established for.

When a piece of the network is removed and a suitable replacement area is not located in the immediate vicinity, the integrity of the network suffers. Because viability is such a complex concept, and because the

scale needed to assess viability is so large, it is extremely difficult to comment on the effects to viability from losing a few pieces from a much larger network. However, because such a great deal of interest and emphasis surrounds eastside old growth and the associated wildlife populations, it is very important that the Forest Service make every effort to retain the remnants of old growth that currently exists. Although the loss of small pieces scattered widely over a large area may seem unimportant, these losses need to be considered cumulatively with the near elimination of old growth habitat on private lands, the high degree of fragmentation of old growth habitat on much of the National Forests, and the departure from historical range of variability across nearly all Federal watersheds where management has been prevalent over the past several decades.

Only six parcels (493 acres) proposed for conveyance contain dedicated old growth areas. Although this is a miniscule amount of the total network, the network begins to break down when pieces are removed. The local distribution of old growth habitat and the geographic distribution of habitat are important in maintaining viability of old growth associated wildlife species. The spacing of dedicated old growth areas is a key element in the management requirements that were designed to ensure viability of old growth associated wildlife species.

Although it is not practicable or meaningful to discuss effects to viability of species from the loss of such a minor amount of habitat, it is reasonable to conclude that any loss would certainly not improve or enhance the old growth network. Any loss, especially a permanent loss such as that involved in an exchange would result in a long-term, localized, negative effect to the old growth wildlife community. It could be argued that this project as a whole would result in a potential long-term improvement in the old growth habitat network due to the net change of acres acquired versus conveyed. This is not a valid argument relative to old growth habitat because there are ample acres of public forests that can develop into old growth habitat over time. There is no benefit from losing old growth habitat now in exchange for potential old growth habitat several decades from now. One example of where such a tradeoff would benefit the old growth network would be if acquiring particular parcels would fill in important geographic gaps in the network. This is not the case with this project in any of the alternatives.

The logical resource unit for LOS habitat is the fifth level hydrologic unit (HUC), although other scales (larger and smaller) can be meaningful when discussing this habitat type. Management Requirements for management indicator species (MIS) are assessed on the National Forest scale in the three Forests' respective Land and Resource Management Plans (LRMP). The Blue Mountains scale is also used to address effects at a larger scale than the fifth level HUC.

### **Alternative 1: Proposed Exchange Alternative**

Refer to Table 46: Conveyed and Acquired Late and Old Structure (LOS) for the Proposed Land Exchange to identify acres of LOS acquired and conveyed for each forest. The Vegetation section narrative following this table describes the classification of LOS by forest and discloses the net effect of loss/gain of LOS acres by watershed for this alternative.

The Wallowa-Whitman NF would convey 467 acres, and acquire 439 acres of LOS; resulting in a net reduction of 28 acres of LOS. All LOS involved (acquired or conveyed) is multi-strata. The large majority of conveyed LOS is in Big Sheep Creek and Grande Ronde/Mud Creek watersheds. The Big Sheep Creek watershed is currently above the HRV mid-point for dry upland forest LOS, but it is not necessarily above the historical range for LOS. Grande Ronde/Mud Creek watershed is well below the HRV mid-point for LOS and is likely below the historical range. Further reductions in LOS would increase the departure from HRV.

The conveyed LOS includes 33 acres of Forest Plan dedicated old growth (MA 15), three acres in FW10 (Big Sheep Creek) and thirty acres in FW24 (Grande Ronde/Mud Creek). The dedicated old growth in FW10 is a small portion of a much larger patch. Three acres of suitable old growth are identified immediately adjacent to the existing dedicated patch. A 74-acre stand (2IH13S998090), approximately two miles from the conveyed dedicated old growth area, is identified as a replacement for the 30 acres of dedicated old growth conveyed in the Grande Ronde/Mud Creek watershed. The location of this replacement stand appears to enhance connectivity for old growth associated wildlife species between two other dedicated old growth areas, assuming the old growth allocation approach is continued in the next Forest Planning effort. The locations of the replacement areas appear to meet the distribution criteria established in Appendix M of the Wallowa-Whitman Land and Resource Management Plan (W-W LRMP 1990).

The Umatilla NF would convey 1,315 acres and acquire 258 acres of LOS. Of the LOS conveyed, approximately 75% is multi-strata and the remaining 25% is single-strata. Over 73 percent of the LOS conveyed is in Birch, Lower Camas, and Meacham Creek Watersheds. All of these watersheds are below the HRV mid-point for LOS, except for the dry upland forest type in Birch Creek, which is 20% above the midpoint. Even with the one exception in Birch Creek, LOS habitat in general is deficit and likely does not support old growth associated wildlife in the densities and distribution necessary to sustain reproductive populations in these watersheds.

The conveyed LOS includes 75 acres (FU24) of Forest Plan dedicated old growth (CA 1). A 98-acre replacement old growth area is identified approximately one mile to the south of the conveyed dedicated old growth area. The current structure of this replacement area is “young forest, multi-strata”, and contains ample live trees greater than 21” d.b.h. (VanWinkle 2004). The replacement old growth area represents a net increase in CA 1 of 23 acres. Additionally, the habitat quality in the replacement area is superior to that in the conveyed CA 1 area. This alternative is consistent with Umatilla LRMP direction in terms of size and spacing of old growth allocations. Although the replacement area is of better quality than the existing dedicated area within FU24, an even higher quality old growth patch exists one mile to the east in parcel FU21. However, FU21 is proposed for conveyance, therefore would not be an option for a replacement old growth area as Alternative 1 currently exist.

The Malheur NF would convey 423 acres of multi-strata LOS, 385 of which is forest plan dedicated old growth. No LOS acres would be acquired on the Malheur. Of the conveyed LOS, 413 acres are in the Lower NF John Day River Watershed and the remaining 10 acres are in the Cottonwood Creek Watershed.

Dedicated old growth is located in FM16A (138 acres, Lower NF John Day River & Cottonwood Creek), FM 18 (165 acres, Lower NF John Day River), and FM19 (82 acres, Lower NF John Day River). Two replacement areas totaling approximately 358 acres are identified two miles to the east of the conveyed MA 13 area. The identified replacement areas are two groups of stands of 210 and 148 acres. The closest one to the conveyed MA 13 is two miles to the east. The second area is nearly three miles to the east of the conveyed MA 13. A mile of grasslands and scattered timber separates the two replacement areas. Field reconnaissance of the western most replacement area was done by Cheri Miller (wildlife biologist, Blue Mountain Ranger District), stand data from GIS and aerial photographs were used to assess the other area. The proposed replacement areas are not currently old growth habitat and are not capable of supporting management indicator species that rely on mature or old growth habitat. An open road running the length of the western most area, isolation by surrounding timber harvests, and natural fragmentation due to land types (grasslands, natural openings) further contribute to unsuitable old growth conditions in these replacement areas. Based on existing conditions and the capability of the stands, it would likely require more than 60 years for these blocks to achieve old growth conditions capable of supporting reproducing

pileated woodpeckers, goshawks, and other old growth associated wildlife species. The identified replacement areas represent the best options for replacement old growth, but do not meet direction in the Malheur LRMP for dedicated old growth. These replacements also appear to not adhere to the spacing criteria established to meet dispersal distances for dependant species.

Indirect effects to late and old structural habitat would occur as a result of shifting management priorities when land is conveyed from public to private ownership, and future management on these lands by the new landowners. Private participants in this exchange have indicated the intent to harvest timber from greater than 78% of the lands they receive (Ted Anderson's summary of Private Landowners' questionnaires, 2004).

The loss of dedicated old growth for Alternative 1 is 493 acres, which is about 0.3% of the total acres of dedicated old growth on the three National Forests. The net loss of LOS habitat is 1,508 acres, which is about 0.9% of the total acres of dedicated old growth habitat estimated by the Forest Plans in Decade 2 (currently). This relatively small scale of the LOS acreage lost would not likely affect viability of old growth associated wildlife species at the Blue Mountains scale nor at the National Forest scale. However, as individual watersheds have experienced departure from HRV, some species have been locally eliminated, contributing to poor distribution, low interchange of genetic material, and increased vulnerability to catastrophic events as animals were forced into smaller and more isolated islands of suitable habitat. Current vegetation management activities on Forest Service lands are geared toward returning to the HRV; thereby restoring habitat for many species in Families 1 and 2 over time. The conveyance and subsequent logging of parcels containing LOS would have localized negative effects by displacing individual animals, and reducing the geographic extent to which some species can persist at the watershed (fifth level HUC) scale.

For example, parcels FM16A through FM21 on the "North Finger" of the Blue Mountain Ranger District, parcels FU3A through FU4 in the vicinity of Meacham and Butcher Creeks on the Walla Walla Ranger District, and parcel FU21 on the North Fork John Day Ranger District represent the largest, most contiguous areas of LOS that are locally important for old growth associated wildlife in this proposed project.

The proposed conveyance of the North Finger parcels would effectively reduce the western extent of old growth habitat along a relatively narrow band of conifer forest running east and west. Conveying the North Finger parcels would also have a negative effect on the spacing of dedicated old growth areas. The North Finger old growth provides the only interior old growth habitat in the vicinity. Interior conditions refer to forested patches that have an edge to area ratio low enough to alleviate effects from edges. Meaning that edge effects (wind, temperature, relative humidity, sunlight, etc.) reach equilibrium, thereby providing conditions favored by goshawks and other old growth associated wildlife species (Harris 1984). The old growth habitat being conveyed on Hamilton Ridge is expected to be logged within 10 years (see assumptions). Once logged, these parcels would be unsuitable for old growth associated wildlife, an effect that would persist into the long-term.

Field reviews (Miller, 2004) were completed for the North Finger old growth stands and adjacent stands that represent the most likely replacement old growth areas if the existing ones are conveyed. Existing old growth averages 13 trees per acre  $\geq 21$ " d.b.h. (four of which are  $\geq 31$ " d.b.h.), and provides high quality, multi-strata old growth habitat. Evidence of pileated woodpecker use was observed. The possible replacement areas have an average of 3.5 trees per acre  $\geq 21$ " d.b.h., single-strata, narrow patch configuration, and an open road running the length of one of the stands. This option for old growth replacement would not meet the needs of displaced wildlife if the current dedicated old growth is exchanged and later logged.



Three goshawk nests are known to exist in the west half of the North Finger. One of these (East Fork Deer Creek nest) is located near the east borders of parcels FM15 and FM17. Conveyance of these two parcels, or any of the North Finger parcels (FM15 through FM21) would severely reduce the ability of goshawks to continue reproducing in this part of the Blue Mountain Ranger District once logging reduces canopy closure, large tree, snag and log densities, overall prey base habitat, and potential nesting structures. The LOS habitat on parcels FM15 through FM21 currently provides the highest quality foraging habitat, the most likely dispersal areas for fledglings, and the highest quality nesting options should the existing nests be lost

The conveyance of the Meacham/Butcher Creek parcels would result in fragmentation and reduction of LOS habitat. This would reduce the capacity of the Butcher Creek drainage to support goshawk, marten, pileated woodpecker, and other old growth associated species. There are no dedicated old growth areas that would be conveyed in this area, but conveyance of these parcels would eliminate future options for old growth habitat reserves in this vicinity. The old growth habitat being conveyed in the Meacham/Butcher Creek area is expected to be logged within 10 years (see assumptions). Once logged, these parcels would be unsuitable for old growth associated wildlife, an effect that would persist into the long-term.

Conveyance of parcel FU21 would result in a long-term reduction of multi-strata old growth in an area that is deficient in this type of habitat.

Cumulative effects would be minimal beyond the indirect effects discussed above since very little LOS currently exists on private property to be logged, and LOS on NF lands are essentially off limits to logging. A more detailed discussion of how Alternative 1 affects HRV is found in the Vegetation section. This discussion concludes that all watersheds affected by Alternative 1 would continue to be deficit in LOS relative to the HRV mid-point for MSLT and SSLT combined, except for the dry upland forest category in Big Sheep and Birch Creeks, and the cold upland forest category in Rhea Creek. Watersheds that would experience the greatest negative effects to old growth associated wildlife are: 1) Lower North Fork John Day River (parcels FM15-FM20); 2) Upper Butter Creek (FU21); and 3) Meacham/Butcher Creek (FU3A-FU4).

Another way to evaluate old growth habitat is to look at “total” old growth at the Blue Mountain landscape scale. Currently there is no accurate estimation of existing total old growth in the Blue Mountains. However, Table 83 indicates that up to 502,833 acres of old growth habitat was estimated to exist in the second decade (current conditions) from all 3 Forest Plans. The wilderness and “other areas” acreages in Table 83 are estimates from the Forest Plans, and the acreages for dedicated old growth come from current geographic information system data. However, it is important to recognize that the acreage figures in Table 83 over estimate the actual old growth habitat that currently exists since a large number of dedicated old growth areas and much of the wilderness areas do not contain functional old growth habitat. Alternative 1 represents a 1,508-acre net loss in LOS, which is about 0.4% of the total acres of old growth (dedicated old growth plus “Other Areas”, not including “Wilderness” in Table 83) estimated in the 3 Forest Plans. It should be acknowledged that Alternative 1 would contribute cumulatively to a reduction in old growth habitat in a landscape that is already recognized as very deficient in old growth. The conveyance and subsequent logging of old growth parcels would have localized negative effects by displacing individual animals at the stand and sub-watershed scale. The watersheds that would experience the greatest negative effect to old growth associated wildlife are: 1) Lower North Fork John Day River (parcels FM 15, FM 20); 2) Upper Butter Creek (FU 21); and 3) Meacham/Butcher Creek (FU 3A, FU4).

**Table 83. Old Growth Habitat Estimates from Forest Plans, Decade 2 (Acres)**

	WWNF	Umatilla NF	Malheur NF	Total
Wilderness	67,000	68,900	35,239	<b>171,139</b>
Dedicated Old growth Areas <sup>1</sup>	59,789	44,170	65,985	<b>169,944</b>
Other Areas <sup>2</sup>	60,000	51,400	50,350	<b>161,750</b>
<b>Total</b>	<b>186,789</b>	<b>164,470</b>	<b>151,574</b>	<b>502,833</b>

1) These acres are from the three Forests' geographic information system data on land allocations.

Old growth is defined as areas functioning as habitat of old growth associated species, collectively LOS and dedicated old growth.

2) Other areas are defined as other old growth outside of dedicated Forest Plan old growth, not within the wilderness management area prescription.

### Alternatives 2 & 3: No Action and Purchase

Alternative 3 involves the acquisition of four acres of LOS, a negligible amount, and Alternative 2 would exchange no LOS. Therefore, there are essentially no differences between these alternatives in regard to LOS. No existing forest plan dedicated old growth would be conveyed by these alternatives.

The effects of these alternatives would involve the logging of 697 acres (Table 46) of LOS on private land within the next 10 years (see first assumption on page 2 of this report). The typical logging prescriptions on private lands in northeast Oregon do not retain old growth stand characteristics, and often perpetuate early to mid-successional conditions in perpetuity. The 2,205 acres of LOS that remain under NF management would likely not be logged and would continue to function as LOS until policy regarding old growth changes or a disturbance (fire, disease, etc.) sets back succession in these stands (Table 46). The LOS and dedicated old growth on the North Finger, Meacham/Butcher Creek, and parcel FU21 would be retained in NF ownership and managed for their old growth values. These alternatives would have the least negative effect to LOS of all the alternatives. These alternatives would not contribute to a further departure from HRV for LOS habitat. These alternatives would have the least negative effect on declines of source habitats for Families 1 and 2.

Indirect effects to LOS from these Alternatives are limited to the future logging of LOS from private lands that would not be acquired (697 acres), and past logging activities that have created the fragmented, deficient LOS situation that currently exists.

### Alternative 4: Deed Restriction

This alternative would acquire 413 acres of LOS, and convey 2,205 acres, for a net reduction of 1,792 acres. Table 84 displays the amount of LOS conveyed and acquired by Alternative 4, by National Forest. The amount of LOS being conveyed is the same for Alternatives 1 and 4; therefore effects would be similar as discussed for Alternative 1. Fewer (284) acres of LOS would be acquired in Alternative 4 (413 acres) than in Alternative 1 (697 acres). The main difference between these Alternatives is that lands conveyed in Alternative 4 would have deed restrictions that would retain more substantial riparian buffers and all live trees  $\geq 21$ " d.b.h. Diskin reports on page 16 of the Upland Vegetation report (PR) that conveyed LOS "...would likely continue to function as LOS due to the large-tree removal restriction. Therefore, LOS would not be lost." This conclusion is not consistent with expected effects relative to wildlife habitat. Large live trees are an essential component of LOS habitat, but forests need much more than large live trees to function as habitat for the old growth wildlife community. Large diameter snags, logs, multiple layers of canopy (in moister forest types), decadence in at least some of the larger live trees, and overall more structural complexity characterize functional LOS habitat. A restriction on removal of  $\geq 21$ " d.b.h. live trees would not necessarily preclude the loss of LOS habitat as it relates to

wildlife. Such a restriction would make some stands less economically viable to log, but many conveyed LOS stands would likely be logged and function more like stand initiation than old growth. Therefore, even though more large live trees would be retained in this alternative, the habitat would still be rendered unsuitable for LOS associated wildlife species, resulting in effects similar to those described in Alternative 1.

Replacement dedicated old growth areas (described earlier in this section) are adequate to meet Forest Plan direction on the Wallowa-Whitman and Umatilla National Forests, but not on the Malheur. These effects are nearly identical to those described for Alternative 1 in regard to dedicated old growth.

The more substantial stream buffers and retention of larger trees pose a slightly less negative effect than Alternative 1, but the difference is negligible when considered in the context of species viability for marten, pileated woodpecker, goshawk, and three-toed woodpecker. There would be 284 fewer acres of LOS acquired by the NF and subsequently managed for old growth values with this Alternative. These 284 acres would likely be logged, resulting in less available habitat for the old growth wildlife community, even though > 21” diameter trees would be retained. Alternatives 1 and 4 would essentially have the same effects to LOS habitat in terms of habitat suitability reduced from logging of LOS in private ownership, and the effects would persist into the long-term (greater than 50 years).

This alternative would result in nearly the same degree of departure from HRV as Alternative 1, with the exception of the minor amount of LOS retained in riparian buffers, the occasional (too few to quantify) single-strata stands that would not be economical to log due to the abundance of 21” d.b.h. trees, and the 284 acres that would remain under private ownership and subsequently logged.

Indirect effects would be minimal beyond the potential effects discussed above since very little LOS currently exists on private property to be logged, and logging of LOS on NF lands is largely prohibited by current regulations.

### **Alternative 5: Preferred Alternative**

Effects to dedicated old growth and LOS forest structure would be nearly identical to those discussed for Alternative 1. One difference is that FU21 would not be conveyed, resulting in 68 acres of LOS habitat on this parcel would continue to function as habitat for the LOS associated wildlife community into the long-term. This alternative would result in a 1,440 acre net reduction in LOS forest structure (Table 84).

### **All Alternatives - Summary**

Late and old growth habitat has declined strongly from historical periods throughout large areas in the eastside assessment (ICBEMP) and the Blue Mountains, particularly in the low and mid elevations.

Under Alternative 1, six parcels totaling 493 acres of dedicated old growth would be conveyed. The loss of dedicated old growth is 493 acres, which is about 0.3% of the total acres of dedicated old growth on the 3 Forests. Although this loss is small, the conveyance and subsequent logging of old growth parcels would have localized negative effects by displacing individual animals at the sub-watershed scale. Once logged, there would be little or no use by old growth associated wildlife species in those parcels. This alternative would contribute cumulatively, although small to a reduction in old growth habitat in a landscape that is already recognized as deficient in old growth. This loss of old growth habitat at the Blue Mountain scale is not likely to affect the viability of old growth associated species or jeopardize the continued existence of these species in the Blue Mountains.

Suitable replacement old growth areas are available nearby on the Wallowa-Whitman and Umatilla National Forests to meet forest plan requirements for replacing dedicated old growth areas that are

conveyed in an exchange. The identified replacement areas for the Malheur National Forest represent the best options, but do not meet minimum requirements in the Malheur LMRP for old growth components. All three National Forest would need a Forest Plan amendment to convey dedicated old growth to another ownership.

Alternative 2 would exchange no old growth (dedicated or LOS) and Alternative 3 acquires only 4 acres, a negligible amount. The 2,205 acres of LOS that remains under NF management would likely not be logged and continue to function as old growth. The 697 acres of LOS acquired from private lands would not exchange and would likely be logged within 10 years (see assumptions).

Alternative 4 would acquire 413 acres of LOS, and convey 2,205 acres, for a net reduction of 1,792 acres. Lands conveyed would have deed restrictions that would retain more substantial riparian buffers and all live trees  $\geq 21$  inches DBH. Even though more large live trees would be retained, these parcels would likely lack other old growth structural attributes (snags, logs, multiple canopies) after they are logged. Therefore, the habitat would still be rendered unsuitable for LOS associated species. This would result in similar effects to those described in Alternative 1.

Alternative 5 is nearly identical to Alternative 1 in regard to old growth habitat. The difference is LOS habitat in FU21 would remain under Forest Service management and would likely continue to function as habitat for LOS associated wildlife species into the long-term.

**Table 84. Alternative Comparison by Key Indicators**

Key Indicators	National Forest	Alternative				
		1	2	3	4	5
Forest Plan Dedicated Old growth Acres Conveyed <sup>1</sup>	Wallowa-Whitman	33	-0-	-0-	33	33
	Umatilla	75	-0-	-0-	75	75
	Malheur	385	-0-	-0-	385	385
	<b>Total</b>	<b>493</b>	<b>-0-</b>	<b>-0-</b>	<b>493</b>	<b>493</b>
Net LOS <sup>2</sup> Acres Acquired (+) or Conveyed (-)	Wallowa-Whitman	- 467 <u>+439</u> -28	-0-	+4	-467 <u>+413</u> -54	-467 <u>+439</u> -28
	Umatilla	-1,315 <u>+ 258</u> -1,057	-0-	-0-	0 <u>-1,315</u> -1,315	0 <u>-1,315</u> -1,315
	Malheur	-423 <u>+ 0</u> -423	-0-	-0-	0 <u>-423</u> -423	0 <u>-423</u> -423
	<b>Total</b>	<b>-1,508</b>	<b>-0-</b>	<b>+4</b>	<b>-1,792</b>	<b>-1,792</b>

1) Forest Plan amendments would identify replacement old growth.

2) Net acres of LOS lost includes dedicated old growth from the Wallowa-Whitman and Malheur NFs.

## Regional Forester's Sensitive Wildlife Species

### Affected Environment

Table 85 contains the R-6 Sensitive reptiles, mammals and bird species that could exist within the analysis area. The entire project area (minimum convex polygon formed by outermost parcels) was the analysis area for the purpose of assessing effects to these sensitive species. Potential effects from this Proposed Land Exchange are discussed to the extent practicable, given that little to no survey or distribution information exists for most of these sensitive species.

## Environmental Consequences

Sensitive species habitat suspected to support sensitive species proposed for exchange was used as an indicator of effects to these species. It was assumed that more protective management standards would apply to acquired sensitive species habitat; therefore a beneficial effect would result. It was further assumed that conveyed habitat would come under a less protective set of management standards thereby resulting in a potential negative effect. An estimate was provided as to whether the amount of habitat being acquired would be greater or less than what would be conveyed. Due to the number of sensitive species, the broad range of habitats involved, and the uncertainty of habitat requirements for some species, effects descriptions are very general. These effects are described in terms of increase, decrease, or no change in habitat.

The right hand column in Table 85 is labeled “Net Change Federal” which indicates whether there would be a net increase, decrease, or no change in the amount of habitat coming under NF management. An increase (acquired) represents a “positive effect”, a decrease (conveyed) represents a “negative effect”, and no change represents “no effect”. A more in-depth species by species analysis would be of little value because a majority of the R-6 sensitive species are associated with lower elevation marshlands, grasslands, or specific riparian habitats that are absent from or scarcely represented in the Proposed Land Exchange.

Habitat was considered in relatively broad terms when estimating whether habitat would be acquired or conveyed for a particular species. For example, no known peregrine falcon cliffs are included in exchange parcels but abundant habitat suitable for foraging by peregrines would be acquired. This would result in an “increase” rating in Table 85. All sensitive species resulted in either “no change” or an “increase” in habitat being acquired. In all cases, the net increase was substantial, precluding the need to analyze at a finer scale.

**Table 85. R-6 Sensitive Reptiles, Mammals and Bird Species Effects Analysis**

	Natural Heritage Rank	WA Status	OR Status	Federal Status	Year Desig.	MNF	UNF	WW NF	Net Change Federal
<b>Reptiles</b>									
<i>Chrysemys picta</i> Painted Turtle (OR only)	S2-OR		SC		89		S	S	No Change
<b>Mammals</b>									
<i>Euderma maculatum</i> Spotted Bat (OR only)	S1-OR				00			D	Increase
<i>Gulo gulo</i> California Wolverine	S1S2-WA S2-OR	C			86	D	D	D	Increase
<i>Martes pennanti</i> Pacific Fisher	S2-OR	E	SC	C	00	S		S	Increase
<i>Ovis canadensis</i> Canadensis Rocky Mtn. Bighorn Sheep(OR only)	S2-OR				86		D	D	Increase
<i>Brachylagus</i> <i>idahoensis</i> Pygmy Rabbit	S2-OR S1-WA	E	SV		89	S			Increase

**Table 85. R-6 Sensitive Reptiles, Mammals and Bird Species Effects Analysis (continued)**

	Natural Heritage Rank	WA Status	OR Status	Federal Status	Year Desig.	MNF	UNF	WW NF	Net Change Federal
<b>Birds</b>									
<i>Podiceps auritus</i> Horned Grebe (OR only)	S2B-OR		SP		00			S	Increase
<i>Bucephala albeola</i> Bufflehead (OR only)	S2B-OR		SU		00	D		S	Increase
<i>Falco peregrinus anatum</i> American Peregrine Falcon	T3	E	E		99	S	S	D	Increase
<i>Centrocercus urophasianus phaios</i> Greater Sage Grouse	N3	T			89	D		S	Increase
<i>Tymphanuchus phasianellus columbianus</i> Columbia Sharp-tailed Grouse (OR only)	T3 N3	T			00			D	Increase
<i>Bartramia longicauda</i> Upland Sandpiper	S1B	E	SC		89	D	S	D	Increase
<i>Tringa melanoleuca</i> Greater Yellowlegs	S1B-OR				00			S	Increase
<i>Empidonax wrightii</i> Gray Flycatcher	N3B				00	S	S	S	Increase
<i>Agelaius tricolor</i> Tricolored Blackbird (OR only)	G3		SP		00	S		S	Increase
<i>Dolichorhynchus oryzivorus</i> Bobolink (OR only)	S2B-OR		SV		00	D		S	Increase

**Alternatives: 1, 3, 4 & 5: Proposed Exchange, Purchase, Deed Restriction and Preferred Alternative**

All action alternatives are similar enough in regard to sensitive species (reptiles, mammals, and bird) to address together. All sensitive species would experience an increase or no change in habitat coming under more protective management standards. These alternatives would potentially benefit most sensitive species and would not result in a trend toward Federal listing or a reduction in species viability. The action alternatives ranked in order of greatest to lowest potential benefit to these sensitive species are: 1, 4, and 3 based on the amount of increase of habitat coming under more protective management standards.

**Alternative: 2 No Action**

This alternative would not result in a trend toward Federal listing or a reduction in species viability for any R-6 sensitive species. However, this alternative would forego opportunities to acquire and potentially restore habitat for several sensitive species.

## Recreation

This section addresses the effects of the proposed Blue Mountain Land Exchange on the existing social character and recreational setting. It discusses recreational opportunities and experiences affected by all alternatives evaluated in detail. The analysis area includes all of the parcels being considered in the Proposed Land Exchange along with adjacent NFS lands. This includes general forest areas, as well as Wilderness, Wild and Scenic River corridors, roadless areas, National Recreation Areas, and other recreation areas used for big game hunting and dispersed camping. Discussion revolves around four topics: Recreation Opportunity Spectrum (ROS), Access, Recreational Facilities and Uses, and Special Designated Areas.

The Proposed Land Exchange would result in access changes that affect the recreation environment. Assumptions were made to disclose likely direct and indirect effects to the recreation resource. The following assumptions are based on responses to questionnaires about anticipated management plans for conveyed and acquired parcels.

- Roads on acquired parcels that are currently closed to public access would continue to remain closed. Most roads being conveyed to private ownership would have some type of restriction for access, either a gated entry, the need for written or oral permission, or a combination of these.
- Some conveyed parcels would not be open to public access. Any public that accessed these parcels when in public ownership would have to readjust their recreation plans to avoid trespassing.
- Those acquired parcels that currently have public access restrictions would have the same restrictions when brought into Federal management.

Where specific recreation concerns or opportunities are discussed in detail, parcel numbers or landmark areas will be identified. While all parcels in the Proposed Land Exchange have the potential to support some amount and type of outdoor recreation activity, not all parcels are mentioned in this section.

## Laws and Regulations Applying to the Analysis

All parcels are subject to recreation management direction related to their respective Forest Plans, Wild and Scenic River Management Plans and the Hells Canyon National Recreation Area Comprehensive Management Plan.

The Wild and Scenic Rivers Act of 1968 defined the policy of the US: ...That certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations.

The 1993 *Eagle Creek Wild and Scenic River* Management Plan directs managers to manage the Wild Segment for a Primitive Wilderness Recreation Spectrum, the Scenic Segment for a Semi-primitive Motorized ROS setting, and the Recreational Segment for a Roaded Natural ROS setting. This plan also states that landownership patterns will be similar to what existed at the time of designation but a few private land parcels however could be purchased from willing sellers. The 1993 *Imnaha Wild and Scenic River* Management Plan states that the Scenic Segment will be managed initially for a Semi-primitive Motorized setting, the Recreational segment will be managed for a Roaded Natural ROS, and the Wild segment will be managed for a Semi-Primitive Non-motorized ROS for the lower segment and for a Primitive Wilderness Recreation Setting for the upper segment. This plan also directs managers to retain

all Federal land unless for the protection and enhancement of the outstandingly remarkable values (ORVs), water quality, or free flow. The 1993 *North Fork John Day Wild and Scenic River* Management Plan directs the management of the Wild Segment for a Primitive or Semi-primitive setting using the Wilderness Recreation Spectrum, the Scenic Segment for a Semi-primitive Motorized or Semi-primitive Motorized ROS setting, and the Recreational Segment for Roaded Natural or Semi-primitive when overlapped with the Wilderness. This plan directs managers to acquire private land within the corridor with a willing seller. Also, all Federal land is to be retained in public ownership unless it is determined to be in the interest of the protection and enhancement of the ORVs, water quality, or free flow. The Management Plan for the *Wenaha Wild and Scenic River* remains in draft form therefore it is managed according to the Umatilla National Forest LRMP.

Parcels within the HCNRA are subject to the 2003 HCNRA CMP. This CMP provides management direction to pursue acquisition of private land or land exchanges as opportunities are available to meet the objectives for which the HCNRA was established.

### **Affected Environment**

Variety in the analysis area landscape provides the backdrop for an array of recreation activities pursued by the public. Dispersed recreation activities, such as hunting, hiking, fishing, and camping are the most popular in this rural setting. Some areas draw more use than others, such as Hells Canyon National Recreation Area, Eagle Cap Wilderness and the various rivers, lakes and streams. High recreation use throughout the analysis area coincides with the summer camping season (approximately Memorial Day through Labor Day) and during the fall big-game hunting seasons from early September through late November. Some of the Imnaha River parcels are used year-round. Specific use figures by recreation activity are not available at this time.

Activities in parcels that are adjacent to water are the most popular amongst the average visitor, since they provide the best overall scenic quality and many other recreation opportunities. These parcels are primarily found in the Imnaha River drainage area.

Both acquired and conveyed parcels provide opportunity for dispersed recreation activities. Most parcels are upland in character. A majority of the dispersed sites on parcels are large, providing for families or group camping opportunities. Dispersed sites are located primarily within pine stands, with some in mixed conifer and riparian vegetation. Over the years, the popularity of these sites has increased. This increased use can put at risk the solitude and quiet character of lesser-used areas. Road development (planned and user-made) has made access easier to remote areas. Both day and overnight recreational use has degraded to varying degrees the soil and vegetative resources in dispersed settings. The heavy use sites show impacts through a loss or degradation of vegetation, soil compaction, sanitation problems (litter, water pollutants, etc.), and a change in site character (e.g. crowding and loss of scenic quality). These conditions can be seen at the most remote locations but they are more apparent in large dispersed sites with high use.

### **Recreation Opportunity Spectrum (ROS)**

ROS is a framework for stratifying and defining classes of outdoor recreation environments, activities, and experience opportunities. The settings, activities, and opportunities for obtaining experiences have been arranged along a continuum or spectrum divided into seven classes: Primitive, Semi-primitive Non-motorized, Semi primitive Motorized, Roaded Modified, Roaded Natural, Rural, and Urban. During the three Forest's Planning efforts, ROS settings were designated for various areas. These Forest Plans have definitions for each class. In general, area classes at the developed end of the spectrum are more available to recreationists than classes at the primitive end of the spectrum. Wilderness managers have adapted a



more specialized version of the ROS spectrum using the Pristine, Primitive, and Semi-primitive Non-motorized classes.

Two existing uses influence the ROS for exchange parcels: Off-Highway Vehicle (OHV) use and private road construction in support of associated activities such as logging. These activities modify the vegetation, access, and social settings which determine an area's ROS setting. Sales and use of OHVs have been on a dramatic increase in the last 10 years. This increased use is noticeable in formerly remote and isolated areas in the Blue Mountains. Although OHV use is restricted to designated routes in individual and/or seasonal closure areas on much of the analysis area, OHV use in thousands of areas is not regulated. This unregulated use has contributed to the creation of user trails and an increase in noise levels that could move some of the Primitive and Semi-primitive ROS settings toward the motorized and Roaded Modified end of the spectrum. The FS issued a National Policy on OHV use November 2, 2005, which directs land managers to conduct an analyses for designating suitable OHV routes and areas. The desired condition would result in OHV use prohibited in cross county travel except for designated routes and areas. Within the next 5 to 10 years, it is anticipated OHV use on NFS lands would become fully regulated and less likely to cause shifts in ROS settings.

### **Access**

Roads within the analysis area provide access for a variety of activities such as driving for pleasure, off-road vehicle driving, big game hunting, forest product gathering, and wildlife viewing. There is an array of viewpoints on where and how many open roads should be retained. Overall, maintaining open roads is a strong desire with many of the publics contacted in the field. Many long-time visitors to the area feel that too many roads have been closed in the past. They would like to see more "balance" in road management; i.e., access for the public should be given as much importance as other issues in closure proposals. Other Forest visitors believe that road closures are necessary to maintain wildlife habitat, reduce impacts to vegetation, and minimize impacts to soils and water quality. Refer to the Transportation section for additional specific information on roads and road access associated with exchange parcels.

Until the FS addresses recreation and access issues through future planning efforts, competition for camping areas that remain under Federal management could increase in some locations. This situation would occur in the more popular areas associated with water-based recreation or big game hunting camps where frequently used campsites are conveyed. This effect would be minimal for a majority of visitors and recreationists within the analysis area, as a whole, but an increase in localized impacts could occur in some areas. Some recreationists believe historical use of campsites implies ownership of that site for the duration of a big game hunting season. In areas of decreasing public ownership, displaced parties could be viewed as "trespassing" if they transfer their camp to a site historically used by others. At the least, this would affect the satisfaction of both parties camping experience. At the most, confrontations between the parties could occur.

When considering dispersed campers with motor vehicles that would be displaced from conveyed areas and/or campsites, it's likely some would take one of the following actions:

- Use less frequented campsites near where they camped in the past.
- Develop new sites and access roads in the area near where their old camp was.
- Camp and recreate at another location other than their "traditional" camping area.
- Breach road closures or property lines to access campsites.

There are a variety of non-motorized summer trails and motorized winter trails in the analysis area. They provide a moderate to challenging range of opportunities for the recreationalist. Opportunities include mountain bike trails, short day use hikes, multi-day pack and horseback trips, and snowmobile trails that

access more remote or lesser-traveled areas during the winter season. Shorelines and areas associated with viewpoints have been impacted from the development of user trails. In some cases, trail maintenance has rehabilitated user trails and associated impact areas. In others, trails lack maintenance due to the backlog of trail work that needs to be accomplished. In general, the trails are in good condition within the analysis area.

Some trails cross private lands and are not marked or maintained because they do not have Federal right-of-way easements. This situation has caused dissatisfaction and/or confusion with some visitors as they are under the perception that the trail is a public land facility under NF management. This problem is occurring primarily on the Wallowa-Whitman National Forest and to a lesser degree on the Malheur National Forest.

The Nez Perce Trail (Nee Me Poo Trail), a designated National Historic Trail, occurs in the project area. The trail starts at Wallowa Lake then heads northeast and crosses the Snake River at Dug Bar. It enters Idaho at Lewiston and cuts across Idaho, Montana, and Wyoming, ending 40 miles from the Canadian border. Congress passed the National Trails System Act in 1968, establishing a framework for a nationwide system of scenic, recreational, and historic trails. The trail was added to this system by Congress as a National Historic Trail in 1986. The trail gained this status because of its historic significance regarding the 1877 flight of the non-treaty Nez Perce from the Wallowa Valley for Canada. This trail intersects several parcels included in the proposed exchange along the segment between Indian Village and Dug Bar.

### **Recreational Facilities and Uses**

There are no developed recreation facilities or campgrounds in the analysis area. Recreational activities within exchange parcels are not associated with maintained structures such as toilets, picnic tables, metal fire rings, or bulletin boards.

### **Special Designated Areas**

Several Proposed Exchange parcels are adjacent to or within special designated areas. These areas include Wild and Scenic River Corridors, Wilderness, Inventoried Roadless Areas, and a National Recreation Area.

### **Wild and Scenic River Corridors**

Congress under the 1968 National Wild and Scenic River Act and subsequent 1988 Oregon Omnibus Rivers Act designated the four wild and scenic rivers with exchange parcels in or adjacent to their corridors. Although the Wild and Scenic Rivers Act does not change private land rights, private landowners must abide by county and state regulations, which in most cases meet or exceed wild and scenic river management recommendations. This analysis tiers to the Wild and Scenic River Management Plans. For specific information on these Plans, refer to the PR.

### **Eagle Creek Wild and Scenic River**

The corridor is 28.9 miles long and is located on the Wallowa-Whitman National Forest. This river has 3 distinct classifications: Wild; 4.5 miles; Scenic; 6.0 miles and Recreational; 18.4 miles. The corridor provides a wide variety of recreational opportunities both in and outside of the Eagle Cap Wilderness. Eagle Creek receives considerable use in the late spring as soon as the snow melts. This use continues into the late fall hunting seasons. A large portion of the visitors are from the local area, although significant use is by regional visitors. Users are drawn to the area both for its distinction as a wild and scenic river corridor as well as its portal access to the Eagle Cap Wilderness. The Main Eagle Trailhead at Boulder Park serves as the major south side access route into the Eagle Cap Wilderness. This portal is less

congested than the northern portals. This corridor offers exceptional scenery in a remote rustic setting with a broad range of available recreational opportunities. Dispersed camping associated with fishing, hunting, and prospecting is by far the heaviest use, evidenced by the numerous dispersed campsites within the corridor. The corridor however does have 8 developed recreation sites including trailheads, developed campgrounds, horse camps, and a fee recreation cabin which are seasonally popular. Other recreation opportunities in the drainage include horseback riding, photography, recreational gold panning, nature study, swimming, wildlife viewing, berry and mushroom picking, and various winter sports such as cross country skiing and snowmobiling. Hazardous in-stream obstacles (logs, brush), waterfalls, and low seasonal flows preclude floating or kayaking opportunities. Outstandingly Remarkable Values (ORVs) for Eagle Creek include; recreation, scenic, fisheries, historic cultural resources, and geology/paleontology.

### **Imnaha Wild and Scenic River**

The corridor is 77 miles long and is located on the Wallowa-Whitman National Forest. The river has 3 distinct classifications: Wild; 6.0 miles; Recreational; 58.0 miles and scenic; 4.0 miles. The uniquely diverse landscape along the Imnaha River begins at the subalpine headwaters in Eagle Cap Wilderness and ends along the lush riparian habitat abutting the steep rugged canyon walls and grassy plateaus near the Snake River. Recreation in the upper section is both dispersed and developed. The dispersed use is mainly wilderness backpacking, hiking and riding/packing use with some hunting camp use outside the wilderness boundary. Immediately below the wilderness boundary are 5 NF campgrounds and one trailhead, which are very popular in the summer through fall seasons. In contrast, developments in the lower non-forested section are mostly associated with historic ranch settlements and depict a rural western setting. Many of the private lands along the river are integral to the working ranches and serve as base of winter livestock and haying operations. This portion of the corridor portrays a lifestyle dominated by a ranching/farming tradition that has evolved since the days of the pioneers. While the recreational activities along the river include hunting, fishing, sightseeing, horseback riding, hiking, snowmobiling, skiing, and camping, it is also regionally known for two other activities. The first is its role as a side route off of the Hells Canyon All-American Road which is a nationally recognized scenic byway. Although not part of the national byway system, it is a Forest Scenic Byway link and provides an alternative to those wishing to go to Hat Point or extend their trip to Enterprise via the town of Imnaha. A second attraction to the area is the salmon and steelhead fishing. In recent years, the State has opened a fishing season on the Imnaha River for both steelhead and salmon which attracts regional anglers. Since much of the lower river is on private property, including the bed and banks, recreational opportunities are mostly limited to sightseeing and photography from the County Roads. ORVs for the Imnaha River include; recreation, wildlife, scenery, fisheries, cultural resources, historic/prehistoric, traditional values/lifestyles adaptation and vegetation/botanical.

### **North Fork John Day Wild and Scenic River**

The corridor is 54.1 miles long and resides in both the Umatilla and Wallowa-Whitman National Forests. The river has 3 distinct classifications: Wild; 27.8 miles; Scenic; 10.5 miles and Recreational; 15.8 miles. Originating in the upper unit of the North Fork John Day Wilderness, it again enters the lower main portion of wilderness. Along its corridor are 4 trailheads, 5 campgrounds, and a recreation rental cabin. In character with a wild and scenic river corridor and wilderness portal, the developments have mostly rustic characteristics. Portions of the river are designated within the Blue Mountain and Elkhorn State Scenic Byways. Recreation in the corridor is a mixture of dispersed and developed activities. They include hunting, fishing, sightseeing, horseback riding, hiking, snowmobiling, skiing, and camping. The river corridor supports an anadromous fishery. The ORVs for the river are recreation, scenic, historic cultural resources, wildlife, and fisheries.

### **Wenaha Wild and Scenic River**

The corridor is 21.6 miles long and is managed by the Umatilla National Forest. The river is primarily

classified as Wild (18.7 miles), but also contains a 2.7-mile segment classified as Scenic and a 0.2-mile segment classified as Recreational. The river is particularly valued for its rainbow trout.

### **Wilderness**

This Proposed Land Exchange includes parcels that would be acquired in three wilderness areas, Eagle Cap Wilderness, Hells Canyon Wilderness and the Wenaha-Tucannon Wilderness.

#### **Eagle Cap Wilderness**

This wilderness lies in the heart of the Wallowa Mountains and is characterized by high alpine lakes and meadows, bare granite peaks and ridges, and U-shaped glaciated valleys. Hikers and horseback riders can choose from over 500 miles of trails into the area which is the largest contiguous wilderness in Oregon. Over 25 trailheads are located on all sides of the wilderness, providing access from Wallowa, Union, and Baker counties. Frequently visited locations include: the Lakes Basin, Minam River, Imnaha River, Hurricane Creek, and both forks of the Wallowa River.

#### **Hells Canyon Wilderness**

This wilderness was designated in 1975 as a part of the HCNRA. It is one of three distinct “areas” in the NRA. The other two are the Wild and Scenic Snake River, and the non-wilderness uplands found in both Idaho and Oregon. The Hells Canyon Wilderness, located in Idaho and Oregon, has similar features on both sides of its Snake River border. Steep slopes, benches, and canyon walls that drain into the Snake River primarily characterize the wilderness area. The stunning scenery and dramatic vistas draw visitors from around the world to view this geographic wonder. The vegetation in the canyon is native bunchgrasses and shrubs with ponderosa pine and Douglas fir scattered in the upper elevations and in the canyon’s north slopes and stream bottoms. Many of the hundreds of miles of trail follow traditional routes along canyon benches or drainage bottoms, and can remain open yearlong in some of the lower elevations. Higher elevations however are inaccessible until later in the summer due to snow throughout much of the year. Overall, both access roads and trails begin to open in June and remaining open until October or November.

#### **Wenaha-Tucannon Wilderness**

This 177,465 acre Wilderness was created by the Endangered American Wilderness Act of 1978. The area is characterized by rugged basaltic ridges and outcroppings separated by deep canyons with steep side slopes. Approximately 200 miles of trail are managed to provide a primitive, unconfined recreation experience. Several developed campgrounds are located at or near major trail heads around the perimeter of the wilderness. Since this wilderness is popular with horseback riders, several trail heads are equipped to accommodate horses. The primary recreation activity within the wilderness has traditionally been elk hunting with a large number of hunters packing into the wilderness on horseback each fall. Recently, however, there has been an increase in anglers and backpackers during the summer and early fall months.

Wilderness areas have characteristics such as size, opportunity for solitude, and a landscape that have retained primeval character and influence without permanent improvement or human habitation. Overall, lands added to wilderness tend to enhance this character.

### **Inventoried Roadless Areas**

The analysis area contains ten Inventoried Roadless Areas: Tope Creek, Buckhorn, Snake River, Imnaha Face, Sheep Divide, Deadhorse and Hurricane Ridge on the Wallowa-Whitman National Forest; W-T Three and Horseshoe on the Umatilla National Forest; and Nipple Butte, Shaketable, and Aldrich Mountain on the Malheur National Forest.

Inventoried Roadless Areas were identified in the national Roadless Area Conservation Strategy analysis.

Inventoried Roadless Areas on the Wallowa-Whitman National Forest either occur in the steep canyons of the Imnaha River and Grande Ronde River systems or the steep slopes of the Wallowa Mountains. As such, the areas are utilized mostly for sightseeing, hunting, and hiking. Inventoried Roadless Areas on the Malheur are generally on gentle slopes, uplands and plateaus and used primarily for big game hunting. On the Umatilla National Forest, Inventoried Roadless Areas occur where the terrain is generally steep and rugged. Recreation use is primarily big game hunting and sightseeing.

### National Recreation Area (NRA)

The analysis area contains the Hells Canyon National Recreation Area (HCNRA) which is administered by the Wallowa-Whitman National Forest. Most of the parcels in the Imnaha drainage area are also within the HCNRA. The principal physical feature of the HCNRA is Hells Canyon. Where developed areas exist, they are rich in nature and are often associated with homesteads or old mining sites. Recreation opportunities within the HCNRA are emphasized by the 1975 HCNRA Act, provided that they are compatible with the other components for which the HCNRA was designated. Recreation use in this area is widely variable. The area is noted for rugged landscape and ecological diversity found in the Hells Canyon uplands and Wilderness and for the 180 plus miles of wild and scenic rivers. Due to this remote landscape, many users are drawn to the area for the abundance of relatively unroaded areas and highly controlled motorized vehicle access.

### Environmental Consequences

The following describes the anticipated environmental consequences on Recreation Opportunity Spectrum, Access, Recreational Facilities and Uses, and Specially Designated Areas.

### Recreation Opportunity Spectrum (ROS)

#### Alternative 1: Proposed Exchange

Table 86 displays the approximate acres of ROS designation for the conveyed and acquired parcels in the Proposed Land Exchange by forest. The acquired parcels were assumed to have the same ROS class as the closest representative NFS lands.

**Table 86. Alternative 1 – ROS Class Acres for Conveyed and Acquired Parcels by Forest**

ROS Class	MNF (acres)		UNF (acres)		WWNF (acres)		)
	Acquired Parcels	Conveyed Parcels	Acquired Parcels	Conveyed Parcels	Acquired Parcels	Conveyed Parcels	
Primitive	0	0	40	0	201	0	+241
Semi-Primitive Non-motorized	0	216	0	0	2023	1215	+592
Semi-primitive Motorized	2889	697	0	288	3507	762	+4649
Roaded Natural	2856	2241	8354	5070	6941	3048	+7792
Roaded Modified	401	2611	4012	2007	0	0	-205

**Table 86. Alternative 1 – ROS Class Acres for Conveyed and Acquired Parcels by Forest (contd)**

ROS Class	MNF (acres)		UNF (acres)		WWNF (acres)		
	Acquired Parcels	Conveyed Parcels	Acquired Parcels	Conveyed Parcels	Acquired Parcels	Conveyed Parcels	
Rural	0	0	0	14	491	14	+463
Urban	0	0	0	0	0	0	0
<b>Total</b>	<b>6146</b>	<b>5765</b>	<b>12,406</b>	<b>7379</b>	<b>13,163</b>	<b>5039</b>	<b>+13,532</b>

Alternative 1 would result in a net increase of all ROS class acres except for a reduction of 205 acres in Rooded Modified. The largest increases occur in Semi-primitive Motorized (4,649 acres) and Rooded Natural (7,792 acres).

Future potential changes in ROS class revealed in the Affected Environment discussion would occur under Alternative 1. Once increased regulation of OHV use begins, the cumulative effect trend towards changes in ROS class after the Proposed Land Exchange would stop.

### Alternative 2: No Action

The current mix of ROS classes would not immediately change. Future potential changes in ROS class revealed in the Affected Environment discussion would occur under Alternative 2. Once increased regulation of OHV use begins, the cumulative effect trend towards changes in ROS class would stop.

### Alternative 3: Purchase

Table 87 displays the approximate acres of ROS designation for the purchased parcels by forest. The purchased parcels were assumed to have the same ROS class as the closest representative NFS lands.

**Table 87. Alternative 3 – ROS Class for Purchased Parcels by Forest**

ROS Class	Increase in Area (acres)			
	MNF	UNF	WWNF	Total
Primitive	0	40	201	+241
Semi-Primitive Non-motorized	0	0	702	+702
Semi-Primitive Motorized	0	0	711	+711
Rooded Natural	0	190	1593	+1783
Rooded Modified	0	343	0	+343
Rural	0	0	445	+445
Urban	0	0	0	0
<b>Total</b>	<b>0</b>	<b>573</b>	<b>3652</b>	<b>+4,225</b>

Alternative 3 would result in a net increase of all ROS class acres. The largest increase would occur in Rooded Natural (1,783 acres), most of which would be on the Wallowa-Whitman National Forest. Future potential changes in ROS class would occur as described in the Affected Environment discussion.

**Alternative 4: Deed Restriction**

Table 88 displays the approximate acres of ROS designation for conveyed and acquired parcels in the Deed Restriction Exchange by forest. The acquired parcels were assumed to have the same ROS class as the closest representative NFS lands.

**Table 88. Alternative 4 – ROS Class for Conveyed and Acquired Parcels by Forest**

ROS Class	MNF (acres)		UMF (acres)		WWNF (acres)		Net Change (acres)
	Acquired Parcels	Conveyed Parcels	Acquired Parcels	Conveyed Parcels	Acquired Parcels	Conveyed Parcels	
Primitive	0	0	40	0	201	0	+241
Semi-Primitive Non-motorized	0	216	0	0	2023	1215	+592
Semi-Primitive Motorized	0	697	0	288	3423	762	+1676
Roaded Natural	258	2241	4048	5070	4633	3048	-1420
Roaded Modified	22	2611	1957	2007	0	0	-2639
Rural	0	0	0	14	491	0	+477
Urban	0	0	0	0	0	0	0
<b>Total</b>	<b>280</b>	<b>5765</b>	<b>6045</b>	<b>7379</b>	<b>10,771</b>	<b>5025</b>	<b>-1073</b>

Alternative 4 would result in a significant net decrease (4,059 acres) of ROS class Roaded Modified and Roaded Natural. The Wallowa-Whitman National Forest would realize a net increase in all ROS classes except for the Roaded Modified class, which would not be affected. The Umatilla and Malheur National Forests would both lose ROS class acres. Future potential changes in ROS class would occur as described in the Affected Environment discussion.

**Alternative 5: Preferred Alternative**

Table 89 displays the approximate acres of ROS designation for the conveyed and acquired parcels in the Preferred Alternative by forest. The acquired parcels were assumed to have the same ROS class as the closest representative NFS lands.

**Table 89. Alternative 5 – ROS Class for Conveyed and Acquired Parcels by Forest**

ROS Class	MNF (acres)		UMF (acres)		WWNF (acres)		Net Change (acres)
	Acquired Parcels	Conveyed Parcels	Acquired Parcels	Conveyed Parcels	Acquired Parcels	Conveyed Parcels	
Primitive	0	0	40	0	201	0	+241
Semi-Primitive Non-motorized	0	216	0	0	1741	416	+1109
Semi-Primitive Motorized	2895	697	0	288	3792	1562	+4140

**Table 89. Alternative 5 – ROS Class for Conveyed and Acquired Parcels by Forest (contd)**

ROS Class	MNF (acres)		UMF (acres)		WWNF (acres)		Net Change (acres)
	Acquired Parcels	Conveyed Parcels	Acquired Parcels	Conveyed Parcels	Acquired Parcels	Conveyed Parcels	
Roaded Natural	2,856	2241	8192	4010	6,463	2,927	+8333
Roaded Modified	241	2611	3966	1491	0	0	+105
Rural	0	0	0	0	450	14	+436
Urban	0	0	0	0	0	0	0
<b>Total</b>	<b>5992</b>	<b>5765</b>	<b>12,198</b>	<b>5789</b>	<b>12,647</b>	<b>4919</b>	<b>+14,364</b>

**Summary- All Alternatives**

Table 90 compares net change in ROS class by alternative. The Urban ROS class is not affected by the alternatives evaluated in detail. Alternative 1 has a net increase of 13,532 acres in ROS classes. This increase is over three times the net increase of Alternative 3. Alternative 4 has a net ROS class decrease of 1,073 acres.

Alternative 1 would realize more net acre increase in the developed end of the ROS scale than the other action alternatives by adding 8,050 acres but would also make available an additional 5,482 acres of recreation opportunity at the more primitive end of the scale. Alternative 3 would also realize more net increase in the developed end of the ROS scale but contributes significantly less recreation opportunity at both ends of the scale than Alternative 1. Alternative 4 would realize a net increase of 2,509 acres at the primitive end of the scale but would result in a loss of 3,582 acres at the developed end of the ROS scale. Alternative 5 would realize more net acre increase in the developed end of the ROS scale than any other action alternatives by adding 8,874 acres. This alternative would also make available an additional 5,490 acres of recreation opportunity at the more primitive end of the scale. Alternative 5 would add an additional 8 acres more than Alternative 1 at the more primitive end of the scale.

**Table 90. Comparison of Net Changes in ROS Class Acres by Alternative**

ROS Class	Net Change in Area (Acres)				
	Alternatives				
	1	2	3.	4	5
Primitive	+241	0	+241	+241	+241
Semi-Primitive Non-motorized	+592	0	+702	+592	+1,109
Semi-Primitive Motorized	+4,649	0	+711	+1,676	+4,140
Roaded Modified	-205	0	+1,783	-2,639	+105
Roaded Natural	+7,792	0	+343	-1,420	+8,333



**Table 90. Comparison of Net Changes in ROS Class Acres by Alternative (contd)**

ROS Class	Net Change in Area (Acres)				
	Alternatives				
	1	2	3.	4	5
Rural	+463	0	+445	+477	+436
Urban	0	0	0	0	0
<b>Total</b>	<b>13,532</b>	<b>0</b>	<b>4,225</b>	<b>-1,073</b>	<b>14,364</b>

### Access

Refer to Table 91 road status exchange miles in each forest by alternative and Table 92 total road miles of open, closed and no change by alternative for the following alternative comparison discussion.

**Table 91. Roads to Be Acquired, Conveyed, or No Change in Each Forest by Alternative**

Road Status	Alternative 1			Alternative 3			Alternative 4			Alternative 5		
	Total Roads	Closed Roads	Open Roads	Total Roads	Closed Roads	Open Roads	Total Roads	Closed Roads	Open Roads	Total Roads	Closed Roads	Open Roads
<b>Malheur</b>												
Roads Acquired	18.5	7.7	10.8	0	0	0	0	0	0	17.6	6.9	10.7
Roads Conveyed	35.6	24.2 *	11.3 *	0	0	0	35.6	24.2 *	11.3 *	35.6	24.2*	11.4*
Roads With No Change	18.3	3.2	15.1	0	0	0	8.1	2.7	5.4	18.3	3.2	15.1
<b>Totals</b>	<b>72.4</b>	<b>35.1</b>	<b>37.3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>43.7</b>	<b>27</b>	<b>16.7</b>	<b>71.5</b>	<b>34.3</b>	<b>37.2</b>
<b>Umatilla</b>												
Roads Acquired	47.1	24.8	22.3	0	0	0	27.4	19.1	8.3	46.2	24.4	21.8
Roads Conveyed	20.1	13.5 *	6.6 *	0	0	0	20.1	13.5 *	6.6 *	16.6	12.3*	4.3*
Roads With No Change	24.8	4.1	20.7	2.5	0.9	1.6	19.7	4.1	15.7	23.6	4.1	19.5
<b>Totals</b>	<b>92.0</b>	<b>42.4</b>	<b>49.5</b>	<b>5.4</b>	<b>3.8</b>	<b>1.6</b>	<b>67.2</b>	<b>36.7</b>	<b>30.5</b>	<b>86.4</b>	<b>40.8</b>	<b>45.7</b>
<b>Wallowa-Whitman</b>												
Roads Acquired	35.4	16.2	19.2	5.5	4.8	0.7	25.6	13.4	12.2	32.0	14.0	18.0
Roads Conveyed	3.8	0.1 *	3.7 *	0	0	0	3.8	0.1 *	3.7 *	3.8	0.1*	3.7*
Roads With No Change	23.2	4.4	18.8	6.5	0	6.5	21.2	3.3	17.9	22.1	3.4	18.7
<b>Totals</b>	<b>62.5</b>	<b>20.7</b>	<b>41.7</b>	<b>12</b>	<b>4.8</b>	<b>7.2</b>	<b>50.7</b>	<b>16.9</b>	<b>33.8</b>	<b>57.9</b>	<b>17.5</b>	<b>40.4</b>
<b>GRAND TOTAL</b>	<b>226.8</b>	<b>98.3</b>	<b>128.5</b>	<b>17.5</b>	<b>8.6</b>	<b>8.9</b>	<b>161.6</b>	<b>80.6</b>	<b>81.1</b>	<b>215.9</b>	<b>92.6</b>	<b>123.3</b>

1) On roads being conveyed, the above table shows the number of miles which are currently open versus currently closed. Following conveyance of the underlying roads, whether the road remains open or closed will be totally at the discretion of the receiving private party.

**Table 92. Miles of Conveyed and Acquired Open and Closed Roads by Alternative**

Road Status	Alternative 1			Alternative 3			Alternative 4			Alternative 5		
	Total	Closed	Open	Total	Closed	Open	Total	Closed	Open	Total	Closed	Open
<b>Total Acquired</b>	101	48.7	52.3	8.5	7.8	0.7	53	32.5	20.5	95.8	45.3	50.5
<b>Total Conveyed</b>	59.5	37.8	21.6	0	0	0	59.5	37.8	21.6	56.0	36.6	19.3
<b>Total no change</b>	66.3	11.7	54.6	9	0.9	8.1	49	10.1	39	64.0	10.7	53.3
<b>TOTAL</b>	<b>226.8</b>	<b>98.2</b>	<b>128.5</b>	<b>17.5</b>	<b>8.7</b>	<b>8.8</b>	<b>161.5</b>	<b>80.4</b>	<b>81.1</b>	<b>215.8</b>	<b>92.6</b>	<b>123.1</b>

### Alternative 1: Proposed Exchange

Alternative 1 would have beneficial effects to recreationists from increased access associated with acquired parcels. In many cases, public access to or through parcels would not change because the access is a public route (County, State, or Federal), the NF currently has a right-of-way, or the NF would reserve a right-of-way as a condition of the conveyance. Public access on 66.3 miles of road would not change under this alternative. An additional 59.5 miles of road would be conveyed, and approximately 101 miles of road would be acquired. The net effect of this alternative on road access to NFS lands would be a substantial increase associated with the 101 miles of roads on acquired parcels accompanied by a minimal decrease associated with the 59.5 miles of roads on conveyed parcels. This decrease in access on the conveyed parcels would be minimal because none of these 59.5 miles of road provide through access to NFS lands. Any route that provides through access to NFS lands would have a right-of-way retained as a condition of the conveyance. The 59.5 miles of conveyed roads would be subject to landowner permission for public access.

In some cases, roads on parcels that would be acquired have been used under prescriptive rights to access adjacent NF parcels. Acquiring the roads and parcels would resolve these unperfected public access issues.

The parcels in the Hamilton Ridge area, FM15 (325 acres), FM16A (246 acres), FM16B (82 acres), FM17 (596 acres), FM18 (480 acres), FM19 (309 acres) and FM20 (41 acres) are popular among residents of Monument, Hamilton, and Long Creek for firewood gathering and big-game hunting. Recreation activities would no longer be available to the public within these areas, primarily affecting residents of Hamilton and Monument. However, public access on routes 4020-201, 4020-204, 4020-205, and 4020-206 would be retained, allowing access to NFS lands beyond Parcel FM17. Some acquired parcels on the Malheur National Forest would provide additional opportunities for big game hunting opportunities and firewood gathering for local residents of Fox and Long Creek. Parcels PM15 (80 acres), PM16 (124 acres), PM17 (162 acres), PM18 (481 acres), PM19 (628 acres), and PM20 (483 acres) would provide these types of opportunities to some of the local communities. On the Umatilla National Forest, Parcel FU25 (39 acres) is a popular elk hunting area among local residents. There is a concern that this area would become a fee hunting area if it is transferred to private ownership. It was assumed that under Alternative 1, motorized public access would be restricted to Forest Road 5300, and hunting opportunities on the 39 acres could be lost for the general public. However, most hunters in the area utilize Forest Road 5326, which is just south of Parcel FU25 for access to the adjoining National Forest.

This alternative provides opportunities to resolve trail right-of-way issues. On the Wallowa-Whitman National Forest, a total of 5.7 miles of trail are located on acquired parcels. This includes portions of Trails 1698, 1710, 1724, 1732, 1738A, 1753, 1768, 1820, and 1879. On the Malheur National Forest, approximately 1 mile of trail is located on acquired parcels (Trails 258 and 259). On the Umatilla National Forest, approximately 0.57 miles of trail are located on acquired parcels (Trails 3246 and 3247). Most of these trails were established through long-term use and were not accompanied by recorded rights-of-way for public use. Alternative 1 completely resolves public access issues for Trails 1732 (Bench Trail near Spain Saddle), 1820 (South Fork Imnaha River Trail at Hawkins Pass), 1698 (Corral Creek Trail), 1753 (Falls Creek Trail), and 1768 (Cayuse Flat Trail). Public access through the acquired parcels that cross these trails has been by prescriptive rights in the past. Acquiring parcels bisected by Trails 1710 (Horse Creek Trail), 1724 (Spain Saddle to Tulley Creek), and 1738A (Haas Hollow) on the Wallowa-Whitman would resolve some of the public access issues associated with these trails. These trails bisect other private parcels that are not included in the Proposed Land Exchange. Public access on the private lands not included in the Proposed Land Exchange would continue to be an issue because no public right-of-way exists. Conveyed parcels in Alternative 1 have no FS system trails.

The Nez Perce Trail, as designated in the 1990 National Historic Trail Comprehensive Management Plan (USDA 1990), crosses Parcels PW50, PW21D, PW15A, PW12, PW8B, and PW8C. Because this trail is designated as a High Potential Route Segment, other parcels to be acquired in the area (such as PW18, PW16A, PW16C, PW16D, PW15B, PW13A, PW10B, PW7C, PW8A, PW2A, PW2B, and PW2C) may have been used during the 1877 flight of the non-treaty Nez Perce. Acquisition of these parcels does not place the entire trail system from Indian Village to Dug Bar under federal administration, but it acquires ownership along approximately 2 miles of the high-potential route segment and leaves less than one mile of the designated route on private land. Acquisition of these segments and surrounding parcels would not necessarily change the status of the trail, but it would allow for greater opportunities to maintain the trail through non-profit partnerships. It also increases options for raising awareness of the trail and providing interpretation regarding the trail's designation and historic significance.

Long-time users (especially campers and those driving for pleasure) would lose recreation opportunities on conveyed parcels, although they would continue to be able to drive on existing roads where rights-of-ways would be retained on routes to NFS lands. Some recreationists who would prefer to use sites or areas they are familiar with, or have traditionally used for camping or other activities may be forced out of conveyed areas. These conveyed parcels may have new access restrictions.

### **Alternative 2: No Action**

Access to Federal, State of Oregon and private lands would remain the same. Changes to public access on Federal parcels would evolve from other projects (i.e., timber sales, etc.). Access on private parcels could be altered if lands were sold or if owners decided to change current access policies. Public access to fishing on the Imnaha River would continue to be very limited.

There would be continued dissatisfaction or confusion of some trail users. This would occur on trails that cross private property where there is no identified route to follow or access is restricted (Refer to discussion in Alternative 1). In some cases, this has resulted in additional trails being developed by the public. The use of trails with no public right-of-way could lead to inadvertent or deliberate trespass on private property. All of these situations are now occurring in the parcels proposed for acquisition in Alternative 1 within the HCNRA and Eagle Cap Wilderness.

There would be no change to ownership along the Nez Perce Trail. Threats to the trail's integrity from private land development, such as powerline or communications facility installation, would continue. Considering the midslope location and steep topography of several of the parcels involved in the

exchange, this threat of development is low, but it still exists. Of particular risk are trail segments across or near Parcels PW50 and PW21D because the topography is gentle and more susceptible to disturbance associated with development.

### **Alternative 3: Purchase**

Since no Federal land would be conveyed, Alternative 3 would provide the least possible disruption to visitors and recreationists because access would only increase. Dispersed camp sites and other use areas on Federal parcels to convey in Alternative 1 would remain NFS lands. The Hamilton Ridge area and parcel FU25 would remain under Federal management, resulting in continued public firewood gathering and hunting. The FS would manage purchased parcels with the appropriate existing Forest Plans, as amended. The increased access scenarios described in the Alternative 1 effects discussion would occur, but to a considerably smaller extent because 9,320 fewer net acres would be acquired. Public access on 9.0 miles of road would not change under Alternative 3. No miles of road would be conveyed, and approximately 7.8 miles of road would be acquired.

This alternative provides some opportunities to resolve trail right-of-way issues. On the Wallowa-Whitman National Forest, a total of 2.8 miles of trail are located on purchased parcels. This includes portions of Trails 1710, 1738A, 1820, and 1879. On the Malheur and Umatilla National Forests, no parcels with trails would be purchased. Increased public access on the above Wallowa-Whitman trails would resolve some of the similar management problems as described in the Alternative 1 discussion.

The type of effects on the Nez Perce Trail described for Alternative 1 would occur under Alternative 3, but to a lesser extent because fewer parcels along and adjacent to the high potential route segment would be acquired. Alternative 3 would acquire parcels PW21D, PW16C, PW16A, PW13A, and PW10B. Less than 0.1 mile of the high potential route segment would be acquired (Parcel PW21D), leaving over 3 miles of the designated segment from Indian Village to Dug Bar on private lands. On these private land segments of the trail, the threats to trail integrity for Alternative 2 would continue.

### **Alternative 4: Deed Restriction**

This alternative conveys the same parcels as Alternative 1 but acquires 1,053 acres less than would be conveyed. Public access on 49.0 miles of road would not change under this alternative. An additional 59.5 miles of road would be conveyed, the same as Alternative 1. Approximately 53.0 miles of road would be acquired. This alternative acquires approximately half the total acquired miles than would occur under Alternative 1. The net effect of this alternative on road access to the National Forest would be an increase associated with the 53 miles of roads on acquired parcels accompanied by a minimal decrease associated with the 59.5 miles of roads on conveyed parcels. Decrease in access on the conveyed parcels would be minimal for the same reasons explained in the Alternative 1 discussion. Since the same Federal land would be conveyed as Alternative 1, Alternative 4 would likely provide the most disruption to visitors and recreationists. Under this alternative, replacement of dispersed hunting camps and other sites lost to private lands would likely be more difficult to find since there would be a net loss of Federal acres. Alternative 4 conveys the Hamilton Ridge parcels and parcel FU25, therefore the effects on wood gathering and hunting in these areas would be similar to Alternative 1.

This alternative provides opportunities to resolve trail right-of-way issues. On the Wallowa-Whitman National Forest, a total of 5.7 miles of trail are located on acquired parcels. This includes portions of Trails 1698, 1710, 1724, 1738A, 1753, 1768, 1820, and 1879. On the Malheur National Forest, approximately 1 mile of trail is located on acquired parcels (Trails 258 and 259). On the Umatilla National Forest, no parcels with trails would be acquired. Increased public access on NF trails would

resolve similar management problems as described in the Alternative 1 discussion except portions of trail 1732 and trails on the Umatilla would not be acquired.

Effects on the Nez Perce Trail would be the same as described for Alternative 1 because the same parcels along Forest Road 4260 would be acquired.

**Alternative 5: Preferred Alternative**

This alternative acquires and conveys a similar level of access roads as Alternative 1. Because some of the parcels identified in Alternative 1 were dropped from consideration in Alternative 5, slightly less access would be acquired and conveyed. However, the difference between the two alternatives would not be enough to warrant a change in the discussion of effects.

Effects on the Nez Perce Trail would be the same as described for Alternative 1 because the same parcels along the high potential route segment would be acquired.

**Recreational Facilities and Associated Uses**

There are no developed recreation facilities or campgrounds on the exchange parcels therefore no direct effects would occur from any alternative. However, some indirect effects on the existing facilities within the analysis area could occur from action alternatives due to increased trail use. These effects would likely include increased pumping frequency at the Lower Imnaha Trailhead toilet or the need for additional informational signs about trail locations and changes in ownership.

**Wild and Scenic River Corridors**

**Alternatives 1 and 5: Proposed Exchange and Preferred Alternative**

A measurement indicator of the change in Wild and Scenic River Outstandingly Remarkable Values (ORVs) is the net reduction or increase in acres within or adjacent to each wild and scenic river corridor. Table 93 lists Alternatives 1 and 5 acquired and conveyed parcels in each wild and scenic river corridor.

**Table 93. Alternative 1 – Acquired and Conveyed Parcels in Wild and Scenic River Corridors**

Parcel	Total Parcel (acres)	Parcel Acres within Wild and Scenic River Corridor			
		Imnaha	Wenaha	North Fork John Day	Eagle Creek
<b>Acquired Parcels</b>					
PW1	11	11	0	0	0
PW2A	22	22	0	0	0
PW2B	37	32	0	0	0
PW10A	63	63	0	0	0
PW10B	101	101	0	0	0
PW13A	43	43	0	0	0
PW13B	83	43	0	0	0
PW13C	63	63	0	0	0
PW13D	8	8	0	0	0

**Table 93. Alternatives 1 and 5 – Acquired and Conveyed Parcels in Wild and Scenic River Corridors (continued)**

Parcel	Total Parcel (acres)	Parcel Acres within Wild and Scenic River Corridor			
		Imnaha	Wenaha	North Fork John Day	Eagle Creek
<b>Acquired Parcels</b>					
PW16A	39	39	0	0	0
PW16B	115	80	0	0	0
PW16C	302	222	0	0	0
PW16E	162	158	0	0	0
PW20A	159	129	0	0	0
PW20B	224	50	0	0	0
PW20C	151	126	0	0	0
PW21C	75	20	0	0	0
PW23B	75	4	0	0	0
PW25A	186	47	0	0	0
PW25B	65	45	0	0	0
PW25C	180	60	0	0	0
PW25D	175	160	0	0	0
PW25E	74	35	0	0	0
PW27A	80	10	0	0	0
PW27C	127	77	0	0	0
PU1A	230	0	10	0	0
PW38	311	0	0	0	252 <sup>1</sup>
PU16F	343	0	0	211	0
PU16G	31	0	0	31	0
PU16H	424	0	0	20	0
<b>Totals</b>		<b>1648</b>	<b>10</b>	<b>262</b>	<b>252<sup>1</sup></b>
<b>Conveyed Parcels</b>					
FW8	83	40			
<b>Totals</b>		<b>40</b>			

1) This parcel lies outside but immediately adjacent to the designated Eagle Creek Wild & Scenic River corridor

### **Imnaha Wild and Scenic River**

All of the acquired parcels (1,648 acres) in the Imnaha River Corridor would enhance the river's ORVs. One of the main enhancements would include providing angler access that is currently very limited. Additional access would dramatically increase all the recreation opportunities for the general public. Other anticipated benefits would include opportunities to improve visuals and control incompatible access. The Fisheries and Heritage sections also discuss the benefits resulting from a net increase in Federal management along the Imnaha River.

The only conveyed parcel in a wild and scenic river corridor (parcel FW8) would be subject to Oregon State Waterway laws as well as county land use planning allocations and zoning. Also, land use and development would be subject to 36 CFR 292.20 through 292.25, Private Land Use Regulations for the

HCNRA. Changes to existing uses or proposals for new uses and/or development would require a “Certificate of Compliance” as defined in 36 CFR 292.24. Also, all existing and proposed uses and/or development on the 40 acres within the corridor would be subject to the Standards and Guides for Private Lands as documented in the Imnaha River Wild and Scenic River Management Plan. The conveyance of 40 acres within the Imnaha River Wild and Scenic River corridor would not detract from the corridor’s ORVs. Parcel FW8 is across the Imnaha River from the County Road and has no legal public access. Conveying this parcel would not detract from recreation and fishing ORVs.

### **Wenaha Wild and Scenic River**

The acquired 10 acres would result in positive effects to the rivers’ ORVs by increasing access for recreational uses and increased opportunities for enhanced management. No area within the corridor would be conveyed.

### **North Fork John Day Wild and Scenic River**

All of the acquired parcels (262 acres) in this River Corridor would enhance the river’s ORVs. No area within the corridor would be conveyed. Positive effects to the river’s ORVs include increased access for recreational uses, increased opportunities to manage for improved fish habitat and to protect existing cultural resource sites from disturbance.

### **Eagle Creek Wild and Scenic River**

All of the acquired parcels (252 acres) are adjacent to the River Corridor and would enhance the ORVs. No area within the corridor would be conveyed. Positive effects to the ORVs include increased access for recreational uses, increased opportunities to manage for improved fish habitat and to protect existing cultural resource sites from disturbance.

### **Alternative 2: No Action**

The wild and scenic river corridors would retain the existing ownership pattern. ORVs would be managed in accordance with this ownership pattern and existing laws, regulations and management plans.

### **Alternative 3: Purchase**

Alternative 3 would purchase all parcels within the Wild and Scenic Imnaha River Corridor except for parcels PW16B (80 acres in corridor), PW20B (50 acres in corridor), PW25E (35 acres in corridor) and PW27A (10 acres in corridor). Many of the acquired parcels with land in the Imnaha River corridor would substantially improve access to fishing along the lower river segment. There would be 10 acres purchased in the Wenaha corridor. There would be no acres purchased adjacent to the Eagle Creek corridor and parcel PU16F (211 acres in corridor) would be purchased in the N. Fork John Day corridor. The effects to ORVs would be similar to those described in Alternative 1 except there would be fewer acres purchased in the Imnaha and N. Fork John Day river corridors and no acres acquired adjacent to the Eagle Creek corridor.

### **Alternative 4: Deed Restriction**

Alternative 4 would acquire all parcels within the Wild and Scenic Imnaha River Corridor, Wenaha Corridor and the N. Fork John Day River Corridor except Parcel PW38 (252 acres adjacent to the corridor) would not be acquired adjacent to the Eagle Creek River Corridor. Parcel FW8 (40 acres in Imnaha River corridor) would be conveyed as would be the case in Alternative 1. The effects would be similar to those described in Alternative 1, except the Eagle Creek Corridor would not benefit from adding Federal acres adjacent to this corridor. The deed restrictions in this alternative would not greatly influence management options to improve recreational opportunities and ORVs within the river corridors.

Existing private land regulations associated with State of Oregon land use laws and local zoning ordinances adequately protect the rivers' corridors.

### Summary- All Alternatives

Table 94 shows the net change in acres within the four affected wild and scenic river corridors. Alternatives 1 and 5 have the largest acre increase followed by Alternative 4 and then 3. Alternatives 1 and 5 would provide the most benefit to the public because the additional Federal acres would allow more management options for maintenance and enhancement of the ORVs within the river corridors. The additional acres would also provide increased public access opportunities for enjoyment of the ORVs.

**Table 94. Wild and Scenic River Corridor Net Acre Change by Alternative**

Alternatives				
1	2	3	4	5
+2,132 <sup>1</sup>	0	+1,694	+1,880	+2,132 <sup>1</sup>

1) Includes 252 acres adjacent to rather than within the Eagle Creek Wild & Scenic River corridor

### Wilderness

There would be no change to the existing condition under the No Action Alternative. All action alternatives would acquire the same acres within three wilderness areas. Table 95 displays the four parcels that would be acquired within wilderness boundaries. The action alternatives would not convey parcels within the Eagle Cap, Hells Canyon and Wenaha-Tucannon Wilderness areas.

**Table 95. Action Alternatives – Acquired Parcels in Wilderness**

Parcel	Total Parcel Size (acres)	Acres Acquired within Wilderness		
		Eagle Cap	Hells Canyon	Wenaha-Tucannon
PW29	143	0	143	0
PW47A	11	11	0	0
PW47B	47	47	0	0
PU1A	230	0	0	42
<b>Totals</b>		<b>58</b>	<b>143</b>	<b>42</b>

Parcel PW29 would improve trail user satisfaction by connecting trail #1879 that is currently transected by this private land. Similarly, parcels PW47A and B would reduce confusion of trail users in the Eagle Cap Wilderness. Acquisition of Parcel PU1A would not affect trail use as no trails are located in this parcel. Acquiring these parcels would improve and enhance the Wilderness experience and management of this resource. Acquiring lands within these wilderness boundaries is in compliance with the management of each wilderness as well as the Wilderness Act of 1964. Acquisition alleviates any risk of development that would not be in keeping with the adjacent wilderness setting and NF management objectives.

Parcels PW35A, B, and C (458 acres) are directly adjacent to the Eagle Cap Wilderness and could become candidates for future Wilderness additions. These parcels would be acquired in Alternatives 1, 4 and 5, but not in Alternative 3.



## Inventoried Roadless Areas

### Alternative 1: Proposed Exchange

The potential change to Inventoried Roadless Areas can be shown by the net reduction or increase in acres within and adjacent to each Inventoried Roadless Area. Table 96 lists Alternative 1 acquired and conveyed parcels by forest in each roadless area and displays current development status by parcel.

**Table 96. Alternative 1 – Parcels Adjacent to or within Inventoried Roadless Areas**

Inventoried Roadless Area	Parcel	Acres within or Adjacent to Inventoried Roadless Area			Current Status
		MNF	UNF	WWNF	
Shaketable	PM30	+641	0	0	Roaded
Nipple Butte	PM8B	+109	0	0	Roaded
Aldrich Mountain	PM28	+161	0	0	Unroaded
Aldrich Mountain	PM29	+44	0	0	Unroaded
W-T Three	PU1A	0	+230	0	Roaded
W-T Three	PU1B	0	+521	0	Roaded
Horseshoe	FU1	0	-5	0	Roaded
Hurricane Ridge	PW35A	0	0	+229	Unroaded
Hurricane Ridge	PW35B	0	0	+153	Unroaded
Hurricane Ridge	PW35C	0	0	+76	Unroaded
Hurricane Ridge	FW13	0	0	-118	Unroaded
Imnaha Face	PW25E	0	0	+74	Roaded
Imnaha Face	PW26B	0	0	+157	Roaded
Imnaha Face	PW27A	0	0	+80	Unroaded
Imnaha Face	PW27C	0	0	+127	Roaded
Imnaha Face	PW28	0	0	+119	Unroaded
Imnaha Face	FW7	0	0	-121	Unroaded
Imnaha Face	FW8	0	0	-83	Roaded
Tope Creek	PW39B	0	0	+572	Roaded
Tope Creek	PW39D	0	0	+83	Roaded
Tope Creek	PW40	0	0	+163	Roaded
Tope Creek	FW25A	0	0	-576	Roaded
Tope Creek	FW25B	0	0	-59	Roaded
Tope Creek	FW26	0	0	-247	Unroaded
Snake River	PW3	0	0	+564	Roaded
Snake River	PW4	0	0	+40	Roaded
Snake River	PW5	0	0	+40	Unroaded

**Table 96. Alternative 1 – Parcels Adjacent to or within Inventoried Roadless Areas (continued)**

Inventoried Roadless Area	Parcel	Acres within or Adjacent to Inventoried Roadless Area			Current Status
		MNF	UNF	WWNF	
Snake River	PW10A	0	0	+63	Roaded
Snake River	PW11	0	0	+41	Roaded
Snake River	PW13B	0	0	+83	Unroaded
Snake River	PW13C	0	0	+63	Unroaded
Snake River	PW16A	0	0	+39	Roaded
Snake River	PW16B	0	0	+115	Roaded
Snake River	PW16E	0	0	+162	Roaded
Snake River	PW17A	0	0	+118	Unroaded
Snake River	PW17B	0	0	+399	Roaded
Snake River	PW19A	0	0	+21	Unroaded
Snake River	PW19B	0	0	+201	Roaded
Snake River	PW19C	0	0	+162	Roaded
Snake River	PW22	0	0	+41	Unroaded
Snake River	PW26A	0	0	+315	Roaded
Snake River	PW26C	0	0	+155	Roaded
Snake River	PW48	0	0	+233	Roaded
Buckhorn	PW1	0	0	+11	Unroaded
Buckhorn	PW6	0	0	+9	Unroaded
Buckhorn	PW7A	0	0	+83	Unroaded
Buckhorn	PW7B	0	0	+244	Unroaded
Buckhorn	PW7C	0	0	+118	Roaded
Buckhorn	PW8A	0	0	+429	Roaded
Buckhorn	PW8B	0	0	+258	Roaded
Buckhorn	PW8C	0	0	+39	Roaded
Buckhorn	PW12	0	0	+257	Roaded
Buckhorn	PW14	0	0	+649	Unroaded
Buckhorn	PW15A	0	0	+187	Roaded
Buckhorn	PW15B	0	0	+87	Roaded
Buckhorn	PW16C	0	0	+302	Roaded
Buckhorn	PW16D	0	0	+80	Roaded
Buckhorn	PW18	0	0	+41	Roaded
Buckhorn	PW20A	0	0	+159	Roaded
Buckhorn	PW20B	0	0	+224	Roaded
Buckhorn	PW20C	0	0	+151	Roaded
Buckhorn	PW21A	0	0	+81	Unroaded
Buckhorn	PW21B	0	0	+76	Unroaded

**Table 96. Alternative 1 – Parcels Adjacent to or within Inventoried Roadless Areas (continued)**

Inventoried Roadless Area	Parcel	Acres within or Adjacent to Inventoried Roadless Area			Current Status
Buckhorn	PW21C	0	0	+75	Roaded
Buckhorn	PW21D	0	0	+151	Roaded
Buckhorn	PW23A	0	0	+39	Roaded
Buckhorn	PW 23B	0	0	+75	Roaded
Buckhorn	FW1D	0	0	-325	Unroaded
Buckhorn	FW1E	0	0	-127	Roaded
Sheep Divide	PW24A	0	0	+67	Roaded
Sheep Divide	PW24B	0	0	+53	Roaded
Sheep Divide	PW24C	0	0	+31	Roaded
Sheep Divide	PW24D	0	0	+41	Roaded
Sheep Divide	PW25A	0	0	+186	Roaded
Sheep Divide	PW25B	0	0	+65	Roaded
Sheep Divide	PW25C	0	0	+180	Roaded
Sheep Divide	PW25D	0	0	+175	Roaded
Sheep Divide	PW31	0	0	+183	Roaded
Sheep Divide	FW6A	0	0	-42	Roaded
Sheep Divide	FW6C	0	0	-43	Roaded
Sheep Divide	FW6F	0	0	-41	Roaded
Deadhorse	FW6B	0	0	-38	Unroaded
Deadhorse	FW6D	0	0	-43	Unroaded
Deadhorse	FW6E	0	0	-38	Roaded
Subtotal Roaded Parcels		+750	+746	+6,309	
Subtotal Unroaded Parcels		+205	0	+ 1,284	
<b>Grand Total</b>		<b>+955</b>	<b>+746</b>	<b>+7,593</b>	

Similar to wilderness areas, Inventoried Roadless Areas have intrinsic value of less modified and less accessible landscapes. Acquiring parcels that can contribute to these areas or be rehabilitated to fit the adjacent roadless character could be beneficial to the roadless character.

Alternative 1 would add the greatest area within or directly adjacent to Inventoried Roadless Area boundaries when compared to the other alternatives. A net total of 9,294 acres of parcels within or adjacent to IRAs would be acquired. Of this total, 84 percent (7,805 acres) involves area that is currently roaded. Therefore, a corresponding increase in area exhibiting roadless character would not necessarily occur. Acquisition of parcels adjacent to the Aldrich Mountain and Hurricane Ridge IRAs are examples where roadless character would increase because the acquired parcels are currently unroaded. The Wallowa-Whitman National Forest would acquire the greatest amount of area within or adjacent to IRAs with a net total of 7,442 acres acquired. Of these acres, 6,158 acres are currently roaded and 1,284 acres are unroaded.

**Alternative 2: No Action**

With no lands being exchanged, there would be no change to the Inventoried Roadless Areas.

**Alternative 3: Purchase**

Alternative 3 would result in a net increase of 3,060 acres of parcels within or adjacent to roadless areas on the Wallowa-Whitman National Forest. Approximately 85 percent of the area associated with this increase (2,586 acres) is already roaded, so this increase would not necessarily increase the expanse of area that actually contains roadless character.

On the Malheur National Forest, Alternative 3 would not involve parcels within or adjacent to IRAs. On the Umatilla National Forest, 230 acres within or adjacent to the W-T Three IRA would be acquired and 5 acres within or adjacent to the Horseshoe IRA would be conveyed. These changes would be negligible with respect to the entire IRA sizes. These parcels are also already roaded; therefore, their acquisition or conveyance would not influence the continuity of areas that actually contain roadless character. The Recreation Specialist Report in the PR lists all Alternative 3 parcels purchased in or adjacent to IRAs.

**Alternative 4: Deed Restriction**

Alternative 4 would be the same as Alternative 1 with respect to Inventoried Roadless Areas on the Wallowa-Whitman National Forest, except that a net reduction of 882 acres (parcels FW 25A, FW25B, and FW26) would occur with the Tope Creek IRA. This alternative would result in a 10 percent decrease in the size of the 8,674-acre Tope Creek Roadless Area. Parcels FW25A and FW25B (635 acres) contain roads, while Parcel FW26 (247 acres) does not. Therefore, not all of these conveyed acres would have roadless character.

On the Malheur National Forest, Alternative 4 would not involve parcels within or adjacent to IRAs. On the Umatilla National Forest, 230 acres within or adjacent to the W-T Three IRA would be acquired and 5 acres within or adjacent to the Horseshoe IRA would be conveyed. These changes would be negligible with respect to the entire IRA sizes. These parcels are also already roaded; therefore, their acquisition or conveyance would not influence the continuity of areas that actually contain roadless character. The Recreation Specialist Report in the PR lists all Alternative 4 parcels conveyed and acquired in or adjacent to IRAs.

**Alternative 5: Preferred Alternative**

Alternative 5 would be the same as Alternative 1 with respect to Inventoried Roadless Areas on the Wallowa-Whitman National Forest, except 59 fewer acres within or adjacent to roadless areas would be acquired. This reduction is related to changes in estimated acreages for Parcels PW25E (- 2 acres), PW27C (-2 acres), PW16C (-20 acres), PW24A (+3 acres), PW25B (-3 acres), and PW25D (-35 acres). The changes in the sizes of parcels PW16C, PW 27C, and PW24A were made because better information on the parcel sizes became available since the DEIS was published. The changes in the sizes of Parcels PW25B, PW25D, and PW25E resulted from the partitioning of portions of these parcels that were identified in the DEIS as portions to be delineated and removed from exchange consideration (Appendix D). Therefore, the effects of Alternative 5 on Inventoried Roadless Areas would be the same as Alternative 1.

On the Malheur and Umatilla National Forests, Alternative 5 would be the same as Alternative 1 because the same parcels within or adjacent to Inventoried Roadless Areas would be acquired and conveyed.

**Summary- All Alternatives**

Alternatives 1 would result in the largest increase within or adjacent to IRAs (Table 97). Alternative 5 would result in 59 fewer acres than Alternative 1 because of the parcel size adjustment explained above. Alternative 4 would result in an increase of 7,000 acres and Alternative 3 an increase of 3,290 acres within or adjacent to IRAs.

IRAs have intrinsic value of less modified and less accessible landscapes. The majority of acres added by each of the action alternatives are roaded therefore most of these acres would not have roadless characteristics.

**Table 97. Net Change in Inventoried Roadless Areas by Alternative**

Inventoried Roadless Area	Net Change in Acres within or Adjacent to Inventoried Roadless Areas				
	Alternatives				
	1	2	3	4	5
Shaketable	+641	0	0	0	+641
Nipple Butte	+109	0	0	0	+109
Aldrich Mountain	+205	0	0	0	+205
W-T Three	+751	0	+230	+230	+751
Horseshoe	-5	0	0	-5	-5
Hurricane Ridge	+340	0	0	+340	+340
Imnaha Face	+353	0	+246	+353	+349
Tope Creek	-64	0	0	-882	-64
Snake River	+2855	0	+1088	+2855	+2855
Buckhorn	+3373	0	+1120	+3373	+3353
Sheep Divide	+855	0	+606	+855	+820
Deadhorse	-119	0	0	-119	-119
<b>Total</b>	<b>+9,294</b>	<b>0</b>	<b>+3,290</b>	<b>+7,000</b>	<b>+9,235</b>

### National Recreation Areas

#### Alternative 1: Proposed Exchange

Alternative 1 would acquire 8,199 acres and convey 695 acres of area within the HCNRA (Table 98). Most of the parcels in the Imnaha drainage area are also within the HCNRA and would add to this management area. Similar to Inventoried Roadless Areas or wilderness areas, additional acreage serves to provide additional recreational and stewardship opportunities as previously described.

#### Alternative 2: No Action

With no lands being exchanged or purchased, there would be no change to ownership or recreation opportunities in the HCNRA.

### Alternative 3: Purchase

Alternative 3 would purchase 3,529 acres and convey no area within HCNRA. The beneficial aspects for acquiring parcels within the HCNRA identified in Alternative 1 would be applicable in Alternative 3 as well, but at a substantially decreased scale because about 4,000 fewer acres would be acquired.

### Alternative 4: Deed Restriction

Alternative 4 would acquire and convey the same area within the HCNRA as Alternative 1. The effects are the same as Alternative 1.

### Alternative 5: Preferred Alternative

Alternative 5 would acquire and convey almost the same area within the Hells Canyon National Recreation Area as Alternative 1. Alternative 5 would acquire 8060 acres and convey 695 acres (Table 98). This reduction of 62 acquired acres is related to changes in estimated acreages for Parcels PW16C (-20 acres), PW25B (-3 acres), PW25D (-35 acres), PW25E (-2 acres) and PW27C (-2 acres). The change in the size of Parcel PW16C and PW27C occurred because better information on the size of these parcels became available since the DEIS was published. Changes in the sizes of Parcels PW25B, PW25D, and PW25E resulted from the partitioning of portions of these parcels that were identified in the DEIS as portions to be delineated and removed from exchange consideration (Appendix D). The effects of Alternative 5 on the Hells Canyon National Recreation Area would be the same as Alternative 1.

**Table 98. HCNRA Acres Conveyed and Acquired by Alternative**

Parcel	Acres	Alternatives				
		1	2	3	4	5
<b>Parcels Acquired</b>						
PW1	11	11	0	11	11	11
PW2A	22	22	0	22	22	22
PW2B	37	37	0	37	37	37
PW2C	2	2	0	0	2	2
PW3	564	564	0	0	564	564
PW4	40	40	0	0	40	40
PW5	40	40	0	0	40	40
PW6	9	9	0	0	9	9
PW7A	83	83	0	0	83	83
PW7B	244	244	0	0	244	244
PW7C	118	118	0	0	118	118
PW8A	429	428	0	0	429	429
PW8B	258	258	0	0	258	258
PW8C	39	39	0	0	39	39
PW10A	63	63	0	63	63	63
PW10B	101	101	0	101	101	101
PW11	41	41	0	41	41	41
PW12	257	257	0	0	257	257
PW13A	43	43	0	43	43	43
PW13B	83	83	0	83	83	83

**Table 98. HCNRA Acres Conveyed and Acquired by Alternative (continued)**

Parcel	Acres	Alternatives				
		1	2	3	4	5
<b>Parcels Acquired</b>						
PW13C	63	63	0	63	63	63
PW13D	8	8	0	8	8	8
PW14	649	649	0	0	649	649
PW15A	187	187	0	0	187	187
PW15B	87	87	0	0	87	87
PW16A	39	39	0	39	39	39
PW16B	115	115	0	115	115	115
PW16C	302	302	0	302	302	282
PW16D	80	80	0	0	80	0
PW16E	162	162	0	162	162	162
PW17A	118	118	0	0	118	118
PW17B	399	399	0	0	399	399
PW18	41	41	0	0	41	41
PW19A	21	21	0	0	21	21
PW19B	201	201	0	201	201	201
PW19C	162	162	0	162	162	162
PW20A	159	159	0	159	159	159
PW20B	224	224	0	0	224	224
PW20C	151	151	0	151	151	151
PW21A	81	81	0	81	81	81
PW21B	76	76	0	76	76	76
PW21C	75	75	0	75	75	75
PW21D	151	151	0	151	151	151
PW22	41	41	0	41	41	41
PW23A	39	39	0	39	39	39
PW23B	75	75	0	75	75	75
PW25A	186	186	0	186	186	186
PW25B	65	65	0	65	65	65
PW25C	180	180	0	180	180	180
PW25D	175	175	0	175	175	140
PW25E	74	74	0	0	74	72
PW26A	315	315	0	0	315	315
PW26B	157	157	0	0	157	157
PW26C	155	155	0	0	155	155
PW27A	80	80	0	0	80	80
PW27C	127	127	0	127	127	125
PW28	119	119	0	119	119	119

**Table 98. HCNRA Acres Conveyed and Acquired by Alternative (continued)**

Parcel	Acres	Alternatives				
		1	2	3	4	5
<b>Parcels Acquired</b>						
PW29	143	143	0	143	143	143
PW48	233	233	0	233	233	233
<b>Total</b>		<b>8199</b>	<b>0</b>	<b>3529</b>	<b>8199</b>	<b>8060</b>
<b>Parcels Conveyed</b>						
FW1D	325	325	0	0	325	325
FW1E	127	127	0	0	127	127
FW5	39	39	0	0	39	39
FW7	121	121	0	0	121	121
FW8	83	83	0	0	83	83
<b>Total</b>		<b>695</b>	<b>0</b>	<b>0</b>	<b>695</b>	<b>695</b>

## Fire and Fuels

The objective of this section is to assess all alternatives from fire suppression and fuels management perspectives. Specific data was not collected for this assessment, although current fuels conditions were interpreted from the FS global information system database stand exams, photos, and vegetation data collected from field reviews of individual parcels. The analysis area includes all of the land within Proposed Exchange parcels and the lands adjacent to these parcels.

## Affected Environment

Fire protection began in the project area in the early 1900s but did not become efficient until the 1940s. Fire was one of the major disturbances that shaped the analysis area prior to suppression activity. With continual occurrence of fire, large forested areas were maintained in early to mid-seral stages. Fuel accumulations from stand development and insect and disease were burned frequently enough to avoid heavy fuel loadings that would cause broad scale stand replacing wildland fires (except in very extreme conditions). This ever-changing mosaic of fire effects was interrupted by the advent of effective fire suppression. Recently, burned stands have acted as natural fuel breaks and tended to check the spread of subsequent fires.

Forest vegetation covers approximately 19,136 acres of private and State of Oregon land and 13,239 acres of NFS land proposed for exchange (Upland Forest Vegetation Report). Nearly all the private forested land to be acquired was logged, but the degree of logging ranges from light partial harvests (removal of the larger trees) to regeneration harvest (removal of nearly all trees). Private harvested areas have complied with State BMPs slash disposal requirements or would achieve compliance prior to the Proposed Land Exchange. It is not standard practice to follow harvest on private land with felling or removal of ladder fuels or to underburn. Harvested stands on private land are not necessarily less of a wildfire hazard than unharvested stands. NF parcels to convey generally have not had recent harvesting or fuels treatment. These lands have been protected from wildfire for fifty plus years resulting in many forested Federal parcels having heavier than desirable fuel loadings with intolerant species serving as ladder fuels.



The FS has an ongoing program designed to treat fuels and bring forested land to a desired future condition that resembles the natural conditions prior to efficient wildland fire suppression. This program involves time frames and costs beyond the scope of this analysis.

Most of the NF parcels to convey are either isolated individual parcels or extensions of Federal lands that make up irregular shaped boundaries. The private and State of Oregon lands to acquire are individual parcels that are either surrounded by NF lands or immediately adjacent to NF lands. Currently both the NF and the ODF have fire protection and initial attack responsibilities, depending upon the location of initial attack resources. Dispatch of initial attack resources is based on the closest resource regardless of agency. Changes in ownership would affect which agency has responsibility for fire protection, and the corresponding acres protected would change accordingly. Essentially all lands would still be covered with some sort of fire protection it is assumed. It is unknown if any unprotected lands exist in the analysis area. In general, most private lands receive fire protection from a state agency however there are some instances where if a landowner does not pay for protection, those lands are essentially unprotected.

## **Environmental Consequences**

The following is a general discussion related to the merits or disadvantages of each alternative. It is intended to provide an overview that will allow for comparison of alternatives.

### **Alternative 1: Proposed Exchange**

Most timbered parcels that would be acquired under this alternative have undesirable levels of surface fuels, and ladder fuels, and are in need of fuel reduction work. Heavily logged parcels have slash and slash piles contributing further to the problem and expense of treatment. It is not possible to estimate the extent of the fuels treatment work that would be required or the associated costs, but these costs would represent a net increase in cost compared to the No Action Alternative (FS, 2004h).

This alternative would block ownerships by reducing the number of inholdings. This would allow for fuel reduction work on public lands to be applied on larger scales with fewer boundary issues. Alternative 1 would result in a net reduction of 342 miles of National Forest boundary. The result would be less costly fuel treatments.

This alternative would achieve the maximum consolidation of ownership thereby providing for more efficient and cost effective fire protection. Also, Alternative 1 would provide a net gain of 41 miles of road for potential access during fire suppression activities (Table 92, Road Summary by Alternative). Alternative 1 reduces the complexity of the fire management situation. In consolidated areas, one landowner would likely be involved in fire suppression instead of having multi-jurisdictions where NF and ODF protected lands would be involved.

Under this alternative, the NF would gain larger parcels of private land in the Imnaha River area. This area is prone to large wildland fires due to the remoteness of the area, rugged terrain and steep slopes with fine fuels (grass and brush with some scattered timber in draws). The acres requiring FS fire protection would increase, but the FS is usually involved in the fire suppression of this area. The need to protect private property in the Imnaha River Area would be reduced thereby potentially reducing the complexity and jurisdictional concerns.

### **Alternative 2: No Action**

No significant change in fire suppression and fuel conditions would be anticipated during the 10-year analysis period. However, vegetative succession on all stands not harvested or treated for fuels would increase fuel loading since the majority of lands in the project area have biomass accumulating faster than

natural decomposition. Increased fuel loading over long periods sets the stage for an increasing likelihood that fires, when they do occur, would be at stand replacing intensity. It is anticipated that some private parcels to acquire if not exchanged would have rural home sites constructed by the private owners. Private homes, outbuildings, and other improvements on adjacent Federal lands would tend to increase the complexity and cost of fuel reduction and fire suppression activities.

### **Alternative 3: Purchase**

This alternative would only purchase approximately 4,249 acres and realize a net reduction of only 37 miles of National Forest boundary. Alternative 3 would provide a net gain of 8 miles of open road for potential access during fire suppression activities (Table 92).

Although this alternative would likely improve fuels management, fire suppression costs, and efficiency in certain areas, it would not provide the benefits achieved by Alternatives 1 or 4. The Purchase Alternative does not achieve the consolidation of land ownership and additional access needed to appreciably influence fire suppression and fuels management activities.

### **Alternative 4: Deed Restriction**

Most timbered parcels that would be acquired under this alternative have undesirable levels of surface fuels, and ladder fuels, and are in need of fuel reduction work. Heavily logged parcels have slash and slash piles contributing further to the problem and expense of treatment. It is not possible to estimate the extent of the fuels treatment work that would be required or the associated costs, but these costs would represent a net increase in cost compared to the No Action Alternative (FS, 2004h).

This alternative would convey all Federal parcels, acquire approximately 17,119 acres and realize a net reduction of 218 miles of National Forest boundary. Alternative 4 would result in a net loss of 8 miles of road for potential access during fire suppression activities (Table 92, Road Summary by Alternative). When compared to Alternative 1, this Deed Restriction Alternative would eliminate approximately 37% less miles of National Forest boundary and would reduce potential access roads for fuels management and fire suppression.

This alternative would likely improve fuels management and fire suppression costs and efficiency more than Alternative 3 but less than Alternative 1.

### **Alternative 5: Preferred Alternative**

This alternative is similar to Alternative 1 from fire suppression and fuels management perspectives. Refer to the Alternative 1 narrative. Appendix D identifies the parcels dropped from Alternative 5. The acres dropped would not significantly change the effects to fire suppression and fuels management.

## **Hazardous Materials**

The objective of this section is to address hazardous materials and solid waste such as trash, debris and unneeded structures. The analysis area boundary is parcels to convey and acquire.

## **Laws and Regulations Applying to the Analysis**

Before properties are acquired in the name of the United States, or before any lands are conveyed by the United States, the FS must exercise due diligence in determining whether any contamination or other environmental liabilities are present on the lands. Compliance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and FS Manual Direction (FSM 2160, Hazardous Materials Management) is required in any land transaction. CERCLA, as amended, requires that Federal

agencies provide information and certain warranties concerning the presence of hazardous materials on conveyed parcels. The same procedures are used for inspection of private and State of Oregon lands proposed for acquisition. The FS follows the required “Transaction Screening Process for Land Adjustments”; (LTSP) as outlined in EM-2160-2, dated September 1999. The goal of this process is to identify any actual or possible contamination from hazardous substances, petroleum products, or other contaminants so as to ensure that the FS does not unknowingly acquire or convey contaminated property. Documentation of all inspections is filed in the PR.

## Affected Environment

All parcels to be acquired by the NF have been inspected by FS personnel for the presence of hazardous substances. If the initial inspection of the property indicated that hazardous substances were suspected, the Forest CERCLA coordinator conducted a subsequent inspection. If contamination of the property was confirmed, appropriate remedial actions would be taken to remove the contaminant or the property would be dropped from the exchange proposal. Other suspected sites were re-examined and determined to be free of hazardous substances.

FS personnel have inspected all of the parcels proposed for conveyance for the presence of hazardous substances. No Federal parcels contained known or suspected hazardous substances. None of the properties are currently being used as locations for Federal Government Operations or Facilities, nor have any of these properties had such use in the past.

Parcel inspections also recorded solid waste and debris that are considered non-hazardous materials. The FS is currently in a down sizing trend. Acquisition of properties with the financial burden of clean up would not be acceptable.

Federal and non-Federal parcels with observed hazardous materials and non-hazardous solid waste and debris have been identified, listed, and logged with a recommended cleanup action. The recommended actions listed below are considered the minimum necessary for acquisition and conveyance of parcels. The NF and Clearwater agreed to the following recommended actions to assure acquired and conveyed parcels are free of hazardous materials and free of undesirable non-hazardous solid waste and debris.

- *FM3* has a solid waste dumpsite on a spur off of Highway 26. The non-hazardous waste on this Federal parcel consists of garbage, scrap metal, and appliances. The Malheur National Forest would be responsible for cleanup. The waste materials are suitable for landfill and would be disposed of according to local requirements. The estimated cost of \$1,000.00 for cleanup would be incurred under all alternatives.
- *PM26* has structures to be retained on site, therefore lead paint and asbestos required reporting would be completed prior to the completion of the Proposed Exchange Alternative.
- *PM30* has structures the FS does not need to retain. Structures will be removed and the site cleaned up prior to acquisition.
- *PU1B* has numerous remnants of old structures, cars, farm equipment, a mill pond, sawdust pile and scrap metal. The site was originally used for as sawmill and also was a homestead. The NF would acquire this parcel “as is” under the Proposed Exchange Alternative and would evaluate the site for its historical significance. The site would be managed as though it were eligible for the National Register of Historic Places until the evaluation is completed.
- *PU13* has an existing pit-toilet outhouse. The structure will be removed and the site cleaned up prior to exchange.
- *PU16F* has three developed sites with several structures on each site. The two pit toilets and other structures will be removed and the site cleaned up prior to acquisition.

- *PUI6H* has a recent dumpsite with household hazardous materials. The household materials and associated wastes consist of burned batteries, petroleum containers, household appliances, etc. The dumpsite will be cleaned up prior to acquisition.
- *FW18* has an old gravel pit that has been used as an illegal dumpsite by the public. Dump materials consist of scrap metals, wood and minor garbage. The NF will be responsible for cleanup of the dumpsite on this Federal parcel. The estimated cost of \$1,000.00 for cleanup would be incurred under the all alternatives.
- *PW48* is known as the Litch Ranch and has several structures. The NF would like to acquire this site with all structures “as is”. The site has a burn barrel with household hazardous wastes such as batteries. Under the action alternatives the lead paint and asbestos required reporting would be completed prior to implementation of any of these alternatives. All hazardous materials, household goods, solid waste, and personal property will be removed from the property prior to acquisition.
- *PW24A* has two dumpsites with metal, plastic, wire, wood and household garbage. A burn pile contains baling twine and garbage. The dumpsite will be cleaned up prior to acquisition.
- *PW24H* is an old homestead with several structures that are in disrepair and ruins. The adjacent large corral complex and constructed livestock feeding area was being used. There are minor amounts of waste in the cellar of the barn. The FS does not want to acquire the structures at this site; the structures will be removed and the site cleaned up prior to acquisition. The livestock feeding area has been discontinued and the site will be cleaned prior to acquisition.
- *PW25B* has metal debris, old vehicles, an excavated dumpsite currently in use, and several old dumpsites. It also has several petroleum spill areas, the largest of which is adjacent to the river. The FS would acquire this parcel under the Action alternatives except that a portion of the parcel would not be acquired (see Land Use section). All hazardous materials and solid waste will be cleaned up on the lands to be acquired prior to acquisition.
- *PW25E and PW27C* is currently a working ranch with a home and several outbuildings. There is an existing above ground fuel tank and evidence of petroleum spills and possible groundwater contamination. A parcel occupying the site would be delineated and removed from exchange consideration. All potentially contaminated lands within these parcels would be subdivided from the larger parcels and not acquired by the FS. All structures and solid waste will be removed from the lands to be acquired prior to acquisition.
- *PW33* has structures and at portions of the parcel there are remnants of an old cabin, wood and metal debris. Structures will be removed under the Proposed Exchange Alternative. *PW33* is likely to be dropped from the exchange.
- *PW34B* has an active ranch with home, outbuildings, farm machinery, irrigation equipment and abandoned metal and equipment. The structures are in fair to good condition. The homestead, railroad car-bridge, and outbuildings would be subdivided from this parcel and not be included in the Proposed Exchange, Deed Restriction or Preferred Alternative. Private road access would be reserved for this homestead. An easement across NF lands would also be granted to provide continued access to the homestead. Two hay sheds remain on the parcels proposed for exchange, but all personal property and solid waste will be removed from the property prior to acquisition.
- *PW39B* has an old homestead with several structures and associated developments. This parcel may have potential hazardous materials associated with batteries, household chemicals, plastic tanks, propane bottles, propane tanks, etc. There is a large dumpsite with old farm equipment, household appliances, garbage and household trash on the site. All

hazardous materials and solid waste will be removed from the parcel prior to acquisition. The FS does not want to acquire the structures at this site; structures and all improvements including the domestic water system will be removed and the site cleaned up prior to acquisition.

- *PW40* has a very old dumpsite with rusted metal debris and log structures that are falling down. Wastes are not hazardous and are small enough in quantity to warrant no action under the Proposed Exchange and Preferred Alternatives.

## **Environmental Consequences**

The burden for clean up of hazardous materials and non-hazardous waste on private and State of Oregon parcels would rest on the current landowners or Clearwater, the exchange facilitator. The FS would cleanup Federal parcels FM3 and FW18 under all action alternatives. A lead paint and asbestos report would be required for any structures that would be acquired or purchased. The implications to the environment are minor for parcels that are contaminated with solid wastes and/or hazardous wastes. In most cases, the solid wastes could be disposed at local landfills. All parcels acquired would have hazardous materials cleaned up in accordance with CERCLA and FS Manual Direction.

A verification of inspection prior to the implementation of an action alternative to the satisfaction of all parties would be required for any parcel with solid waste and trash recommended for removal.

## **Land Use**

The objective of this section is to disclose specific parcel information on consequences and curative actions by alternative that would be related to “land uses”. Specific categories addressed include: 1) Public access considerations; 2) Encumbrances; 3) Encroachments; and 4) Site conditions. Identified curative actions that would occur are intended to protect land use rights, comply with exiting laws, regulations, and policies and show benefits/liabilities to the FS and Clearwater by alternative. Appurtenant water rights and special characteristics are also identified in Table 99.

The analysis area boundary is parcels with land use considerations to acquire and convey.

## **Affected Environment**

The Federal parcels in the Proposed Land Exchange and the specific land use considerations associated with these parcels are described in Table 99. The non-Federal parcels in the Proposed Land Exchange and the specific land use considerations associated with these parcels are described in Table 100. Also, these tables identify the land use considerations that apply to exchange parcels for alternatives 3, 4 and 5.

**Table 99. Federal Parcel Land Use Considerations by Alternative**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
<b>FM2/Map 22</b>			✓		✓	✓
Appurtenant Water Rights <sup>1</sup>	Irrigation right on 14.4 acres from Thompson Gulch.	Water rights would transfer with title to property.				
Public Access Considerations	There is no public or administrative access to this parcel.	Conveyance of the parcel would eliminate need and cost to acquire an easement.				
<b>FM3/Map 21</b>			✓		✓	✓
Public Access Consideration	US Highway 26 crosses this parcel.	Conveyance document would be issued subject to this previously granted easement to the State DOT.				
Authorized Uses	Special Use Permits have been issued for overhead power lines to Oregon Trail Electric Consumers Cooperative, Inc. and Idaho Power Company.	Rights of OTEC and IPC would be protected as part of conveyance of property.				
	Special Use has been issued for buried telephone and fiber optic cable to Oregon Telephone Company.	Rights of Oregon Telephone Company would be protected as part of conveyance of property.				
	Dump site on spur off Highway 26.	Site would be cleaned up and restored prior to conveyance.				
Encumbrance	Reservation to Oregon Lumber Co. for existing roads, telephone lines and logging roads of the Oregon Lumber Co.	Conveyance of property would be subject to rights, if any, of Oregon Lumber Co. and the successors in interest, if any.				
<b>FM4, 5, 6, 7 &amp; 8/Map 23</b>			✓		✓	✓
Encumbrance	Reservation to Oregon Lumber Co. for existing roads, telephone lines and logging roads of the Oregon Lumber Co.	Conveyance of property would be subject to rights, if any, of Oregon Lumber Co. and the successors in interest, if any.				
<b>FM9/Map 23</b>			✓		✓	✓
Appurtenant Water Rights <sup>1</sup>	Stock reservoir located on this parcel.	Water rights would transfer with title to property.				

**Table 99. Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
Public Access Considerations	Grant County Road 18 crosses this parcel.	Conveyance document would reserve County road rights/retain public use.				
	Forest Roads 1800899 and 1800454 cross this parcel and are needed for access to other NFS lands.	Conveyance document would reserve easement to the US on these two roads.				
Encumbrance	Power transmission lines, irrigation ditches, water pipe lines and telephone lines may cross this parcel.	Conveyance document would convey these lands subject to these rights, if any.				
	Outstanding interest in oil, gas and other minerals, with the right to prospect for, mine and remove.	Conveyance document would convey these lands subject to these rights.				
<b>FM10/Map 23</b>			✓		✓	✓
Appurtenant Water Rights <sup>1</sup>	One livestock reservoir is located on this parcel.	Water rights would transfer with title to property.				
Encumbrance	Reservation to Oregon Lumber Co. for existing roads, telephone lines and logging roads of the Oregon Lumber Co.	Conveyance of property would be subject to rights, if any, of Oregon Lumber Co. and the successors in interest, if any.				
<b>FM11/Map 24</b>			✓		✓	✓
Public Access Considerations	Oregon State Highway No. 395 crosses parcel.	Conveyance document would reserve rights of State on the highway.				
Encumbrances	Special Use Permit to Oregon Trail Electric Consumers Cooperative, Inc. for powerline.	Rights of OTEC would be protected as part of conveyance of property.				
	Permit issued to Oregon State Highway Commission for Pendleton-John Day Highway #395.	Conveyance document would reserve rights of State on the highway. Special Use Permit would be eliminated.				
	Reservation to Oregon Lumber Company for existing roads, telephone lines and logging roads.	Conveyance of property would be subject to rights, if any, of Oregon Lumber Co. and the successors in interest, if any.				

**Table 99. Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
Encroachment	Driveway and power line to adjacent private residence may cross this parcel. This use has not been authorized.	Conveyance of parcel would resolve encroachment.				
<b>FM12/Map 24</b>			✓		✓	✓
Public Access Considerations	Forest Road #3900051 and #3900112 cross this parcel and provide access to adjacent NFS lands.	Conveyance document would reserve easements to the US on these roads.				
Encumbrance	Special Use has been issued for power line to Oregon Trail Electric Consumers Cooperative, Inc.	Rights of OTEC would be protected as part of conveyance of property.				
	Permit issued to Oregon State Highway Commission for Pendleton-John Day Highway No. 395.	Rights of the State would be protected as part of conveyance of property.				
	Reservation to Oregon Lumber Company for existing roads, telephone lines and logging roads.	Conveyance of property would be subject to rights, if any, of Oregon Lumber Co. and the successors in interest, if any.				
	Easement issued to Oregon Department of Transportation (ODOT) on spur road off ORS 395 across this parcel.	Property would be conveyed subject to existing rights of ODOT.				
	Irrigation diversion from Beech Creek to adjacent private land to the east crosses this parcel. Use does not appear to be authorized.	Conveyance of property would resolve this potential encroachment. Use would be protected as part of conveyance of property.				
<b>FM15 &amp; 16A/Map 17</b>			✓		✓	✓
Appurtenant Water Rights <sup>1</sup>	Eight livestock reservoirs are located on these parcels.	Water rights would transfer with title to property. Apply for water rights, if needed.				
<b>FM17/Map 17</b>			✓		✓	✓
Appurtenant Water Rights <sup>1</sup>	Four livestock reservoirs are located on this parcel	Water rights would transfer with title to property. Apply for water right, if needed.				



**Table 99. Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
Public Access Considerations	Forest Roads #4020201, #4020204, #4020205 & #4020206 cross this parcel and provide access to adjacent NFS lands.	Conveyance document would reserve easements to the US on these four roads across the parcel.				
<b>FM18 &amp; 19/Map 17</b>			✓		✓	✓
Appurtenant Water Rights <sup>1</sup>	Six livestock reservoirs and one water trough are located on this parcel.	Water rights would transfer with title to property. Apply for water right, if needed.				
<b>FM21/Map17</b>			✓		✓	✓
Public Access Considerations	Forest Roads 4040150 and 4020204 cross this parcel and provide access to adjacent NFS lands.	Conveyance document would reserve easements to the US on these four roads across the parcel.				
Appurtenant Water Rights <sup>1</sup>	Two livestock reservoirs are located on this parcel.	Water rights would transfer with title to property. Apply for water right, if needed.				
<b>FU1/Map 10</b>			✓		✓	✓
Encroachment	Recreational residential development encroaches on this parcel.	Conveyance of parcel would resolve encroachment.				
<b>FU2, 3A, 3B, 3C, 3D, 3E and 4/Map 10</b>			✓		✓	✓ 2 3A 3B 3C 3D
Public Access Considerations	There is no public or administrative access to these parcels.	Conveyance of these parcels would eliminate need and cost to acquire easements.				
Appurtenant Water Rights <sup>1</sup>	Water right to Oregon-Washington Railroad Company.	Rights of Railroad Co. would be protected as part of exchange process.				
	Four livestock and wildlife reservoirs are located on parcels FU3A, FU3C, and FU3D.	Water rights would transfer with title to property. Correct errors on water rights certificate.				

**Table 99. Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
Encumbrances	Union Pacific Railroad ROW crosses FU2, FU3A, FU3B, and FU3C. Special Use permit issued to Railroad across FU2.	Rights of Union Pacific would be protected as part of exchange.				
<b>FU7/Map12</b>			✓		✓	✓
Public Access Considerations	There is no public or administrative access to this parcel.	Conveyance of the parcel would eliminate need and cost to acquire an easement.				
<b>FU8, 9, 10A &amp; B, 11, 12, 13 &amp; 14/Map13</b>			✓		✓	✓
Public Access Considerations	There is no public or administrative access to these parcels.	Conveyance of parcels would eliminate need and cost to acquire multiple easements.				
<b>FU15, 16 &amp; 17/Map 19</b>			✓		✓	✓
Public Access Considerations	There currently is no public or administrative access to these parcels.	Conveyance of the parcel would eliminate need and cost to acquire an easement.				
<b>FU18/Map 19</b>			✓		✓	✓
Public Access Considerations	Forest Road #3969 crosses this parcel and provides access to adjacent NFS lands.	Conveyance document would reserve easement to the US on this road across this parcel.				
<b>FU20A, B, C &amp; D/Map 13</b>			✓		✓	✓ A B D
Public Access Considerations	Morrow County Road No. 406 (Log Spring Road) crosses these parcels.  Need to reserve right-of-way on Rd's 4060242 and 4060100 across FW20A and FW20B to access FW19	Conveyance document would reserve County rights on this road, retaining public use.  Conveyance document would reserve rights to the US on these roads.				
<b>FU21/Map 13</b>			✓		✓	
Appurtenant Water Rights <sup>1</sup>	Two livestock and wildlife reservoirs are located on this parcel.	Water rights would transfer with title to property.				

**Table 99. Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
<b>FU22/Map 13</b>			✓		✓	✓
Public Access Considerations	There is no public or administrative access to this parcel.	Conveyance of the parcel would eliminate need and cost to acquire an easement.				
<b>FU23/Map 13</b>			✓		✓	✓
Public Access Considerations	Morrow County Road No. 406 crosses this parcel.	Conveyance document would reserve rights on this road, retaining public use.				
	Forest Roads 4060150 and 4060152 cross this parcel.	Conveyance document would reserve easement to Hutchinson Mountain Ranch for cattle crossing.				
<b>FU25/Map 14</b>			✓		✓	✓
Public Access Considerations	Morrow County Roads Nos. 678, 618 and 26 cross this parcel.	Conveyance document would reserve County rights on these roads, retaining public use.				
Site Conditions	Special Use has been issued for overhead telephone lines to Century Telephone.	Conveyance of the parcel would eliminate need for special use permit. Conveyance document would protect rights of Century Telephone.				
	Special Use has been issued for power lines to Columbia Basin Electric Cooperative.	Conveyance of the parcel would eliminate need for special use permit. Conveyance document would protect rights of Columbia Basin Electric Coop.				
Encroachment	Private driveway may encroach on this parcel.	<b>Conveyance of parcel would resolve encroachment.</b>				
<b>FU26/Map 14</b>			✓		✓	✓
Site Conditions	Forest Road No. 5350270 crosses this parcel and provides access to adjacent NFS lands.	Conveyance document would reserve easement to the US on this road across the parcel.				

**Table 99. Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
<b>FU27 &amp; 28/Map 15</b>			✓		✓	✓ 27
Public Access Considerations	There currently is no public or administrative access to these parcels	Conveyance of the parcels would eliminate need and cost to acquire easement.				
<b>FU30/Map 13</b>			✓		✓	✓
Appurtenant Water Rights <sup>1</sup>	Spring development for stock use is located on this parcel.	Water use is exempt use. All interest in this development would transfer with title to the land.				
Public Access Considerations	There is no public or administrative access to this parcel.	Conveyance of the parcel would eliminate need and cost to acquire easement.				
<b>FW1D &amp; 1E/Map 8</b>			✓		✓	✓
Appurtenant Water Right <sup>1</sup>	One livestock reservoir is located on this parcel.	Water rights would transfer with title to property. Apply for water right, if needed.				
Land Uses	Both parcels are located within the boundary of HCNRA, and withdrawn from location under mining laws or mineral leasing disposition.	Revocation of withdrawal would occur prior to conveyance.				
<b>FW2 &amp; 5/Map 6</b>			✓		✓	✓
Public Access Considerations	There is no public or administrative access to these parcels.	No existing roads access these two parcels. Conveyance of the parcels could eliminate potential need and cost to acquire easement.				
Land Uses	FW5 is located within the boundary of HCNRA, and withdrawn from location under mining laws or mineral leasing.	Revocation of withdrawal would occur prior to conveyance.				
<b>FW6A ,B, C, D, E &amp; F/Map 6</b>			✓		✓	✓
Appurtenant Water Rights <sup>1</sup>	Water right indicates one acre of irrigation is located on FW6A.	Field review indicates no water uses on this parcel. US would notify OWRD to correct maps.				

**Table 99. Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
Public Access Considerations	These parcels abut other NFS lands, allowing for legal access, but there currently is no roaded public or administrative access to them. Private road on FW6C & 6E has not been authorized.	Conveyance of the parcels would eliminate potential need to acquire easement and eliminate need to authorize road use.				
<b>FW7 &amp; 8/Map 5</b>			✓		✓	✓
Land Uses	Both parcels are located within the boundary of HCNRA, and withdrawn from location under mining laws or mineral leasing.	Revocation of withdrawal would occur on these two parcels prior to conveyance.				
	FW8 is located within the Imnaha River Wild and Scenic River boundary and withdrawn from entry under public land laws.	Revocation of withdrawal would occur on this parcel prior to conveyance.				
<b>FW10/Map 5</b>			✓		✓	✓
Public Access Considerations	Forest Roads 3940, 3940200 and 3940210 cross this parcel and provide access to adjacent NFS lands.	Conveyance document would reserve easement to the US on these roads across this parcel.				
<b>FW11/Map 5</b>			✓		✓	✓
Public Access Considerations	Forest Road No. 3940 crosses this parcel and provides access to adjacent NFS lands.	Conveyance document would reserve easement to US on this road across the parcel.				
<b>FW12/Map 3</b>			✓		✓	✓
Public Access Considerations	There is no public or administrative access on roads to these parcels. Legal access exists from adjacent NF lands.	Conveyance of these parcels would eliminate need and cost to acquire easement.				
Encroachment	Water being diverted from stream on FW12 to adjacent private property. This use has not been authorized.	Conveyance of land would eliminate potential need to issue special use permit or other administrative remedy.				

**Table 99. Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
Appurtenant Water Rights <sup>1</sup>	Water conveyance system (with valid water right) crosses this parcel. This use has not been authorized.	Use would be protected as part of conveyance of property.				
<b>FW14B/Map 2</b>			✓		✓	✓
Public Access Considerations	Forest Road #8250147 crosses this parcel and provides access to adjacent NFS lands.	Conveyance document would reserve an easement to the US on this road.				
<b>FW15 &amp; 16/Map 2</b>			✓		✓	✓
Public Access Considerations	There is no public or administrative access to these two parcels.	Conveyance of the parcels would eliminate need and costs to acquire easement.				
<b>FW17A &amp; 17C/Map 3</b>			✓		✓	
Encumbrance	Special Use has been issued for water transmission line across this parcel.	Conveyance of the parcel would eliminate need for a special use permit.				
Land Uses	Both parcels are located within the boundary of the Lostine River Roadside and Riverfront Zone and the Lostine W&S River and are withdrawn from all forms of appropriation.	Revocation of withdrawal on these two parcels would occur prior to conveyance.				
<b>FW18/Map 11</b>			✓		✓	✓
Public Access Considerations	State Highway 244 crosses this parcel.	Conveyance document would reserve State Highway rights on this road, retaining public access.				
Site Conditions	Old gravel pit used as dump site.	Site would be cleaned up prior to conveyance.				
Encumbrances	Buried powerline crosses parcel, providing power to Starkey Experimental Forest.	This use would be protected in conveyance document.				
Parcel Reconfiguration	110 acres were dropped from this parcel for resource mitigation under Alternative 5.					

**Table 99. Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
<b>FW20, 21 &amp; 24/Map 1</b>			✓		✓	✓
Public Access Considerations	The US currently does not have right-of-way on roads accessing these parcels for either administrative or public use. Legal access exists from adjacent NF lands.	Conveyance of the parcel would eliminate need and costs to acquire easement.				
<b>FW22/Map 1</b>			✓		✓	✓
Public Access Considerations	There is no public or administrative access to this parcel.	Conveyance of the parcel would eliminate need and costs to acquire easement.				
<b>FW23/Map 1</b>			✓		✓	✓
Public Access Considerations	Wallowa County Road No. 500 (Forest Road No. 8220) may cross this parcel.	Conveyance document would reserve County and US rights on this road, retaining rights for public use.				
<b>FW25A &amp; B/Map 1</b>			✓		✓	✓
Public Access Considerations	Wallowa County Road No. 500 (Forest Road No. 8220) crosses these parcels.	Conveyance document would reserve County and FS rights on this road, retaining public use.				

1) History of use, and therefore current status of some water rights may be dubious

**Table 100. Non-Federal Parcel Land Use Considerations by Alternative**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
<b>PU1A &amp; 1B/Map 1</b>			✓	✓ 1A	✓ 1A	✓
Appurtenant Water Rights <sup>1</sup>	Five livestock/wildlife reservoirs and one (exempt) spring development located on PU1B. One reservoir has no water right.	Water Right would transfer with title to the property. Correct errors on certificate maps. File for water right for one reservoir. Spring development is exempt.				
Public Access Considerations	US currently does not hold either administrative or public access rights across either parcel on Road No. 6208.	Acquisition of parcel would eliminate need to acquire easement.				
Site Conditions	PU1B is site of old sawmill and homestead. Remnants of these still remain on the parcel. No hazardous materials are located on the parcel.	Acquisition of the parcel would allow for evaluation for possible inclusion in National Register of Historic Places.				
Special Characteristics	A portion of PU1A is located within the boundary of the Wenaha-Tucannon Wilderness Area. A portion of PU1A is located within the boundaries of the Wenaha Wild and Scenic River.	That portion lying within the wilderness would become wilderness and be withdrawn from all forms of appropriation under the mining laws and from disposition under mineral leasing laws. That portion within the W&S River boundary would be withdrawn from entry, sale or other disposition under public land laws.				
<b>PU5/Map 10</b>			✓			✓
Appurtenant Water Right <sup>1</sup>	Livestock/Wildlife reservoir located on parcel.	Water Right would transfer with title to the property.				



**Table 100. Non-Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
Site Conditions	Parcel has been recently logged.	Slash disposal, reforestation, and soil stabilization would meet or exceed Oregon State Forest Practices Act standards prior to acquisition.				
<b>PU7B/Map 10</b>			✓			✓
Appurtenant Water Rights <sup>1</sup>	Livestock/Wildlife reservoir located on parcel.	Water Right would transfer with title to the property.				
Public Access Considerations	US currently does not hold easement on Road 3030050.	Acquisition of parcel would eliminate need to acquire easement.				
<b>PU7C/Map 10</b>			✓			✓
Appurtenant Water Rights <sup>1</sup>	Livestock/Wildlife reservoir located on parcel.	Water Right transfers with title to the property.				
Public Access Considerations	US currently does not hold easement on Roads 3030090 and 3030095.	Acquisition of parcel would eliminate need to acquire easements.				
<b>PU11B/Map 10</b>			✓			✓
Appurtenant Water Rights <sup>1</sup>	Two livestock/wildlife reservoirs located on parcel.	Water Right would transfer with title to the property. Correct errors on application map.				
<b>PU12/Map 10</b>			✓			✓
Encumbrance	Easement to Oregon-Washington Railroad & Navigation Co. for roadway across PU12.	Property would be acquired subject to the terms and conditions of said easement, all of which are acceptable to the US.				
<b>PU13/Map 20</b>			✓		✓	✓
Site Conditions	Pit Toilet is located on parcel.	Structure would be removed, and site cleaned up prior to acquisition.				
<b>PU14/Map12</b>			✓			✓
Public Access Considerations	US does not hold easement on Road No. 5900230 across this parcel. Oregon State Highway 244 crosses parcel.	Acquisition of parcel would eliminate need and cost to acquire easement on Road. 5900230. State Highway right-of-way held in fee by State.				

**Table 100. Non-Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
<b>PU15/Map12</b>			✓		✓	✓
Appurtenant Water Rights <sup>1</sup>	Two stock ponds are located on this parcel.	Water right would transfer with title to property. Apply for stock water right.				
Public Access Considerations	US does not hold easement on Road. #5400170 across this parcel.	Acquisition of parcel would eliminate need to acquire easement.				
<b>PU16B &amp; 16C/Map 19</b>			✓		✓	✓
Appurtenant Water Rights <sup>1</sup>	Livestock/Wildlife reservoir is located on PU16C	Water rights would transfer with title to property. Correct errors in certificate and application map.				
Waterline for mining water right crosses both of these parcels.	Property would be acquired subject to this use.					
<b>PU16E, F, G &amp; H/Map 19</b>			✓	✓ 16F	✓	✓
Site Conditions	Parcel contains cabin, sheds, corrals, and places being used for RV use. A dumpsite is located on PU16H.	Improvements would be removed and site cleaned up prior to acquisition of parcel. Dumpsite would be cleaned up prior to acquisition.				
Encumbrances	State of Oregon Game Commission owns an easement for the benefit of the general public for angling and other recreational purposes that encumbers both PU16F and PU16G.	Property would be acquired subject to the terms and conditions of said easement, all of which are acceptable to the US.				
Appurtenant Water Rights <sup>1</sup>	Four livestock reservoirs are located on Parcel 16E and 16H.	Water rights would transfer with title to property.				
Special Characteristics	Portions of PU16E, F, and G are located within the boundaries of the North Fork John Day Wild and Scenic River.	Those portions of the parcels within the W&S River boundary would be withdrawn from entry, sale and other disposition under public lands laws following acquisition.				

**Table 100. Non-Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
<b>PU19/Map 12</b>			✓			✓
Public Access Considerations	US does not hold written easement on Road No. 5425335 across this parcel.	Acquisition of parcel would eliminate need and cost to acquire easement.				
<b>PU20/Map 18</b>			✓		✓	✓
Appurtenant Water Rights <sup>1</sup>	Stock reservoir is located on this parcel.	Water rights would transfer with title to property. Apply for stock water right.				
<b>PU21/Map 21</b>			✓		✓	✓
Site Conditions	Large slash piles remain on parcel from past logging.	Slash disposal, reforestation, and soil stabilization would meet or exceed Oregon State Forest Practices Act standards prior to acquisition.				
<b>PU22A &amp; B/Map 15</b>			✓		✓ 22B	✓
Appurtenant Water Rights <sup>1</sup>	Four livestock/wildlife reservoirs are located on parcel 22A.	Water rights would transfer with title to property. Correct errors on certificate.				
Site Conditions	Roads and meadow rutted due to recent logging on both PU22A and PU22B.	Slash disposal, reforestation, and soil stabilization would meet or exceed Oregon State Forest Practices Act standards prior to acquisition.				
<b>PU23/Map 15</b>			✓			✓
Public Access Considerations	US does not hold written easement on Road No. 23 across a portion of this parcel.	Acquisition of parcel would eliminate need and cost to acquire easement.				
Encumbrances	Easement to Telephone Utilities of Eastern Oregon, Inc. for buried telephone lines in existing roads.	Property would be acquired subject to the terms and conditions of said easement.				
<b>PU24/Map 15</b>			✓			✓
Site Conditions	Shed and spring development is located on parcel.	Spring development would be removed prior to acquisition of the parcel. Shed is deteriorating naturally.				

**Table 100. Non-Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
Encumbrances	Coal and other mineral rights are outstanding to a third party.	Exchange facilitator would acquire mineral rights prior to US acquisition of property. US would acquire both surface and mineral rights.				
<b>PM1/Map 21</b>			✓			✓
Public Access Considerations	US does not hold easement on Road No. 1940276 across this parcel.	Acquisition of parcel would eliminate need and cost to acquire easement.				
<b>PM2/Map 21</b>			✓		✓	✓
Appurtenant Water Rights <sup>1</sup>	Irrigation Water right for a total of 3.5 acre-feet per year.	Water right would transfer with title to property.				
Public Access Considerations	US Highway 26 crosses PM2.	State Highway right-of-way held in fee by State.				
Encumbrances	1) Powerline easement to California-Pacific Utilities Co., 2) Easement for existing water diversion ditch to adjacent private landowner, 3) Riparian Lease to Oregon Dept of Fish & Wildlife, and 4) Utility easement to Oregon Telephone Co.	Property would be acquired subject to the terms and conditions of said easements, all of which are acceptable to the US.				
<b>PM4/Map21</b>			✓			✓
Appurtenant Water Right <sup>1</sup>	Mining water right for 1 cfs from tributary of Middle Fork John Day River.	Water right would transfer with title to property.				
Encumbrances	Mineral rights are outstanding to a third party.	Exchange facilitator would acquire mineral rights prior to US acquisition of property. US would acquire both surface and mineral rights.				

**Table 100. Non-Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
<b>PM5/Map 18</b>			✓			✓
Appurtenant Water Right <sup>1</sup>	Mining Water Right for 5 cfs from tributaries of Middle Fork John Day River.	Water right would transfer with title to property.				
<b>PM6/Map 23</b>			✓			✓
Site Condition	Slash from recent logging.	Slash disposal, reforestation, and soil stabilization would meet or exceed Oregon State Forest Practices Act standards prior to acquisition.				
<b>PM7/Map 24</b>			✓			✓
Appurtenant Water Right <sup>1</sup>	Three livestock/wildlife reservoirs located on the parcel.	Water Right would transfer with title to the property.				
<b>PM8A &amp; B/Map 24</b>			✓			✓
Site Condition	Slash from recent logging. Some slash affecting road drainage.	Slash disposal, reforestation, and soil stabilization conditions would meet or exceed Oregon State Forest Practices Act standards prior to acquisition.				
<b>PM12 &amp; 13/Map 24</b>			✓			✓
Site Condition	Rutting and erosion on roads.	Slash disposal, reforestation, and soil stabilization would meet or exceed Oregon State Forest Practices Act standards prior to acquisition.				
<b>PM14 &amp; 15/Map 24</b>			✓			✓
Encumbrances	Mineral rights are outstanding to a third party.	Exchange facilitator would acquire mineral rights prior to US acquisition of property. US would acquire both surface and mineral rights.				

**Table 100. Non-Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
<b>PM17 &amp; 18/Map 24</b>			✓			✓
Site Condition	Portions of both parcels burned by July 2003 wildfire. Roads/dozer trails rutted.	Slash disposal, reforestation, and soil stabilization conditions would meet or exceed Oregon State Forest Practices Act standards prior to acquisition.				
Encumbrances	Mineral rights are outstanding to a third party (PM18).	Exchange facilitator would acquire mineral rights prior to US acquisition of property. US would acquire both surface and mineral rights.				
<b>PM19 &amp; 20/Map 24</b>			✓			✓
Encumbrances	Mineral rights are outstanding to a third party.	Exchange facilitator would acquire mineral rights prior to US acquisition of property. US would acquire both surface and mineral rights.				
Site Condition	Rutting and erosion on roads on PM19.	Slash disposal, reforestation, and soil stabilization would meet or exceed Oregon State Forest Practices Act standards prior to acquisition.				
<b>PM21 &amp; 25/Map 26</b>			✓			✓
Encumbrances	One-half interest in all minerals is outstanding to a third party.	Parcel would be acquired subject to this outstanding right. Other ½ interest in minerals would be acquired by donation from the exchange facilitator and would not be available for entry under US Mining Laws, but would be subject to mineral leasing laws.				

**Table 100. Non-Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
<b>PM26/Map 26</b>			✓			✓
Site Condition	Cabin, outhouse, hay shed and corrals are located on this parcel.	Property would be acquired as is. Acquisition would allow for further evaluation and possible inclusion in National Register of Historic Places.				
Encumbrances	One-half interest in all minerals is outstanding to a third party.	Parcel would be acquired subject to this outstanding right. Other ½ interest in minerals would be acquired by donation from the exchange facilitator and would not be available for entry under US Mining Laws, but would be subject to mineral leasing laws.				
<b>PM27, 28, 29, 30 &amp; 31/Map 26</b>			✓			✓
Appurtenant Water Right <sup>1</sup>	One livestock/wildlife reservoir located on PM30.	Water Right would transfer with title to the property.				
Site Condition	Line cabin, outhouse, corrals, spring development, water trough are located on PM30.	Structures would be removed and site cleaned up prior to acquisition.				
Encumbrances	One-half interest in all minerals is outstanding to a third party.	Parcel would be acquired subject to this outstanding right. Other ½ interest in minerals would be acquired by donation from the exchange facilitator and would not be available for entry under US Mining Laws, but would be subject to mineral leasing laws.				

**Table 100. Non-Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
<b>PW1, 2A &amp; 2B/Map 8</b>			✓	✓	✓	✓
Public Access Considerations	US does not hold written easement on Trail #1714 across PW2A, or PW2B.	Acquisition of parcel would eliminate need to acquire easement.				
Special Characteristics	All three parcels are located within the boundary of the HCNRA.  All of PW1 and PW2A and portions of PW2B lie within the Wild and Scenic River boundary.	Lands would be withdrawn from location, entry, and patent under Mining laws following acquisition.  Lands within W&S boundary would be withdrawn from entry, sale, or other disposition under public land laws following acquisition.				
Site Conditions	Old mine adit located on PW2B.	Portal would require bat-friendly gate for public safety.				
<b>PW3, 4, 5 &amp; 48/Map 8</b>			✓	✓ 48	✓	✓
Appurtenant Water Right <sup>1</sup>	Irrigation right for 15.2 acres from Cow Creek on PW3 and PW48. Also domestic use on PW48, no water right.	Water right would transfer with title to property.				
Site Conditions	House, shed, barn, and corrals are located on property.	Property would be acquired as is. Acquisition would allow for evaluation for possible inclusion in National Register of Historic Places.				
Special Characteristics	All four parcels are located within the boundary of the HCNRA.	Lands would be withdrawn from location, entry, and patent under Mining laws following acquisition.				
Encumbrances	One-half interest in all minerals is outstanding to a third party.	Exchange facilitator would acquire mineral rights prior to US acquisition of property. US would acquire both surface and mineral rights.				



**Table 100. Non-Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
Access Considerations	Legal, but no roaded, access to these parcels.	Would secure legal roaded access to these parcels as part of acquisition.				
<b>PW6/Map 8</b>			✓		✓	✓
Public Access Considerations	US does not hold written easement on Trail No. 1714 across this parcel.	Acquisition of parcel would eliminate need to acquire easement.				
Special Characteristics	All three parcels are located within the boundary of the HCNRA.	Lands would be withdrawn from location, entry, and patent under Mining laws following acquisition.				
Site Conditions	Old mine adit is located on this parcel.	Portal would require bat-friendly gate for public safety.				
<b>PW7A,B &amp; C and PW8A,B &amp; C/Map 8</b>			✓		✓	✓
Appurtenant Water Rights <sup>1</sup>	Irrigation right for 20.3 acres from on PW7C, PW8B and PW8C. Stock water right of 0.1 cfs/1000 head from SF Tully Creek.	Water rights would transfer with title to property.				
Encumbrance	Powerline easement crosses Parcels PW8A, 8B, and 8C.	Property would be acquired subject to these rights.				
Encumbrance	Easement for stock driveway to adjacent landowner over PW7C and PW8C.	Property would be acquired subject to the terms and conditions of easement, all of which are acceptable to the US.				
Special Characteristics	All six parcels are located within the boundary of the HCNRA.	Lands would be withdrawn from location, entry, and patent under Mining laws following acquisition.				
Access Considerations	Legal, but no roaded, access to PW7C, 8A, 8B, and 8C.	Would secure legal roaded access to these parcels as part of acquisition.				

**Table 100. Non-Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
<b>PW10A &amp; B/Map 8</b>			✓	✓	✓	✓
Appurtenant Water Right <sup>1</sup>	Right to irrigate 7.2 acres from Imnaha River on parcel PW10B.	Water right would transfer with title to property.				
Encumbrance	Easement for stock driveway to adjacent landowner over both parcels.	Property would be acquired subject to the terms and conditions of easement, all of which are acceptable to the US.				
	Rights of Wallowa County on the Dug Bar road across these two parcels.	Property would be acquired subject to these rights.				
	Easement for stock driveway to adjacent landowner over PW10B.	Property would be acquired subject to the terms and conditions of easement, all of which are acceptable to the US.				
Site Condition	Livestock feeding area located on PW10A.	Livestock feeding area discontinued and site will be cleaned up and restored prior to acquisition.				
Special Characteristics	Portions of these two parcels lie within the Wild and Scenic River boundary.  Both parcels are located within the boundary of the HCNRA.	Lands within W&S boundary would be withdrawn from entry, sale, or other disposition under public land laws. Lands would be withdrawn from location, entry, and patent under Mining laws following acquisition.				
<b>PW11 &amp; 12/Map 8</b>			✓	✓ 11	✓	✓
Appurtenant Water Rights <sup>1</sup>	Irrigation right for 19.0 acres from Thorn Cr. and NF Thorn Creek on PW12. Stockwater reservoir on PW11.	Water rights would transfer with title to property. Apply for stock water rights.				

**Table 100. Non-Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
Encumbrance	Powerline easement crosses PW12.	Property would be acquired subject to these rights.				
Special Characteristics	Both parcels are located within the boundary of the HCNRA.	Lands would be withdrawn from location, entry, and patent under Mining laws following acquisition.				
Access Considerations	Legal, but no roaded, access to PW12.	Would secure legal roaded access to these parcels as part of acquisition.				
<b>PW13A, B, C &amp; D/Map 8</b>			✓	✓	✓	✓
Appurtenant Water Right <sup>1</sup>	Right to irrigate 3.0 acres from the Imnaha River on PW13D.	Water right would transfer with title to property.				
Encumbrance	Rights of Wallowa County on the Dug Bar road across these parcels.	Property would be acquired subject to these rights.				
Site Condition	Livestock feeding area located on PW13D.	Livestock feeding area discontinued and site will be cleaned up and restored prior to acquisition.				
Special Characteristics	Portions of these four parcels lie within the Wild and Scenic River boundary.  All parcels are located within the boundary of the HCNRA.	Lands within W&S boundary would be withdrawn from entry, sale, or other disposition under public land laws. Lands would be withdrawn from location, entry, and patent under Mining laws following acquisition.				
<b>PW14 &amp; PW15A &amp; B/Map 8</b>			✓		✓	✓
Appurtenant Water Rights <sup>1</sup>	Irrigation right for 32 acres from Corral Creek and Dodson Creek on PW15A&B. Irrigation ditch is also located on these two parcels. Spring development on PW14.	Water right would transfer with title to property. Spring development is exempt use.				

**Table 100. Non-Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
Special Characteristics	Parcels are located within the boundary of the HCNRA.	Lands would be withdrawn from location, entry, and patent under Mining laws following acquisition.				
<b>PW16A, B, C, D &amp; E/Map 8</b>			✓	✓ 16A, C & E	✓	✓
Appurtenant Water Rights <sup>1</sup>	Stock reservoir and spring development for stock water are located on PW16C and 16D.	Water right would transfer with title to property. Apply for water right on reservoir. Spring development use is exempt.				
Encumbrance	Powerline easement crosses PW16C and 16D.	Property would be acquired subject to these rights.				
Encumbrance	Rights of Wallowa County on the Dug Bar road across these parcels.	Property would be acquired subject to these rights.				
Special Characteristics	Portions of these five parcels lie within the Wild and Scenic River boundary.  All five parcels are located within the boundary of the HCNRA.	Lands within W&S boundary would be withdrawn from entry, sale, or other disposition under public land laws. Lands would be withdrawn from location, entry, and patent under Mining laws following acquisition.				
<b>PW17A &amp; B and PW18/Map 3</b>			✓		✓	✓
Special Characteristics	All three parcels are located within the boundary of the HCNRA.	Lands would be withdrawn from location, entry, and patent under Mining laws following acquisition.				
<b>PW19A, B &amp; C/Map 8</b>			✓	✓ 19B & C	✓	✓
Appurtenant Water Rights <sup>1</sup>	Irrigation right for 14.4 acres from Horse Creek.	Water right would transfer with title to property.				

**Table 100. Non-Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
Encumbrance	Road Easement to adjacent landowner crosses PW19B&C.	Property would be acquired subject to the terms and conditions of said easements, all of which are acceptable to the US.				
Special Characteristics	All three parcels are located within the boundary of the HCNRA.	Lands would be withdrawn from location, entry, and patent under Mining laws following acquisition.				
Access Considerations	Legal, but no roaded, access to these parcels.	Would secure legal roaded access to these parcels as part of acquisition.				
<b>PW20A, B &amp; C/Map 8</b>			✓	✓ 20A & C	✓	✓
Appurtenant Water Rights <sup>1</sup>	Irrigation Right on 50 acres from tributaries of Imnaha River on PW20B&C.	Water right would transfer with title to property.				
Encumbrance	Powerline easement crosses PW20A, 20B and 20C.  Rights of Wallowa County on the Dug Bar Road across these parcels.	Property would be acquired subject to these rights.  Property would be acquired subject to these rights.				
Special Characteristics	Portions of these three parcels lie within the Wild and Scenic River boundary.  All three parcels are located within the boundary of the HCNRA.	Lands within W&S boundary would be withdrawn from entry, sale, or other disposition under public land laws.  Lands would be withdrawn from location, entry, and patent under Mining laws following acquisition.				
Site Conditions	Livestock feeding area located on PW20C.	Livestock feeding operation discontinued and site will be cleaned up and restored prior to acquisition.				

**Table 100. Non-Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
<b>PW21A, B, C &amp; D/Map 8</b>			✓	✓	✓	✓
Appurtenant Water Rights <sup>1</sup>	Irrigation Right for 3.8 acres from tributary of Imnaha River on PW21C.	Water right would transfer with title to property.				
Special Characteristics	A portion of PW21C lies within the Wild and Scenic River boundary.  All four parcels are located within the boundary of the HCNRA.	Lands within W&S boundary would be withdrawn from entry, sale, or other disposition under public land laws. Lands would be withdrawn from location entry and patent under Mining laws following acquisition.				
Encumbrance	Rights of Wallowa County on the Dug Bar road across PW21C.	Property would be acquired subject to these rights.				
<b>PW22/Map 8</b>			✓	✓	✓	✓
Special Characteristics	Parcel is located within the boundary of the HCNRA.	Lands would be withdrawn from location, entry, and patent under Mining laws following acquisition.				
<b>PW23A &amp; B/Map 8</b>			✓	✓	✓	✓
Appurtenant Water Right <sup>1</sup>	Point of Diversion and ditch for water use to adjacent property are located on PW23B.	Lands would be acquired subject to this use, if still needed.				
Special Characteristics	A portion of PW23B lies within the Wild and Scenic River boundary.  Both parcels are located within the boundary of the HCNRA.	Lands within W&S boundary would be withdrawn from entry, sale, or other disposition under public land laws. Lands would be withdrawn from location, entry, and patent under Mining laws following acquisition.				
Encumbrance	Rights of Wallowa County on the Dug Bar road across PW23B.	Property would be acquired subject to these rights.				

**Table 100. Non-Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
	Powerline easement crosses PW23B.	Property would be acquired subject to these rights.				
<b>PW24A, B, C, D, E, F, G &amp; H/Map 6</b>			✓		✓ 24A,B, C,D,G & H	✓
Appurtenant Water Rights <sup>1</sup>	PW24E, F, and H: Irrigation right for 0.098 cfs from Camp Creek. Irrigates 23 acres. Stock reservoirs on PW24E and PW24F	Water rights would transfer with title to property. Confirm exempt stock water reservoir use.				
	Two water conveyance ditches are located on PW24A.	Easement would be granted prior to conveyance of property. Lands would be acquired subject to these uses.				
Public Access Considerations	State Highway 350 crosses all parcels. Wallowa County Road No. 676 crosses PW24H.	State Highway right-of-way held in fee by State. Acquisition of parcel would be subject to county right-of-way.				
Site Conditions	House, barn and corrals located on PW24H. Two small dumpsites located on PW24A. Constructed livestock feeding areas located on PW24A, 24D and 24H.	Structures would be removed and site cleaned up prior to acquisition. Dumpsites would be cleaned up prior to acquisition. Livestock feeding operation discontinued and site to be cleaned up and restored prior to acquisition.				
Encumbrance	Utility line easement across PW24E, F, G, and H.	Parcel would be acquired subject to the terms and conditions of this easement, all of which are acceptable to the US.				

**Table 100. Non-Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
<b>PW25A, B, C, D, E and PW27A &amp; C/Map 6</b>			✓	✓ 25A,B, C, D & 27C	✓	✓
Appurtenant Water Rights <sup>1</sup>	Two water rights for irrigation of a total of 32.8 acres on PW25B, PW25D, PW25E and PW27C under Alternative 1. Under Alternative 5, portions of water rights for irrigation of approx. 10 Acres. Also stock water use. Livestock reservoirs located on PW25E and PW27C.	Irrigation water rights would transfer with title to property.				
Public Access Considerations	State Highway 350 crosses PW25D under Alternative 1. Wallowa County Road No. 727 crosses all parcels.	State Highway right-of-way held in fee by State. Acquisition of parcel would be subject to county right-of-way.				
Site Conditions Parcel Reconfiguration	Homestead straddles PW25B&E and PW27C. Includes house, barn, corrals, outbuildings, and railcar bridge. Portion of PW25D has been developed for agricultural and ranching use immediately adjacent to the town of Imnaha. Livestock feeding area located on PW27C.	A 12.2 acre parcel occupying the site would be delineated and removed from exchange consideration. That portion of this parcel lying in the NW¼ of section 21 (44 acres) would be removed from further consideration. Livestock feeding operation to be discontinued, and site cleaned up prior to acquisition.				
Encumbrances	Utility line easement to Idaho Power Co. across PW25B, PW25C, PW25D, PW25E, PW27A, and PW27C. Utility line easement to Pacific Power Co. across PW25B, PW25C, PW25D, and PW25E. Easement to Wallowa County for Co. Road 727 over all parcels.	Parcels would be acquired subject to the terms and conditions of these easements, all of which are acceptable to the US.				



**Table 100. Non-Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
Special Characteristics	Portions of these seven parcels lie within the Wild and Scenic River boundary.  All seven parcels are located within the boundary of the HCNRA.	Lands within W&S boundary would be withdrawn from entry, sale, or other disposition under public land laws. Lands would be withdrawn from location, entry, and patent under Mining laws following acquisition.				
<b>PW26A, B &amp; C/Map 6</b>			✓		✓	✓
Public Access Considerations	Dispersed, undeveloped campsites are numerous on these parcels.	Acquisition of parcel would eliminate conflicts over public use of private lands.				
Special Characteristics	All three parcels are located within the boundary of the HCNRA.	Lands would be withdrawn from location, entry, and patent under Mining laws following acquisition.				
<b>PW28/Map 6</b>			✓	✓	✓	✓
Special Characteristics	Parcel is located within the boundary of the HCNRA.	Lands would be withdrawn from location, entry, and patent under Mining laws following acquisition.				
<b>PW29/Map 5</b>			✓	✓	✓	✓
Public Access Considerations	US does not hold easement on Trail No. 1879 across this parcel	Acquisition of parcel would eliminate need to acquire easement.				
Special Characteristics	This parcel lies within the boundary of the Hells Canyon Wilderness Area.	This parcel would become wilderness and be withdrawn from all forms of appropriation under the mining laws and from disposition under mineral leasing laws.				

**Table 100. Non-Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
<b>PW30/Map 7</b>			✓			✓
Appurtenant Water Rights <sup>1</sup>	One livestock reservoir located on this parcel.	Water Right would transfer with title to the property.				
Encumbrances	Road Easement to Boise Cascade across this parcel.	Property would be acquired subject to terms and conditions of the easement, all of which are acceptable to the US.				
<b>PW31 &amp; 32/Map 6</b>			✓		✓	✓
Access Considerations	Legal, but no roaded, access to these two parcels.	Would secure legal roaded access to these parcels as part of acquisition.				
<b>PW33/Map 7</b>			✓			
Water Rights/Site Conditions <sup>1</sup>	Water right for domestic spring and wildlife reservoir are located on parcel. Cabin and shed located on structures.	Water rights would transfer with title to property. FS preference is that structures be removed.				
<b>PW34A &amp; B/Map 7</b>			✓		✓	✓
Appurtenant Water Right <sup>1</sup>	Right to irrigate 37.3 acres from Joseph Creek. Under Alternative #1, Right to irrigate 29.7 acres from Joseph Creek.	Water rights would transfer with title to property. Provide for domestic water use for retained acreage prior to acquisition.				
Site Condition Parcel Reconfiguration	Home site, barn, hay sheds, and corrals located on PW34B.	<p>A 10-acre parcel occupying the site would be delineated and removed from further exchange consideration under Alternative 1 and 3.</p> <p>Under Alternative #5, 240 acres would be removed from further consideration.</p> <p>In Alternatives 1, 4, &amp; 5, two hay sheds are located on lands proposed for acquisition.</p>				

**Table 100. Non-Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
<b>PW38/Map 4</b>			✓			✓
Appurtenant Water Right <sup>1</sup>	One livestock/wildlife reservoir located on this parcel.	Water Right would transfer with title to the property.				
Public Access Considerations	US does not hold easement on Forest Road #7020175 across the parcel.	Acquisition of parcel would eliminate need to acquire easement.				
Site Condition	Sparta Ditch crosses parcel.	Acquisition of the parcel would allow for evaluation for possible inclusion in National Register of Historic Places.				
Encumbrance	Fiber Optic line crosses parcel. No easement noted on title report.	Would request landowner to issue easement prior to acquisition. OR - Would add lands to already existing special use permit for this facility.				
<b>PW39A, B &amp; C/Map 1</b>			✓	✓ 39C	✓ 39C	✓
Appurtenant Water Rights <sup>1</sup>	Seven livestock/wildlife reservoirs, from springs and tributaries of Mud Creek, located on this parcel.	Water rights would transfer with title to property. Submit updated reservoir location map to OWRD.				
Site Condition	House, sheds, barn, and corrals located on PW39B.	Structures, improvements and all solid waste would be removed and the site cleaned up prior to acquisition.				
Public Access Considerations	US does not hold easement on portions of Rd. #3040 across PW39A and PW39B.	Acquisition of parcel would eliminate need to acquire easement.				
<b>PW40/Map 1</b>			✓			✓
Appurtenant Water Rights <sup>1</sup>	Five livestock reservoirs are located on this parcel.	Water rights would transfer with title to property. File for water right.				
Site Conditions	Two log structures, which are badly deteriorating, are located on this parcel.	No further action needed.				

**Table 100. Non-Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
<b>PW44A &amp; B/Map 11</b>			✓		✓	✓ B
Public Access Considerations	Oregon State Highway 244 crosses PW44B.	Highway Right-of-Way is held in fee by the State of Oregon.				
Site Conditions	PW44A recently logged, with piles remaining.	Slash disposal, reforestation, and soil stabilization conditions would meet or exceed Oregon State Forest Practices Act standards prior to acquisition.				
Access Considerations	Legal, but no roaded, access to PW44A.	Would secure legal roaded access to this parcel as part of acquisition.				
<b>PW47A &amp; B/Map 4</b>			✓	✓	✓	✓
Public Access Considerations	US does not hold written easement on Trail No. 1830/1816 across this parcel.	Acquisition of parcel would eliminate need to acquire easement.				
Special Characteristics	This parcel lies within the boundary of the Eagle Cap Wilderness Area.	This parcel would become wilderness and be withdrawn from all forms of appropriation under the mining laws and from disposition under mineral leasing laws.				
Encumbrance	Terms and conditions of original mineral survey patent.	Property would be acquired subject to these terms and conditions, all of which are acceptable to the US.				
<b>PW48/Map 8</b>			✓	✓	✓	✓
See PW3, 4, 5 & 48 above						
<b>PW50/Map 7</b>			✓			✓
Appurtenant Water Right <sup>1</sup>	Five livestock reservoirs are located on this parcel.	Water Right would transfer with title to the property.				

**Table 100. Non-Federal Parcel Land Use Considerations by Alternative (continued)**

Land Use	Specifics	Curative Action	Included In Alternative			
			1	3	4	5
<b>PW51A, C &amp; D/Map 7</b>			✓		✓	✓
Appurtenant Water Right <sup>1</sup>	Two livestock reservoirs located on PW51A. One has water right, other does not.	Water Right would transfer with title to the property. Apply for water right on second reservoir.				
Encumbrances	Road Easement to Boise Cascade across all three parcels.	Property would be acquired subject to terms and conditions of the easement, all of which are acceptable to the US.				
	One-half interest in all minerals is outstanding to a third party on 40 acres of PW51D.	Exchange facilitator would acquire mineral rights prior to US acquisition of property. US would acquire both surface and mineral rights.				
	Coal, oil, gas and other minerals rights are outstanding to a third party on 40 acres of PW51C and 40 acres of PW51D.	Exchange facilitator would acquire mineral rights prior to US acquisition of property. US would acquire both surface and mineral rights.				
<b>PW52/Map 7</b>			✓			✓
Appurtenant Water Right <sup>1</sup>	One livestock reservoir located on this parcel.	Water Right would transfer with title to the property.				
Encumbrances	Road Easement to Boise Cascade across all three parcels.	Property would be acquired subject to terms and conditions of the easement, all of which are acceptable to the US.				

1) History of use and therefore current status of some water rights may be dubious

### Environmental Consequences

The FS and facilitator, Clearwater, have agreed to comply with the curative action items identified in Tables 95 and 96 for the Proposed Action Alternative. These tables also identify which curative actions would apply to alternatives 3, 4 and 5. The FS, State of Oregon and the private landowners would be responsible for curative actions identified for all action alternatives.

## Facilities

The objective of this section is to disclose information related to facilities the FS would like to acquire. The analysis area boundary is parcels to acquire with existing structures and other improvements.

Facilities and parcel inspections were completed by a team of specialists trained to identify basic issues of noncompliance with structures and lands. The majority of the team's focus was on hazardous materials/wastes and solid wastes which is addressed in the Hazardous Materials section. Refer to the Hazardous Materials section for a listing of parcels where structures currently exist. All of these structures are to be removed (with the exclusion of PM26 and PW48) as a condition of the exchange.

## Regulations Applying to the Analysis

In general, the FS is in a downward trend in acquiring, constructing, replacing, and repairing facilities. Given this trend, it was recognized that it is important the facilities within an acquisition plan are not a burden to the financial situation. Region Six management direction is not to acquire facilities (i.e. buildings, water systems, wastewater systems, etc.) unless it can be shown to be in the best interest of the government and the public. A preliminary evaluation of the following facilities has determined it would be in the government's best interest to acquire them. The PR has documentation related to the evaluation of these facilities.

## Affected Environment

*PM26* contains a small one-room cabin (600+/- sf), outhouse (20 +/-sf), hay shed (200+/- sf), and corrals. The current use is for range management. Propane gas is the fuel used on site. The FS would like to acquire this parcel with all structures "as is" under the Proposed Exchange or Deed Restriction alternatives. The facilities would be retained for their historical values. They would not be maintained or upgraded for other uses, thereby not taxing limited facilities maintenance funding.

*PW 48* is known as the Litch Ranch. The parcel consists of a cabin (1000+/- sf), horse barn (1500+/- sf), shed (200+/- sf), outhouse (20+/- sf), corrals, water system, with propane fuels. The FS would like to acquire this parcel with all structures "as-is" under all action alternatives. The water system would be decommissioned or improved with proper analysis after the acquisition. Prior to acquisition, the current landowner would remove all household hazardous wastes as described in the Hazardous Materials section. The buildings on this parcel appear to have historical significance. Until further evaluation is completed, they would be managed as though they are eligible for the National Register of Historic Places. Acquisition of the property would facilitate recreation management of the HCNRA. The property could be used by the FS as a staging area for trail crews during the spring and early summer months to access the Lord Flat/Summit Ridge/Dorrance Cow Camp area.

The following Table 101 summarizes Parcel/Facilities Acquisition Proposals.

**Table 101. Facilities Acquisition Summary**

Parcel #	Category	Sub-Cat.	Size (SF) <sup>1</sup>	Proposed Actions Needed <sup>3</sup>	Notes for future planning <sup>2</sup>
PM26	Housing	Cabin	600	2, 3a,	4a
	Storage	Shed	200	2, 3a,	4a
	Service	Pit Toilet	20	2, 3a,	1, 4a
PW48	Housing	Cabin	1000	2, 3a,	4a
	Storage	Barn	1500	2, 3a,	4a

**Table 101. Facilities Acquisition Summary (continued)**

Parcel #	Category	Sub-Cat.	Size (SF) <sup>1</sup>	Proposed Actions Needed <sup>3</sup>	Notes for future planning <sup>2</sup>
	Storage	Shed	200	2, 3a,	4a
	Storage	Shed	200	2, 3a,	4a
	Service	Pit Toilet	20	2, 3c	1, 4a
<b>Total Cost Of Acquisition<sup>3</sup></b>					<b>\$20,000<sup>2</sup></b>

1) Estimated based on site visit information, actual size may vary

2) Total cost with 2004 dollars; future cost should consider inflation. This is a one time estimated cost of acquisition for these sites. The cost includes historic evaluation, recording, and management/retention of site for its historic value.

3) See list of actions below

### Actions and Notes for future planning

- 1) Consider possible replacement depending on use.
- 2) Requires Lead Paint and Asbestos materials report prior to acquisition
- 3) Building would be coded as: a) Decommissioning; b) Develop for Alternative Use; or c) Retain for Existing Use. (Decommissioning for historical buildings means that the buildings would be retained for their historic value, but would not be maintained or upgraded for other uses.)
- 4) Building Condition Index: a) Abate Major Hazards; b) Maintain Until Retirement; c) Keep Operational; d) Repair Critical Services; e) Highest Quality, Like New

### Environmental Consequences

The FS is currently in a down sizing trend. Facilities and parcels with observed deficiencies have been identified, listed, and logged with a recommended action. These recommended actions are considered to be the minimally acceptable actions necessary to endorse parcels for acquisition in all action alternatives. Estimated costs to the government beyond the acquisition have been identified in Table 101.

### Property Boundaries

The Resources Planning Act targeted all property boundaries to be posted by the year 2020. The Umatilla, Malheur and Wallowa-Whitman National Forests have been systematically surveying, posting, marking and maintaining boundaries in accordance with the budgets allotted for this activity. This section discloses the anticipated costs associated with property boundaries by alternative.

Total boundary cost and saving calculations for the period it would take to complete all landline location were made from the three Forest's Cadastral Landline Status Inventories. Total miles of maintenance, boundary removal, and new boundary marking needs were calculated by parcel for each action alternative. One-time maintenance costs were estimated to be \$2,000 per mile; boundary removal costs were estimated at \$650 per mile; and new boundary marking costs were estimated to be \$10,000 per mile. Refer to the PR for a detailed cost/savings analysis by Forest. Refer to the following Social and Economic section for detailed cost/savings analysis in Tables 119 and 120.

Table 102 shows miles of boundaries eliminated, boundaries created and total savings by alternative.

**Table 102. Property Boundary Status and Savings by Alternative**

Alternatives	Boundary Eliminated		Boundary Created	
	Marked Miles	Unmarked miles	New Miles	Total Savings
1	271	156	75	\$1,176,964
2	NA	NA	NA	NA
3	12	36	11	\$265,338
4	52	94	68	\$331,773
5	253	152	73	\$1,126,566

### **Alternative 1: Proposed Exchange**

This alternative would reduce the miles of National Forest boundary that would need to be surveyed and posted on the three forests involved by approximately 81 miles. After considering costs for maintenance and for removal of boundaries not needed, the total net savings to the FS would be approximately \$1,176,964. The eliminated 271 miles of marked boundary would not have to be maintained in the future and would not be exposed to possible encroachments or adjacent owner activity.

### **Alternative 2: No Action**

Since no land would be exchanged under this alternative, Federal property boundaries would not change. All established marked boundary lines would continue to be maintained and unmarked boundaries would be surveyed in accordance with attainment goals and budgets. Existing encroachments identified on NF parcels to convey under Alternative 1 would be resolved as budgets allowed.

### **Alternative 3: Purchase**

This alternative would reduce the miles of FS property boundary that would need to be surveyed and posted on the three forests involved by approximately 25 miles. After considering costs for maintenance and for removal of boundaries not needed, the total savings to the FS would be approximately \$265,338. The eliminated 12 miles of marked boundary, which represents less than 5% of the eliminated boundary under Alternative 1, would not have to be maintained in the future.

### **Alternative 4: Deed Restriction**

The Deed Restriction Alternative would reduce the miles of FS property boundary that would need to be surveyed and posted on the three forests involved by approximately 26 miles. After considering costs for maintenance and for removal of boundaries not needed, the total savings to the FS would be approximately \$331,773. The eliminated 52 miles of marked boundary, which represents less than 20% of the eliminated marked boundary under Alternative 1, would not have to be maintained in the future.

### **Alternative 5: Preferred Alternative**

The Preferred Alternative would reduce the miles of FS property boundary that would need to be surveyed and posted on the three forests involved by approximately 79 miles. After considering costs for maintenance and for removal of boundaries not needed, the total savings to the FS would be approximately \$1,126,566. The eliminated 153 miles of marked boundary, would not have to be maintained in the future and would not be exposed to possible encroachments or adjacent owner activity. The unmarked boundary would be 4 miles less than the unmarked boundary in Alternative 1.

## **Heritage**

The objective of this section is to identify heritage resources or properties on NF parcels to convey that may be adversely affected. The analysis area boundary is limited to the Federal parcels involved in the Proposed Land Exchange.

## **Laws and Regulations Applying to the Analysis**

The National Historic Preservation Act (NHPA) of 1966 established the Federal government's policy on historic preservation and related programs, including the National Register of Historic places (NRHP), through which that policy is implemented. Under the NHPA, historic properties include "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places" (16 United States Code [USC] 470w (5)). The criteria used to evaluate the



NRHP eligibility of properties affected by Federal agency undertakings are contained in 36 CFR 60.4 and are as follows:

Section 106 (16 USC 470f) of the NHPA requires Federal agencies, prior to taking action to implement an undertaking, to take into account the effects of their undertaking on historic properties and to afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment regarding the undertaking.

### **Affected Environment**

Heritage resource inventories were completed from 1998 through the spring of 2004 on all Federal parcels proposed for conveyance. Numerous separate inventories were completed on the Malheur NF, Umatilla NF, and on the Wallowa-Whitman NF.

Through a records search each heritage resource inventory compiled and recorded pertinent environmental background, American Indian history and non-Indian history. This research also included a review of the appropriate Forest Site Files and a check of the heritage resource overview of the Malheur, Umatilla, and Wallowa-Whitman National Forests. The heritage resource inventories and associated records are filed in the PR or appropriate Forest Heritage Resource file.

The inventories for the Umatilla NF and Malheur NF were based on individual Forest survey designs that had been approved by Oregon State Historic Preservation Office (SHPO) (Thomas 1991).

The Wallowa-Whitman NF used the Stratified Inventory Probability Sample (SIPS) system. All areas delineated by SIPS were examined by use of pedestrian transects. The transect intervals varied and were largely dependent on the anticipated site density, steepness of the inventoried area and ground visibility of a given survey area. In areas of dense ground vegetation cover (e.g., vegetation, forest duff), surface debris was periodically removed to mineral soil. Windows of opportunity (gopher mounds, wind fallen rootwads, road cuts or erosive areas) were closely examined.

The result of the heritage resource surveys on the FS parcels to convey in the proposed Blue Mountain Land Exchange revealed several sites and isolates that required additional field review to determine status for their National Register eligibility. Based upon the additional field reviews it has been determined that there are no sites eligible for the National Register of Historic Places on Federal parcels currently considered for conveyance in the Proposed Land Exchange.

### **Environmental Consequences**

#### **Alternatives 1 and 5: Proposed Exchange and Preferred Alternative**

An appropriate inventory has been conducted for the Federal parcels involved in this alternative. Federal parcels with potential impacts to heritage resources have been dropped from this alternative; therefore all potential impacts to heritage resources have been avoided by redesigning the Proposed Exchange Alternative. Consequently, conveyed Federal parcels in this alternative would have “No Effect” on any National Register listed or eligible heritage resources. The Forest Archaeologist has reviewed all Heritage Resource Inventory Reports for compliance with the NHPA of 1966, Protection of Historic Properties, and Programmatic Memorandums of Agreement and has forwarded his recommendations and copies of reports to the Oregon State Historic Preservation Office.

Existing Federal laws and related programs would protect any heritage resource sites on the private and State of Oregon parcels to acquire.

### **Alternative 2: No Action**

Site degradation from current environmental stresses such as weathering would continue on sites that have been determined to not be eligible for the NRHPs with no additional impacts on Federal parcels. Heritage resource sites on private parcels would continue to lack special protective measures.

### **Alternative 3: Purchase**

Site degradation from current environmental stresses such as weathering would continue on sites that have been determined to be eligible for the NRHPs with no additional impacts on Federal parcels.

Existing Federal laws and related programs would protect any heritage resource sites on purchased private and State of Oregon parcels.

### **Alternative 4: Deed Restriction**

This alternative would result in the same effect to Federal parcels as described under Alternative 1.

Existing Federal laws and related programs would protect any heritage resource sites on the private and State of Oregon parcels to acquire.

## **American Indian**

### **Exercise of American Indian Treaty Rights and Cultural Uses**

The Proposed Land Exchange occurs within areas ceded to the United States government by the following recognized tribes: the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) by the *Treaty With The Walla Walla, Cayuse, etc.*, 1855; the Nez Perce Tribe by the *Treaty With The Nez Perce*, 1855; the Burns Paiute Tribe, by Executive Order; and the Confederated Tribes of the Warm Springs Reservation by the *Treaty With The Tribes Of Middle Oregon* in 1855. The FS, through the Secretary of Agriculture, is vested with statutory authority and responsibility for managing resources of the National Forests. No sharing of administrative or management decision-making power is held with any other entity. However, commensurate with authority and responsibility to manage is the obligation to consult, cooperate, and coordinate with Federally recognized Indian Tribes in developing and planning management decisions regarding resources on NFS lands that may affect tribal rights established by treaty or Executive Order. As a result of the treaties and Executive Orders, elements of Indian culture, such as tribal welfare, land, and resources were entrusted to the United States government.

The FS shares in the Federal government's overall trust responsibility where treaty, laws, Executive Orders, case law, or other legally defined rights apply to NFS lands. (Article 1, Section 8, Clause 3 of the United States Constitution authorized Congress to regulate "commerce ... with Indian tribes."). Trust responsibilities resulting from the Treaties or Executive Order dictate, in part, that the United States government facilitates the execution of treaty rights and traditional cultural practices of recognized tribes. The FS assists with this shared responsibility by working with the tribes on a government-to-government basis and in a manner that attempts a reasonable accommodation of their needs, without compromising the legal positions of the Tribe or the Federal government.

Tribes have expressed rights reserved in the treaties. The treaties state "That the exclusive right of taking fish in the streams running through and bordering said reservation is hereby secured to said Indians; and at all other usual and accustomed stations, in common with citizens of the United States, and of erecting suitable houses for curing the same; also the privilege of hunting, gathering roots and berries, and pasturing their stock on open and unclaimed lands, in common with citizens, is secured to them" (Treaty

with The Tribes of Middle Oregon and Treaty With The Walla Walla, Cayuse, etc. The Treaty with the Nez Perce has similar language.). Much of the Federal lands are considered open and unclaimed lands for the purpose of exercising treaty rights. It is the responsibility of the FS to ensure the objectives above can be met and to address interests in managing and restoring habitat to support healthy, sustainable, and harvestable populations of culturally significant vegetative floral and faunal species. Although the Treaties do not specifically mandate the Federal government to manage habitats, there is an implied assumption that an adequate reserve of water be available for executing treaty related hunting and fishing activities.

The Proposed Land Exchange also includes areas currently utilized by non-treaty Executive Order Tribes that do not hold specific reserved rights. Utilization of NFS lands for all Federally recognized Tribes is protected by American Indian Religious Freedom Act, Executive Order 13007 – Sacred Sites, Executive Orders 13084 & 13175 – Consultation and Coordination with Indian Tribal Governments, and Executive Order 12898 – Environmental Justice.

### **Affected Environment**

The following is a summary of information provided by the tribes on their internet sites and/or taken from information and maps prepared for the Interior Columbia Basin project. The intent of this section is to characterize use and interests of the lands involved in the exchange and in no way is intended to indicate differences between tribal use and culture.

#### **Burns Paiute Tribe**

Their reservation lands are located near Burns, Oregon. Their primary interest area includes lands on the Malheur National Forest and the southern portions of the Umatilla National Forest and Wallowa-Whitman that includes the John Day and Burnt River systems. Other areas of interest include the Malheur, Powder, Silvies, Crooked, Blitzen, and Owyhee Rivers plus Harney and Malheur Lakes. The tribe became recognized by an Executive Order of March 1872 that also established the 1,778,560-acre Malheur Indian Reservation. In 1883 another Executive Order dissolved the reservation. They had signed a treaty in the 1860s that was never ratified by Congress.

The Tribe is associated with the northern division of the Paiute peoples. The original homelands included southeast Oregon, most of northwest Nevada and a portion of southwest Idaho. The Burns Paiute are composed of bands that were historically centered near Malheur and Harney Lakes, uplands of the Crooked River, the upper John Day, Fort Bidwell, and Owyhee River lowlands. The Burns Paiute Tribal members continue to hunt and gather traditional foods. Roots such as camas, bitterroot, and biscuit root are dug in the spring. In late summer chokecherries and berries are gathered. People also gather willow and tulle for making baskets and cradleboards. Other crafts traditional to the Burns Paiute, which are practiced in the community, include beadwork and drum making. The hunting of elk, deer, quail, and groundhog as supplemental food sources continue as well.

#### **Confederated Tribes of the Umatilla Indian Reservation**

The Cayuse (Weyiiletpuu), Walla Walla (Waluulapan), and Umatilla (Imatalamlama) tribes make up the members of this reservation. Their reservation lands are adjacent to the Umatilla and Wallowa-Whitman National Forests and the city of Pendleton, Oregon. Their interest area includes the Malheur River and Malheur and Harney Lakes to the south, the Grande Ronde and lower Snake River in the east and north, the Yakima, John Day, and Umatilla Rivers and the Columbia River from Vantage, Washington, to west of the Dalles, Oregon. Important river fisheries include the Grande Ronde, Imnaha, John Day, Tucannon, Walla Walla, Wallowa, Touchet, Umatilla, Columbia, and Minam along with their tributaries. The Tribe has been active with salmon restoration in the Umatilla and Walla Walla Rivers and in returning water to

these two streams in order to maintain migratory routes. The Proposed Land Exchange would acquire parcels in the headwaters of Meacham Creek (a tributary of the Umatilla), the John Day System, and the lower Imnaha River.

### **Confederated Tribes of the Warm Springs Reservation**

The Wasco Bands, the Warm Springs Bands, and the Northern Paiutes are members of the reservation. Their area of interest includes Malheur and Harney Lakes in the southeast to the headwaters of the Deschutes River in the southwest, crossing Mount Hood to west of Portland, and along the Columbia River to the mouth of the Snake River along with the John Day system. There are historic family connections with the Umatillas and since the co-location of other tribes to the reservation, other family connections have developed. Important streams to them are the Columbia, Crooked, Deschutes, Hood, and John Day Rivers and Fifteen Mile Creek. Their Treaty ceded the majority of the John Day system to the United States.

### **Nimi'ipuu (Nez Perce)**

Their Treaty established a reservation for the Nez Perce Tribe. The reservation is located along the Clearwater River, east of Lewiston. Their area of interest includes lands east of the Snake River as far north as Coeur d'Alene. It extends westward including the Snake and Palouse Rivers and the Columbia to The Dalles. To the south it includes the North Fork of the John Day to the confluence of the Malheur and Snake Rivers. Important streams include the Clearwater, Grande Ronde, Imnaha, Powder, Rapid, Salmon, Lower Snake, Lochsa, Selway, and Columbia Rivers.

Deep canyons were the traditional Nez Perce tribal lands. They traveled with the seasons relying on the rivers, mountains, and prairies for sustenance. In early spring, the women traveled to the lower valleys to dig root crops and the men traveled to the Snake and Columbia rivers to intercept the early salmon runs. In mid-summer all the people of the village moved to higher mountainous areas setting up temporary camps to gather later root crops, fish the streams, and hunt big game. By late fall, they settled back into their traditional villages along the Snake, Clearwater, and Salmon rivers. Salmon and other fish, game, dried roots, and berries provided winter foods.

The basic roots gathered for winter storage included camas bulb (kehmmes), bitterroot (thlee-tahn), khouse (qawas), wild carrot (tsa-weetkh), wild potato (keh-keet), and other root crops. Fruit collected included serviceberries, gooseberries, hawthorn berries, thorn berries, huckleberries, currants, elderberries, chokecherries, blackberries, raspberries, and wild strawberries. Other food gathered includes pine nuts, sunflower seeds, and black moss.

### **Fort McDermitt Paiute-Shoshone, and Shoshone-Paiute Tribe of Duck Valley**

These tribes are located in southeast Oregon and northern Nevada. Their area of interest overlaps at the Malheur and Owyhee Rivers. These tribes would not be impacted by the Proposed Land Exchange because no parcels are located in their area of interest.

### **Environmental Consequences**

Letters were sent to Tribal leaders of the Nez Perce, Burns Paiute, CTUIR, Warm Springs, Fort McDermitt Paiute-Shoshone, and Shoshone-Paiute Tribe of Duck Valley. All tribes have responded verbally or in writing to the letter. Both the Nez Perce Tribe and CTUIR have been instrumental in bringing treaty issues forward. The FS has had several meetings with both the Nez Perce Tribe and the CTUIR individually throughout the process. The Umatilla NF and the CTUIR have jointly looked at the parcels on Horseshoe Ridge. Both the Walla Walla District Ranger and the Umatilla NF Forest Supervisor

have met with the CTUIR on several occasions. Through these meetings and letters of response many concerns have been shared. All action alternatives have attempted to address these concerns (see summary of issues at the end of Chapter 2).

## **Access for Traditional Uses and the Exercising of Treaty Rights**

### **Alternative 1: Proposed Exchange**

Under this alternative, isolated parcels and NFS lands along the three forests boundaries would be exchanged for interior private and State of Oregon lands. The acquisition of the interior lands would reduce the risk of accidental trespass onto private lands and consolidate Federal lands in the anadromous fish portions of the Imnaha and North Fork John Day Rivers. NFS lands available for traditional use would increase by approximately 13,570 acres, although each individual tribe would not necessarily see an increase in NFS lands available within their individual traditional use areas. Conveyed Federal lands would no longer be available for exercise of Treaty rights. For example, a Tribal member may be impacted by the loss of public lands conveyed to private ownership. The ability to exercise treaty rights would remain because similar upland habitat would be acquired and would be available for traditional uses. Although similar habitats are being acquired and a greater number of acres are being acquired, no assessment of quality has been made. Road and trail access to public lands that provide for the exercise of traditional uses would be unchanged because there would be no change in travel management plans or rights-of-ways. Any roaded access to the newly acquired lands would be retained by the FS for public access as part of the transfer of property. Future changes in motorized access would be addressed with the appropriate documentation.

Lands proposed for conveyance in the Meacham Creek and Butcher Creek areas (CTUIR ceded lands) would cause individual tribal members of the CTUIR to shift to other areas for hunting. Ridgetop walking access to the upper Butcher Creek canyon would be lost. The acquisition of lands on Horseshoe Ridge provides an area with year round roaded access and would be the likely place that hunting could shift to since it is in the same GMU and is located near the conveyed acres. Alternative 1 does not affect the access to lands north of Butcher Creek and south of Meacham Creek, parcels FU3A, B, C, D, and E that comprise approximately 3,440 acres. Though the FS would convey these lands, there currently is no roaded public access to this area. Walking access is very difficult because of having to climb into and out of the Butcher and Meacham Creek canyons. In summary, the FS would have a net loss of approximately 1,300 acres in Meacham and Butcher Creeks under Alternative 1, however this alternative would block up Federal land ownership on Horseshoe Ridge and in the lower portions of Meacham and Butcher Creeks, important anadromous fisheries habitat and root gathering areas. It would also increase roaded access to public lands.

The CTUIR has expressed very specific concern over parcels FU3E and 4; these parcels have historically been used by a family unit. Under Alternative 1 the family would be displaced. Although there may be another area for that family to be displaced; the sense of place and family history would be lost.

The last land exchange in the Meacham Creek area occurred in the mid 1990s, east of the current Proposed Land Exchange. In that exchange, the FS acquired approximately 1,160 acres and conveyed approximately 1,600 acres in the Meacham Watershed. The FS acquired a total of 2,200 acres in the Umatilla Watershed including Meacham. Historically the FS has been acquiring lands along Meacham Creek. Previous land exchanges have been supporting tribal concerns for salmon recovery by acquiring stream habitat in areas with limited access. Previous land exchanges in the Meacham and Imnaha drainages have achieved little in providing access for Treaty Rights. These drainages are within gorges with little to no road access. Accessing these areas requires strenuous walks over very steep, 60 to 80 percent, slopes. Under Alternative 1, there would be no road decommissioning proposed in the

foreseeable future that would reduce access to acquired remote parcels. Roads on acquired parcels could be closed. Seasonal openings could be arranged for some cultural uses, such as gathering. These changes could be made in the future with appropriate documentation and processes. The parcels conveyed would not impact access for traditional uses.

### **Summary- Alternative 1**

Acres available for exercising treaty rights would change by watershed. Most watersheds would have a net gain of acres; that is National Forests would acquire more acres than they would convey. Only the Umatilla Watershed (loss of approximately 2,250 acres) and the Upper Grande Ronde (loss of approximately 800 acres) would have a net reduction of NFS lands. Alternative 1 continues the trend of past land exchanges where upland habitat is conveyed in exchange for acquisition of stream habitat. Similar upland habitat is found in other locations on both the acquired lands and remaining NFS lands. Tribal use of upland habitat would change to new locations. The FS would retain rights-of-way for roads on ceded lands when they are needed to access acquired lands or other NFS lands and would relinquish rights-of-way on ceded lands when the roads or trails no longer provide access to NFS lands. Public rights-of-way would also be secured to access the new acquired lands. The exchange would retain or acquire rights-of-way to provide access and a later roads analysis would determine open, closed and season roads as well as maintenance levels. Access to NFS lands over the three-forest area would not be reduced by this land exchange.

### **Alternative 2: No Action**

There would be no changes in acres of NFS lands and no changes to access for traditional uses. Remote areas with difficult and steep access would remain, as they currently exist. Road and trail travel management and rights-of-ways would remain as they currently exist. The potential for trespass on private inholdings would continue.

### **Alternative 3: Purchase**

Under this alternative, the majority of the acres purchased would be in the Imnaha drainage; 3,180 acres of the 4,250 acres. No acres would be purchased in the Umatilla drainage. The purchase of parcels would not adversely impact access for traditional uses and the exercising of treaty rights. Access and travel management and road rights-of-ways would essentially remain unchanged. Accessing the lands purchased in the lower Imnaha and within the HCNRA would require using the current trail system. The purchase would acquire additional riparian habitat along the Imnaha, a high priority fisheries habitat, and extends the connection of high quality habitat under Federal protection in support of the Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program. There would be substantially less acres of high quality riparian habitat becoming NFS lands than proposed in Alternative 1.

### **Alternative 4: Deed Restriction**

Alternative 4 would result in a net decrease of approximately 1,050 acres of NFS lands because of the loss in value of National Forest lands with deeded covenants.

There would be a net loss of approximately 3,120 acres of NFS lands in the Meacham Creek watershed. Approximately 3,440 acres in the area north of Butcher Creek and south of Meacham Creek would be conveyed. This area does not have public access by roads and can only be accessed by a long, arduous walk. Current access to traditional use sites on conveyed parcels would be retained through deeded covenants. These covenants would cause no displacement of a family unit.

The lands acquired by the FS in Alternative 4 are those important to anadromous fisheries along Meacham Creek and Joseph Creek, and the Imnaha, North Fork John Day, and Middle Fork John Day Rivers. Alternative 4 would not block up the NFS lands on Horseshoe Ridge as would occur in Alternative 1 and not provide as many acres of easily accessible land for gathering as Alternative 1. Since access for treaty rights would be retained in the deed, the walk into northern Butcher Creek would be unchanged.

The impacts to access for traditional uses and exercise of treaty rights would be similar to that disclosed for Alternative 1 although there would be a net loss of NFS lands. The past land exchanges have blocked up important riparian habitat as would this alternative. This alternative would provide added protection of riparian habitat in high priority fisheries habitat, connecting quality habitat in support of the Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program.

### **Alternative 5: Preferred Alternative**

This alternative would convey land ownership and management authority on approximately 16,475 acres of National Forest System lands and acquire 30,834 acres of private lands (Table 104). NFS lands available for traditional use would increase by approximately 14,359 acres. All parcels proposed for exchange are within the geographic area of ceded lands and/or area of interest for the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation, the Nez Perce Tribe, or Burns Paiute Tribes. The Preferred Alternative is similar to Alternative 1 except it does not include FU3E, FU4, FU21, PW44A and parcels or portions of parcels listed in Appendix D under the heading "Parcels Dropped from action alternatives between NOI and FEIS". A list of these parcels is displayed on page S-13.

In the *Umatilla watershed*, this alternative retains the National Forest System lands in the Upper Meacham and Butcher Creeks area. The National Forest would also retain riparian habitat along Meacham Creek by removing the riparian areas from the Proposed Exchange Alternative. The dropping of National Forest System lands from the Proposed Exchange has the potential to result in the FS not being able to acquire some lands on Horseshoe Ridge. In the *John Day watershed*, the Preferred Alternative blocks up National Forest lands by conveying isolated parcels and lands along the Forest boundary. This exchange involves primarily lands traditionally used for hunting elk and big game. Impacts resulting from the Preferred Alternative to elk habitat are discussed in the FEIS wildlife section. The management of fisheries resources in the North Fork John Day would be improved by acquiring riparian and floodplain habitat. Parcels of cultural interest to the tribe included in the Proposed Exchange have been removed from the Preferred Alternative. In the *Wallowa and Lower Grande Ronde watersheds*, interior National Forest System Lands and the Eagle Cap Wilderness would be blocked up under Alternative 5 by conveying lands along the National Forest boundary. In the *Imnaha watershed*, National Forest System Lands and portions of the Hells Canyon Recreational Area would be blocked up by conveying lands from locations mainly outside the watershed. The National Forest would acquire lands within the Imnaha Wild and Scenic corridor plus riparian and floodplain habitat. In the *Middle Snake River watershed* very few exchange acres occur within this watershed. A small parcel along the National Forest boundary near Unity would be conveyed. The National Forest acquires lands adjacent to the Eagle Creek Wild and Scenic River corridor.

### **Impacts to Open and Unclaimed Lands**

Open and unclaimed lands are public lands that the treaties state the tribes have "the privilege of hunting, gathering roots and berries, and pasturing their stock on open and unclaimed lands, in common with citizens" (Treaties). The action alternatives would impact the amount and location of open and unclaimed lands within treaty areas (tables 99, 100 and 101).

**Table 103. Summary of Open and Unclaimed Lands within Treaty Areas**

Treaty Area	Total Ceded Lands (Acres)	Lands Held by States (Acres)	Federal Lands (Acres) <sup>1</sup>	County and Other Lands (Acres) <sup>2</sup>	Reservation Lands (Acres)
Nez Perce	8,278,359	35,194	1,983,089	389	750,000
Umatilla	6,522,211	18,012	1,552,669	2,517	172,000
Middle Oregon	4,007,410	44,496	1,823,776	0	650,000
Burns Paiute	0	31,064	1,798,552	1,704	500
<b>Total</b>	<b>18,807,980</b>	<b>128,766</b>	<b>7,158,086</b>	<b>4,610</b>	<b>1,572,500</b>

1) Federal jurisdiction includes major agencies including FS, BLM, Park Service, and Bureau of Reclamation.

2) County and Other lands includes minor Federal lands

Taken from GIS information about ownership

**Table 104. Acres of Conveyed and Acquired Lands by Treaty Area**

Treaty Area	Alternatives						
	1-Cv	1-Aq	3-Pr	4-Cv	4-Aq	5-Cv	5-Aq
Nez Perce	4,610	13,961	3,819	4,610	10,494	4,599	13,522
Umatilla	7,147	5,078	87	7,147	2,024	5,499	4,925
Middle Oregon	6,373	12,702	343	6,373	4,601	6,335	12,387
Burns Paiute	42	0	0	42	0	42	0
<b>Total</b>	<b>18,172</b>	<b>31,741</b>	<b>4,249</b>	<b>18,172</b>	<b>17,119</b>	<b>16,475</b>	<b>30,834</b>

Cv – convey, Aq – acquire, Pr - purchase

**Table 105. Changes to the Amount of Open and Unclaimed Federal Lands by Treaty Area**

Treaty Area	Alternatives							
	1-Ac	1 Ac-%	3-Pr	3 Pr-%	4-Ac <sup>1</sup>	4 Ac-%	5-Ac	5 Ac-%
Nez Perce	+ 9,351	+ 0.47	+ 3,819	+ 0.19	+ 10,494	+ 0.53	+9,169	+0.46
Umatilla	- 2,069	- 0.13	+ 87	+ 0.006	- 1,002	- 0.07	-574	-0.04
Middle Oregon	+ 6,329	+ 0.35	+ 343	+0.02	- 1,772	- 0.10	+6,052	+0.33
Burns Paiute	- 42	- 0.002	0	No change	- 42	-0.002	-42	-0.002
<b>Total</b>	<b>+ 13,569</b>	<b>+ 0.19</b>	<b>+ 4,249</b>	<b>+ 0.06</b>	<b>+ 7,678</b>	<b>+ 0.11</b>	<b>+14,605</b>	<b>+0.20</b>

The percent change is based on Federal Lands considered for exchange/purchase

1) Alternative 4 retains access for hunting and gathering on 13 parcels in the CTUIR Treaty Area totaling 4,121 acres and 33 parcels of Nez Perce totaling 4,610 acres. The lands conveyed with deeded covenants are not counted as a loss of open and unclaimed lands. The deeded covenants retain the use of conveyed lands for the exercising of Treaty Rights.



## Effects Common to All Action Alternatives

The overall scale of the effect on lands available for exercising treaty rights would not be noticeable at the landscape scale. There would still be over 7 million acres of Federal lands within the lands ceded by treaties (Table 103). The action alternatives would cause minor changes to lands considered open and unclaimed (Table 105).

### Alternative 1: Exchange Alternative

Alternative 1 would have the second highest net increase in open and unclaimed lands with 13,569 acres. This alternative increases open and unclaimed lands by approximately 0.2 percent. Open and unclaimed lands ceded by the treaty with the CTUIR would have a loss of .13 percent. Individual families or tribal members may be impacted by the loss of a particular parcel that they have been using and may have to seek permission of the new land owner to continue using the lands, however not all current uses may be allowed by the new landowner. Individuals may have to change the location of use but suitable habitat for gathering or hunting is expected to be found on the acres acquired by Alternative 1. National Forest lands proposed for conveyance within the CTUIR ceded area increases the NFS lands in the Imnaha River drainage, an important anadromous fisheries habitat. Even though the Imnaha is outside the Umatilla Indian's ceded lands boundary the Umatilla Indians consider it one of their usual and accustomed places for the taking of fish, therefore making it an important area for acquiring fisheries habitat. The 3,344 acres proposed for conveyance within Butcher Creek likely would not impact the amount of open and unclaimed lands available to the CTUIR because there is no public road access, and walks into the area are arduous. Alternative 1 would acquire more open and unclaimed acres on Horseshoe Ridge, an area with roaded access adjacent to the CTUIR Reservation and with habitat providing culturally important root gathering.

The CTUIR expressed concern over conveying parcels FU3E and FU4, 964 acres, because Tribal members hunt in the area. The Horseshoe Ridge lands proposed for acquisition provides root gathering habitat. Parcels FU3E and FU4 do not have roaded access and straddle the Butcher Creek canyon. Alternative 1 would block up NFS lands on Horseshoe Ridge and Meacham Creek, allowing greater access for hunting without potential trespass onto private land. These ceded lands are within four miles of the CTUIR reservation. The conveyance of the Highway 84 parcels would require individuals to change locations for hunting. Both the Horseshoe Ridge and Highway 84 areas have similar elevation. The Horseshoe Ridge area peaks at 4,400 feet with the acquired lands occurring at 4,200 feet, and then descends into Meacham Creek. The Highway 84 parcels are at 4,200 feet and descend into Butcher Creek. The slope aspects between the two areas are different. Butcher Creek makes an "S" turn through the Highway 84 parcels on an east-west axis providing varied aspects in a narrow, steep canyon. The Horseshoe Ridge area provides south and southwest aspects on not as steep slopes. Acquiring the Horseshoe Ridge lands would likely increase tribal subsistence hunting and potential root gathering due to more land being available, easier roaded access onto lands adjacent to the Reservation, and being in an area that gets fluctuating depths of winter snow with early spring access. Acquiring the Horseshoe Ridge lands would likely improve the ability of the CTUIR to exercise treaty rights and be a benefit to sustaining cultural activities.

Though this Proposed Land Exchange decreases acres within the CTUIR ceded lands boundary, the amount of ceded, open and unclaimed lands has increased in all treaty areas when past land exchanges are added together. The last land exchange from the 1990s increased open and unclaimed lands by over 3,000 acres within the CTUIR ceded lands.

### **Summary- Alternative 1**

The Proposed Land Exchange would be made up of similar habitat types within the Blue Mountain grass tree mosaic. Even though the FS would convey upland habitat for riparian and fisheries habitat, Alternative 1 includes parcels extending above the riparian corridors onto the uplands that replaces habitat conveyed in other locations. Alternative 1 along with past land exchanges support tribal concerns for salmon recovery by acquiring stream habitat in areas with limited access. The location of open and unclaimed lands would change and the amount of easily accessible open and unclaimed lands would increase.

### **Alternative 2: No Action**

There would be no change in acres or location of open and unclaimed lands.

### **Alternative 3: Purchase**

Alternative 3 is responsive to tribal member needs although it would have the least net increase in open and unclaimed lands with 4,250 acres. This alternative increases open and unclaimed lands by approximately 0.06 percent. The purchase of 87 acres would not have a noticeable effect on the amount of open and unclaimed lands within the CTUIR ceded lands boundary.

The purchasing of lands increases the amount of open and unclaimed land with ceded boundaries. The vast majority (3,820 acres) of the acquired lands is located within Nez Perce ceded boundary and also overlaps with the CTUIR's area of interest. As with Alternative 1 there would be a net increase in open and unclaimed lands when combined with past land exchanges, however it would provide the least amount of open and unclaimed lands of the acquisition alternatives.

### **Alternative 4: Deed Restriction**

The overall effects of Alternative 4 would be similar to Alternative 1. The exception is that Alternative 4 would have a net reduction in NFS lands of about 1,050 acres. Alternative 4 is responsive to tribal member needs by providing deed covenants that would retain access and use similar to open and unclaimed lands on approximately 4,121 acres conveyed by the FS. Retaining rights as proposed in Alternative 4 would cause a net increase of approximately 3,071 acres of land in “open and unclaimed status”, with a decrease of approximately 1,000 acres in the CTUIR treaty area. There would be a net increase in open and unclaimed lands when combined with past land exchanges, as is the case with Alternative 1.

### **Alternative 5: Preferred Alternative**

The Preferred Alternative is responsive to tribal members needs by holding CTUIR lands of concern in Federal ownership. Parcels FU3E, FW44A, FU4 and FU21 were withdrawn in this alternative. This action may cause a reduction in the lands available for Federal acquisition. Though the Preferred Alternative assumes Horseshoe Ridge parcels would be acquired, it is not guaranteed because some of the private parcels may be withdrawn from this alternative in response to the dropping of Federal parcels. Under this scenario, the Preferred Alternative would have access to Horseshoe Ridge but not as many acres would become available for exercising treaty rights.

The Preferred Alternative increases lands available for exercising treaty rights by approximately 0.18 to 0.2 percent (Refer to American Indian Specialist Report in the PR). This estimated increase would not be noticeable at the landscape scale. The overall effect on lands available for exercising treaty rights would not be measurable; there would still be over 7 million acres of Federal lands within the lands ceded by

treaties. Alternative 1 impacts the CTUIR the greatest because of the loss of Federal lands near the reservation. The Alternative 5 is designed to mitigate that loss but not entirely.

The Preferred Alternative would potentially lose between 0.04 and 0.12 percent of unclaimed lands ceded by the treaty with the CTUIR (Refer to American Indian Specialist Report in the PR). Alternative 1 would cause a loss of 0.13 percent; there would be no change with Alternative 3; and Alternative 4 would lose 0.07 percent (Table 105).

## **Cultural Resources**

### **Alternatives 1, 4 and 5: Exchange Alternative, Deed Restriction and Preferred Alternative**

Five parcels, totaling 141 acres, have been identified by the CTUIR as places where tribal members hunt and gather roots and berries. One parcel is within 1.5 miles of a traditional fishing area. This parcel is located in uplands and ridgetops over a mile from the Wallowa River along Water Creek Canyon. The conveyance of this parcel would not impact access or use of the fishing site of concern. Conveyance of the parcels would affect tribal hunting and gathering rights as these lands would no longer be available to tribal members to practice these reserved treaty rights.

### **Alternatives 2 and 3: No Action and Purchase**

There would be no impact to cultural resources because no Federal parcels would be conveyed. The existing condition would continue, and American Indian cultural uses would continue on existing Federal lands.

## **Protecting the Resources in the Treaties**

Resources identified in the treaties include, fisheries, hunting, gathering roots and berries, and pasturing livestock. The CTUIR has supported protection of high quality habitat and fisheries restoration projects as demonstrated by their efforts in the Umatilla and Walla Walla watersheds. Other tribes are involved with habitat improvement projects as well. Maintaining and increasing anadromous fish populations helps with their ability to take fish at usual and accustomed places along the Columbia, Umatilla, Grande Ronde, Imnaha, and Snake Rivers and sustains their culture.

The presence of steelhead trout and bull trout and the CTUIR successful restoration of salmon in the Umatilla basin provide the basis for American Indian interest in the land exchanges. The tribes have an interest in maintaining salmon production for exercising cultural fishing activities in usual and accustomed places. The CTUIR has been active with the Northwest Planning Council's 2000 Columbia River Basin Fish and Wildlife Program that proposes increased emphasis on Columbia River sub-basin tributaries for recovery of listed species. The strategy for salmon builds outward from core areas of healthy populations in intact habitat. Habitat protection and recovery tactics would differ depending on whether habitat condition is currently "intact", "restorable", "compromised", or "blocked". Meacham Creek and the Umatilla River have intact, year-round, fisheries habitat. The Imnaha and North Fork John Day Rivers also have quality fisheries habitat located on private lands surrounded by NFS lands.

The CTUIR have an interest related to culturally significant plants within the Umatilla National Forest lands overlapping ceded territory. Gathering roots and berries are an important cultural activity protected by treaties. A botany specialist report was written to identify culturally significant plants within the common lands of the Umatilla N.F. and the ceded territory of the CTUIR. This document describes the 164 presently known culturally significant plants that occur within conveyed and acquired parcels. Tables in this report show total conveyed and acquired acreages by plant association and total acres of plant association groups within the Umatilla NF (within Oregon) and CTUIR ceded lands. A

plant association is a plant community with a definable plant composition, uniformity of appearance, stability, and habitat which is able to persist over time within its environment. Each exchange parcel was described in terms of total plant associations present. Plant associations are the smallest and most detailed level of forest management. A total of 39 plant associations describe the lands identified within the scope of this specialist report.

Conveyed lands have been classified by plant associations through botanical field surveys, stand exams, and photo interpretation. Acquired lands have been classified through photo interpretation. The classifications helped determine which culturally significant plants may potentially occur within a given parcel. By using the Umatilla Biodiversity Index (a 20 year compiled field survey list of plant species occurrences within existing plant associations) it was possible to populate each plant association within exchange parcels with a list of potentially culturally significant plant species (PR).

Table 106 combines the 39 plant associations into 8 plant association groups. A plant association group is a grouping of similar plant associations. These groups include forest types and their unique potential assemblage of culturally significant plant species: Cottonwood/...90 plants, Douglas Fir/...87 plants, Ponderosa Pine/...89 plants, Non-forest/...112 plants, Sub alpine Fir/...80 plants, White Fir/...67 plants, Lodgepole pine/...50 plants, and Western Juniper/...109 plants. A culturally significant plant may be found in more than one plant association group.

Table 106 also provides a comparison of plant associations acquired (+) and conveyed (-) as well as acreages for both. It is important to understand how net potential acreage losses and gains have been calculated for each culturally significant plant association group. The figures in table 102 are an over estimate of the potential acres supporting these plants. Potential net acreage gain or loss for each of the 164 culturally significant plants listed in the specialist report (PR) assumes that every acre of every plant association group supports a given plant. This is of course rarely the case for the following reasons: 1) seldom will a plant species occupy all plant associations in a given plant association group or groups, 2) not every plant association provides optimal conditions for each individual, (actual densities may be quite low and often difficult to detect) and, 3) even under optimal conditions not all sites will be fully occupied. For further detailed information refer to the Botany Specialist report in the PR. These acres represent Blue Mountain Land Exchange acres within CTUIR ceded land within Umatilla NF only.

**Table 106. Conveyed and Acquired Acres by Series and Alternative**

Alternative 1 (acres)			Alternative 4 (acres)			Alternative 5 (acres)		
Convey	Acquire	Net Change	Convey	Acquire	Net Change	Convey	Acquire	Net Change
Black Cottonwood								
48	22	-26	48	22	-26	49	22	-27
Douglas Fir								
1589	636	-953	1589	243	-1346	1296	636	-660
Ponderosa Pine								
970	605	-365	970	91	-879	881	605	-276
Non-Forested								
1862	1550	-312	1862	458	-1404	1390	1514	+124
Subalpine Fir								
0	0	0	0	0	0	0	0	0

**Table 106. Conveyed and Acquired Acres by Series and Alternative (continued)**

Alternative 1 (acres)			Alternative 4 (acres)			Alternative 5 (acres)		
Convey	Acquire	Net Change	Convey	Acquire	Net Change	Convey	Acquire	Net Change
White Fir								
2255	1532	-723	2255	478	-1777	1668	1511	-157
Lodgepole Pine								
23	0	-23	23	0	-23	46	0	-46
Western Juniper								
0	7	+7	0	0	0	0	7	+7
<b>Totals</b>								
<b>6747</b>	<b>4352</b>	<b>-2395</b>	<b>6747</b>	<b>1292</b>	<b>-5455</b>	<b>5330</b>	<b>4295</b>	<b>-1035</b>

Note: Alternative 3 would result in a the purchase of 12 acres of White Fir

A minus represents a loss in acres

### Effects Common to All Action Alternatives

Hunting, gathering and grazing would not be impacted by the action alternatives. The tribes currently do not graze livestock on open and unclaimed lands. Open and unclaimed lands would continue to be available for exercising treaty rights. Open and unclaimed land would retain the ability to productively support the treaty rights for hunting and pasturing of livestock. Refer to the Wildlife section for information concerning cumulative effects analysis on big game species.

All action alternatives would consolidate areas of fisheries habitat, potentially increase fisheries production, maintain the taking of fish at usual and accustomed places (Wildlife section), and protect water quality. Alternative cumulative effects analysis on water quality is discussed in the Hydrology and Soils sections. All action alternatives would connect and protect areas of refugia. All action alternatives would increase riparian protection by placing more miles of stream under the riparian objectives of PACFISH and INFISH. Conveyed parcels do not have irrigateable lands. The parcels are steep with limited access to the quantity of water needed for irrigation. Springs are the primary source of summer water. The action alternatives would not be expected to reduce water to the streams.

Lands acquired/purchased within and adjacent to roadless or wilderness areas have high quality habitat attributes that assist in achieving the goals of the Columbia River Basin Fish and Wildlife Program.

Table 107 shows each action alternative's exchange acre relationship to existing wilderness and roadless areas within ceded lands by treaty or Executive Order.

**Table 107. Acres of Roadless and Wilderness Areas within Ceded Lands by Treaty or Executive Order**

Total Acres of Ceded Lands	Roadless Acres Including Wilderness	Conveyed Acres within Roadless			Acquired Acres within or Adjacent to Roadless and Wilderness		
		Alt 1 & Alt 5	Alt 3	Alt 4	Alt 1 & Alt 5	Alt 3	Alt 4
<b>Middle Oregon</b>							
4,007,410	267,871	0	0	0	314	0	0
<b>Walla Walla Cayuse</b>							
6,522,211	552,643	3		3	340	142	341

**Table 107. Acres of Roadless and Wilderness Areas within Ceded Lands by Treaty or Executive Order (continued)**

Total Acres of Ceded Lands	Roadless Acres Including Wilderness	Conveyed Acres within Roadless			Acquired Acres within or Adjacent to Roadless and Wilderness		
		Alt 1 & Alt 5	Alt 3	Alt 4	Alt 1 & Alt 5	Alt 3	Alt 4
<b>Nez Perce</b>							
8,278,359	1,015,027	1,846	0	1,846	9,798	3,293	8,622
<b>Burns Paiute</b>							
	105,458	0	0	0	0	0	0

Table 108 below shows the relationship of each action alternative's exchange acres in watersheds within or adjacent to roadless areas.

**Table 108. Proposed Exchanged Acres within or Adjacent to Roadless Areas by Watershed**

Watershed	Alternatives						
	1-Cv	1-Aq	3-Pr	4-Cv	4-Ac	5-Cv	5-Aq
Imnaha (Nez Perce Treaty)	846	7,181 within or adjacent to roadless	2,681 within or adjacent to roadless	846	7,181 within or adjacent to roadless	846	7,157 adjacent to roadless
Wallowa Lower Grand Ronde (Nez Perce Treaty)	1,000	1,786 within or adjacent to roadless	381 within or adjacent to roadless	1,000	610 within or adjacent to roadless	1,000	1,786 adjacent to roadless
Umatilla (Walla Walla Cayuse)	3	2,877 adjacent to roadless	0	3	854 adjacent to roadless	3	2,831 adjacent to roadless
Upper John Day (Middle Oregon)	0	314 within or adjacent to roadless	0	0	0	0	314 adjacent to roadless

Cv – convey, Aq – acquire, Pr - purchase

### Alternative 1: Proposed Exchange

This alternative places a strong focus on acquiring lands with potential to protect pristine conditions and connect high quality fisheries habitat. Approximately 33 percent of all the acquired acres in Alternative 1 would be within or adjacent to roadless and wilderness areas. Approximately 10 percent of conveyed lands in this alternative would be in roadless areas. Alternative 1 would acquire substantially more miles

of fish bearing streams, perennial (except Alt. 4), and intermittent streams than it would convey. This alternative would have a net gain of approximately 40 miles of fish bearing, 10 miles of perennial, and 96 miles of intermittent streams. The locations of fish bearing streams acquired are lower in the watersheds than that conveyed. The upper reaches that would be conveyed go dry in the summers, particularly Butcher Creek in the Umatilla basin. The conveyed portions of the streams were called fish bearing because steelhead spawn in these reaches before they become dry in the summer. The acquired fisheries habitat is high quality fish rearing habitat and would support reaching population goals for the Columbia River Basin Fish and Wildlife Program.

Alternative 1 would have 0.7 miles net loss of fish bearing streams in Meacham Creek. The major portions of fish bearing streams conveyed by the FS in Meacham Creek are dry during the summer. Steelhead spawn in these streams but rear downstream.

Natural resource projects implemented on NFS Lands either improve or maintain riparian objectives. Implementation of PACFISH and INFISH Standards and Guidelines for FS projects would limit impacts to riparian areas and fish production. Alternative 1 would not be expected to have cumulative effects that would reduce populations of anadromous fish. The connecting of high quality fisheries habitat would help recovery efforts and help reach the goals of the Columbia River Basin Fish and Wildlife Program thereby allowing continual use of culturally important usual and accustomed places for the taking of fish.

Alternative 1 would result in a net loss of land potentially supporting culturally significant plant species within the Umatilla National Forest lands overlapping ceded territory of the CTUIR, but the loss is minimal when considering total acres in the ceded territory (Table 106 & PR).

### **Alternative 2: No Action**

Under this alternative, the current ability to hunt, gather roots and berries, and pasture livestock would not change. Fisheries habitat would continue to be impacted by private ownership and related uses.

### **Alternative 3: Purchase**

Alternative 3 only purchases land therefore no roadless acres would be conveyed. Approximately 81 percent of all purchased acres would be within or adjacent to roadless and wilderness areas. This alternative would have a net gain of approximately 14 miles of fish bearing streams, 2 miles of perennial, and 33 miles of intermittent.

Alternative 3 would result in a minor net gain in land potentially supporting culturally significant plant species within the Umatilla National Forest lands overlapping ceded territory of the CTUIR (Table 106).

### **Alternative 4: Deed Restriction**

This alternative places a strong focus on acquiring lands with potential to protect pristine conditions and connect high quality fisheries habitat. Approximately 52 percent of all the acquired acres in Alternative 4 would be within or adjacent to roadless and wilderness areas. Alternative 4 would have a net gain of approximately 27 miles of fish bearing streams, a net loss of 5 miles of perennial, and a net gain of 43 miles of intermittent streams. This alternative would retain protection of the RHCAs on parcels conveyed by the FS as a deeded convent. Even though the parcels would no longer be NFS lands, riparian buffers would be applied similar to PACFISH and INFISH. The combined acquired and conveyed lands for Alternative 4 would result in a net increase in miles of riparian areas protected by Federal standards within ceded lands; approximately 39 miles of fish bearing streams, 14 miles of perennial, and 117 miles of intermittent. The locations and characteristics of streams acquired and conveyed are similar to the narrative for Alternative 1. Alternative 4 would have a net loss of 1.9 miles of fish bearing streams in

Meacham Creek. Alternative 4 would also have a net loss of 4.1 miles in the Upper John Day River. In addition, the deed restriction would provide for “traditional uses of the following parcels for hunting, fishing, and gathering by members of the Confederated Tribes of the Umatilla, as defined in the Umatilla Treaty of 1855, and would be maintained in trust to Tribal members in perpetuity”: FU2, FU3A, FU3B, FU3C, FU3D, FU3E, FU4, FU5, FU11, FU10B, FU12, FU13, and FU14.

This alternative would not be expected to have cumulative effects with other FS activities that would reduce populations of anadromous fish. The connecting of high quality fisheries habitat would help recovery efforts and help reach the goals of the Columbia River Basin Fish and Wildlife Program thereby allowing continual use of culturally important usual and accustomed places for the taking of fish.

Alternative 4 would result in a net loss of land potentially supporting culturally significant plant species within the Umatilla National Forest lands overlapping ceded territory of the CTUIR, but the loss is minimal when considering total acres in the ceded territory (Table 106 & PR). This loss would be in excess of twice the acres that would occur under Alternative 1.

### **Alternative 5: Preferred Alternative**

The Preferred Alternative would retain the National Forest System lands in upper Meacham and Butcher Creek. Access for the CTUIR to exercise treaty rights would be retained in this area as it is currently. The dropping of parcels in this alternative may result in the reduction of parcels acquired by the Forest Service in Meacham Creek. The potential net loss of Federal land within Meacham Creek ranges between 574 acres to 1,816 acres depending on the number of parcels removed from this alternative by the private land owners. It is also likely Federal ownership on Horseshoe Ridge would not be blocked up. If this occurs, the current conditions for risk of trespass would remain. Also less land would be available for general tribal members because the lands on Horseshoe Ridge would provide easier, roaded access than the walk-in only access found in Upper Meacham/Butcher Creek.

This alternative places a strong focus on acquiring lands with potential to protect pristine conditions and connect high quality fisheries habitat. Approximately 34 percent of all the acquired acres in Alternative 5 would be within or adjacent to roadless and wilderness areas. Approximately 11 percent of conveyed lands in this alternative would be in roadless areas. Alternative 5 would acquire substantially more miles of fish bearing streams, perennial (except Alt. 4), and intermittent streams than it would convey. This alternative would have a net gain of approximately 40 miles of fish bearing, 13 miles of perennial, and 95 miles of intermittent streams. The Preferred Alternative focuses on retaining and acquiring riparian habitat in Meacham Creek and supports salmon recover efforts.

Alternative 5 would result in a net loss of land potentially supporting culturally significant plant species within the Umatilla National Forest lands overlapping ceded territory of the CTUIR, but the loss is minimal when considering total acres in the ceded territory (Table 106 & PR).

## **Compliance with Other Laws, Regulations and Policies**

### **National Historic Preservation Act**

Federal properties proposed for conveyance have been surveyed for historic properties. These surveys, located in the PR, found no historic properties on Federal parcels. The proposed acquired parcels would be surveyed for historic properties at a later time when and if an exchange is approved. Avoidance measures would be implemented where necessary, per Stip.III.B.2 (a-d) of the Programmatic Agreement between the ACHP, the Oregon State Historic Preservation Officer (SHPO), and the USFS Region 6, signed March 1997. Since heritage resources would not be affected by any of the alternatives, there would be no effect to any cultural property listed in, or eligible to the NRHP. Documentation to this effect has



been forwarded to the Oregon SHPO, in compliance with the National Preservation Act of 1966 (as amended), 36 CFR 800.4 and the Programmatic Agreement.

**American Indian Treaty Rights**

The US government is bound to perform its trust duties in a manner that will not diminish, abridge, violate, or abrogate reserved treaty or Executive Order rights. The Umatilla, Wallowa-Whitman, and Malheur National Forests endeavored to solicit the comments from the Nez Perce Tribe, the Burns Paiute Tribe, the Confederate Tribes of the Warm Springs Reservation, the Fort McDermitt Paiute-Shoshone Tribes, the Shoshone-Paiute Tribe of Duck Valley, and the Confederated Tribes of the Umatilla Indian Reservation to determine what effects may occur to Tribal welfare and treaty resources as a result of the Proposed Land Exchange. The Confederated Tribes of the Umatilla Indian Reservation provided comments and visited the Meacham Creek area with the Walla Walla District Ranger and the Forest Supervisor of the Umatilla National Forest. Below is a summary of potential impacts to exercising treaty rights. More detail can be found in the previous narratives.

*Fisheries:* The Proposed Land Exchange would have no detrimental impacts to fisheries habitat. The exchange would acquire and connect high quality fisheries habitat in the Imnaha, Meacham, the North Fork John Day, Middle Fork John Day and the lower Grande Ronde/ Wallowa Rivers. The acquisition of private and State of Oregon lands would increase the stream miles under PACFISH and INFISH riparian protection and standards (Table 109). The improved habitat protection and connection would likely lead to higher anadromous fish populations supporting the goals of the Columbia River Basin Fish and Wildlife Program and helping to maintain the ability of the tribes to fish in usual and accustomed places. The Preferred Alternative is similar to the Proposed Exchange Alternative.

**Table 109. Total Stream Type Changes by Alternative**

Alternative	Miles of Fish Bearing	Miles of Perennial	Miles of Intermittent
1	+ 40	+ 10	+ 96
3	+14	+ 2	+ 33
4	+27	- 5	+ 43
5	+40	+13	+95

*Viable populations of existing and desired wildlife and plant species:* Even with the focus on acquiring high quality riparian habitat, big game populations would remain available for hunting. The uplands would provide winter and spring habitat and the riparian areas would provide summer habitat. It is possible that Alternative 1 would cause Horseshoe Ridge to receive higher hunting pressure from the Tribe because it has roaded access and is adjacent to the Reservation. Alternative 1 blocks up Horseshoe Ridge into Federal lands. The Preferred Alternative has the potential to not acquire parcels on Horseshoe Ridge because of withdrawn parcels FU3E, FW44A, FU4, and FU21.

Alternative 1 and 5 would improve the ability of the CTUIR to gather culturally important root plants.

*Access:* None of the alternatives would change or encumber access to open and unclaimed lands. The Preferred Alternative and Proposed Land Exchange would not change the road and trail access and travel management plans of the Forests. Road rights-of-ways would be unchanged. Access may be arduous for reaching some of the exchange lands within roadless and wilderness areas or the HCNRA. The action exchange alternatives would not pose access restrictions on open and unclaimed lands.

Alternative 4 would provide access on lands conveyed by the use of deeded covenants so it has the appearance of providing more acres of access. The cost for this additional access is likely less lands becoming NFS Lands. This would impact potential root gathering ability that Alternative 1 would provide by acquiring the private lands on Horseshoe Ridge.

## **Social and Economic Environment**

This section addresses the potential social and economic effects of the alternatives evaluated in detail over a 10-year period. The parcels proposed for exchange are distributed across six contiguous northeast Oregon counties: Baker, Grant, Morrow, Umatilla, Union, and Wallowa, with the majority of the exchange lands (approximately 95 percent) located in Grant (28 percent), Umatilla (30 percent), and Wallowa (37 percent) counties. Potential social and economic effects associated with the Proposed Land Exchange include changes in employment, income, government taxes and revenues, and National Forest System (NFS) land management and administration costs. These effects are likely to occur primarily in Grant, Umatilla, and Wallowa counties where the majority of the Proposed Exchange parcels are located. Although the effects are likely to be relatively small in Baker, Morrow, and Union counties, these counties are also included in the analysis.

### **Affected Environment**

The following presents a general overview of the social and economic conditions of the six counties that comprise the analysis area and provides a baseline that the potential effects of the alternatives may be measured against. The discussion is organized into four topics that address demographic characteristics and trends, employment and the economy, government taxes and revenues, and land management administrative costs, respectively.

### **Demographic Characteristics and Trends**

The following presents a brief overview of population and traditional uses and lifestyles in the six-county analysis area. For additional details, refer to the Social and Economic Environment Resource Report located in the PR.

#### **Population**

The six county analysis area had a total population of 137,975 in 2000, with county populations ranging from 7,226 in Wallowa County to 70,548 in Umatilla County. Total population increased in all six counties in the 1990s, with increases ranging from just 1 percent in Grant County to 44.2 percent in Morrow County. The analysis area is sparsely populated, with an average population density of 7.7 persons per square mile compared to a statewide average of 35.6 persons per square mile. County population densities ranged from just 1.8 persons per square mile in Grant County to 21.9 persons per square mile in Umatilla County (U.S. Census Bureau, 2003). The area's population tends to be concentrated along the Interstate-84 corridor, with approximately 37 percent of the six-county area's population residing in Baker City, La Grande, Pendleton, or Hermiston in 2000. The main population centers in Grant and Wallowa counties are the John Day and Wallowa River valleys, respectively. Boardman and Heppner are the largest communities in Morrow County, accounting for approximately 39 percent of total county population in 2000 (Portland State University, 2003a). The analysis area may be generally characterized as a collection of small towns and cities surrounded by NFS, farm, and ranch lands (Oregon Employment Department, 2001a). Federally-managed lands account for about 44 percent of the six-county area, compared to 50 percent statewide. The majority of Federal lands in the study area (89 percent) are NFS lands, with the BLM managing the remaining 11 percent. The percent of Federally managed lands ranges from approximately 11 percent in Morrow County to 60 percent in Grant County (McGinnis et al., 1996).

Population projections developed by the State of Oregon in 1997 anticipate continued population growth through 2010 in all of the analysis area counties, with total population in the six-county area projected to increase by 8 percent compared to a projected statewide increase of 13 percent. Further population increases are anticipated by 2020 (Oregon Office of Economic Analysis, 1997).

Baker, Grant, Union, and Wallowa counties had predominantly white populations, with more than 90 percent of their populations identifying as White in the 2000 census. Morrow and Umatilla counties were more diverse with relatively large Hispanic/Latino populations, 24.4 percent and 16.1 percent compared to a statewide average of 8.1 percent, respectively. Umatilla County also had a relatively large American Indian population, with 3.2 percent of the population identifying as American Indian compared to 1.2 percent statewide (Social Science Data Analysis Network, 2004).

### **Traditional Uses and Lifestyles**

The following discussion is concerned with the traditional uses and lifestyles associated with the HCNRA. Approximately 8,199 acres of the private lands considered for exchange as part of the Blue Mountain Land Exchange are located within the HCNRA. The Federal parcels considered for exchange include 695 acres located within the HCNRA. This NRA, which was established by Congress in 1975, includes parts of six counties and three states. These counties are Baker and Wallowa in Oregon, Adams, Idaho, and Nez Perce in Idaho, and Asotin in Washington. Approximately 74 percent of the 652,488-acre HCNRA is located in Wallowa County and the entire HCNRA is administered by the Wallowa-Whitman National Forest. While the majority of HCNRA consists of Federal lands, the area also includes approximately 33,000 acres of privately owned lands (FS, 2004b). Private land ownership within the Wallowa County portion of HCNRA is largely concentrated along the Imnaha River canyon, extending south from the town of Imnaha and north from the HCNRA boundary to the confluence of the Imnaha and Snake rivers.

Traditional uses and lifestyles within the HCNRA are based on ranching. Public comment summarized in the HCNRA CMP Final EIS (FS, 2004b) described the traditional ranching culture within the HCNRA as unique to that area, primarily due to the steep terrain and remoteness of the area. Transportation into and within the area was primarily by boat, horseback, or foot, with supplies moved by boat and pack train. General agricultural practices were very similar to those practiced prior to World War II, with horses and mules serving as the primary sources of power for agriculture.

Public comments made during scoping for the proposed Blue Mountain Land Exchange indicated a number of concerns about the private exchange parcels located within the HCNRA. Many people expressed concern that exchanging these parcels would be another step toward all public land in HCNRA, which would change the unique values and character of the area. Concerns were also expressed that a reduction in private lands would reduce future opportunities on the remaining private lands, as well as reducing their value due to uncertainty surrounding future management. One person was concerned about the potential effects of the Proposed Land Exchange on working relationships on the remaining private parcels within the HCNRA (FS, 2003a).

### **Employment and the Economy**

The following provides an overview of employment and the economy in the six potentially affected counties. For a discussion on socioeconomic resiliency, the distressed area index, employment in the analysis area by sector over time, and income and poverty, refer to the PR. The following discusses unemployment and employment by county and provides an overview of the industries (lumber, wood products, recreation and tourism, and agriculture) that could be potentially affected by the Proposed Land Exchange.

## Unemployment

Average annual unemployment rates in 2001 ranged from 5.8 percent in Union County to 10.8 percent in Morrow and Wallowa counties, compared to a statewide average of 7.5 percent. Unemployment rates exceeded the state annual average in all of the study area counties with the exception of Morrow. Baker, Grant, and Umatilla counties had 2001 average annual unemployment rates of 8.8 percent, 10.2 percent, and 7.2 percent, respectively. Unemployment rates in all six counties were consistently higher than the state and national averages throughout the 1990s, with the exception of Union County, which had a rate below the state average in 2000 and 2001 (Oregon Employment Department, 2003a).

## Employment by County

Employment is summarized by sector and county for 2001 in Table 110. The following paragraphs provide a brief overview of employment trends by county. Emphasis is placed on Grant, Umatilla, and Wallowa counties where the majority of the effects are expected to occur.

**Table 110. Total Employment by Sector and County, 2001**

	Baker	Grant	Morrow	Umatilla	Union	Wallowa	Oregon
Total full-time and part-time employment (jobs)	8,980	4,505	5,420	38,451	15,144	4,467	2,108,342
<b>Percent of Total Employment</b>							
<b>By Type:</b>							
Wage and salary employment	64	67	75	79	73	55	80
Proprietors employment	36	33	25	21	27	45	20
<b>By Industry</b>							
Farm employment	12	13	21	9	8	16	3
Non-farm employment	88	87	79	91	92	84	97
Forestry, fishing, related activities, and other	3	8	0	0	0	5	1
Mining	1	0	0	0	0	0	0
Utilities	1	1	3	1	0	0	0
Construction	5	6	4	5	5	7	6
Manufacturing	8	7	15	11	9	6	11
Wholesale trade	2	2	3	2	2	0	4
Retail trade	13	11	7	11	12	12	11
Transportation and Warehousing	3	2	3	7	0	3	3
Information	1	1	0	1	1	1	2
Finance and insurance	3	2	2	3	3	2	4
Real estate and rental and leasing	4	2	2	2	3	4	4
Arts, entertainment, and Recreation	1	1	0	1	2	3	2
Accommodation and food Services	8	5	0	6	6	7	7
Other services <sup>1</sup>	13	8	4	18	19	16	28
Government/government enterprises	15	24	14	18	19	17	13
Federal, civilian	3	6	1	2	2	3	1
Military	1	1	1	1	1	1	1
State and local	11	17	13	16	17	13	11

1) This category is a combination of the following sectors: professional and technical services; management of companies and enterprises; administrative and waste services; educational services; health care and social assistance; and other services, except public administration. Source: U.S. Bureau of Economic Analysis, 2003b.

*Grant County.* Total employment increased by just 1 percent in Grant County between 1990 and 2000, with 4,436 full- and part-time jobs identified in the county in 2000. Data for 2001 indicate that the economy of Grant County is relatively specialized in the farm and government sectors, with the farm sector accounting for 13 percent of total employment in 2001 compared to 3 percent statewide (Table 110). The FS is a major employer in Grant County and government accounted for 24 percent of total county employment compared to 13 percent statewide. Grant County is relatively underrepresented in the manufacturing sector, 7 percent of total employment compared to 11 percent statewide, with over 90 percent of local manufacturing related to lumber and wood products (U.S. Bureau of Economic Analysis, 2003a; 2003b).

Agricultural employment remained relatively constant between 1990 and 2000 with total farm employment decreasing by 3 percent or 18 jobs. The manufacturing and Federal government sectors experienced more dramatic declines with respective decreases of 35 percent (239 jobs) and 30 percent (128 jobs) mainly reflecting declines in the wood products industry and associated FS employment (Oregon Employment Department, 2001c; U.S. Bureau of Economic Analysis, 2003a).

*Umatilla County.* Total employment in Umatilla County increased by 28 percent between 1990 and 2000, with 38,835 full- and part-time jobs identified in 2000. Data for 2001 indicate that government is the largest employer in the county, accounting for 18 percent of total employment compared to 13 percent statewide (Table 110). The county is also relatively specialized in the farm sector, which accounted for 9 percent of total employment compared to 3 percent statewide. The transportation and warehousing sector also plays a relatively important role in the county economy accounting for 7 percent of total employment versus 3 percent statewide. Manufacturing accounts for 11 percent of total county employment, with food production and wood products playing important roles (U.S. Bureau of Economic Analysis, 2003a; 2003b).

Agricultural employment in Umatilla County remained relatively constant between 1990 and 2000 with total farm employment decreasing by 11 jobs or 0.3 percent. Large absolute and relative gains occurred in the retail trade (2,083 jobs; 42 percent) and services (2,835 jobs; 46 percent) sectors. The construction and transportation and public utilities sectors also experienced net job growth over this period, with new projects in the 1990s including co-generation power facilities, a locomotive maintenance facility, a chemical incinerator, and other public building projects (Oregon Employment Department, 2001a; U.S. Bureau of Economic Analysis, 2003a).

*Wallowa County.* Total employment in Wallowa County increased by 11 percent between 1990 and 2000, with 4,543 full- and part-time jobs identified in 2000. Data for 2001 indicate that government is the largest employer in the county, accounting for 17 percent of total employment compared to 13 percent statewide, with the majority of these jobs located in the state and local government sector (Table 110). The local economy of Wallowa County is also relatively specialized in the farm sector, which accounted for 16 percent of local employment versus 3 percent statewide. Retail trade is the next largest employer, accounting for 12 percent of local employment. The construction and accommodation and food services sectors each account for approximately 7 percent of total employment. The forestry, fishing, related activities, and other sector is relatively important for the local economy, accounting for 5 percent of local employment compared to 1 percent statewide. Manufacturing accounted for just 6 percent of county employment in 2001 compared to 11 percent statewide (U.S. Bureau of Economic Analysis, 2003a; 2003b).

In Wallowa County, agricultural employment decreased by 11 percent (82 jobs) between 1990 and 2000. The manufacturing and Federal government sectors also lost jobs over this period, with respective decreases of 31 percent (185 jobs) and 36 percent (81 jobs) mainly reflecting declines in the local wood products industry and associated FS employment. Covered employment in the wood products sector in

Wallowa County declined by 250 jobs during the 1990s. Large absolute and relative gains occurred in the services (373 jobs; 61 percent) and construction (117 jobs; 71 percent) sectors, with the agricultural services, forestry, fishing, and other sector also experiencing a relatively large increase (117 jobs; 121 percent) over this period (Oregon Employment Department, 2001b; U.S. Bureau of Economic Analysis, 2003a).

*Baker, Morrow, and Union Counties.* Total employment increased by 19 percent in Baker County between 1990 and 2000, with 9,037 full- and part-time jobs identified in the county in 2000. Data for 2001 indicate that the economy of Baker County is relatively specialized in the farm and mining sectors, with the farm sector accounting for 12 percent of total employment in 2001 compared to 3 percent statewide. The mining sector accounted for 1.2 percent of total employment compared to 0.2 percent statewide (Table 110). Covered employment in the wood products sector in Baker County declined by 112 jobs during the 1990s (Oregon Employment Department, 2001b).

Total employment in Morrow County increased by 26 percent during the 1990s, with 5,233 full- and part-time jobs identified in the county in 2000. Data for 2001 indicate that Morrow County is relatively specialized in the farm, utilities, and manufacturing sectors, with the farm sector accounting for 21 percent of total employment in 2001 compared to 3 percent statewide. The manufacturing sector accounted for 15 percent of total employment compared to 11 percent statewide (Table 110). Although manufacturing accounted for a relatively large share of total employment in 2001, employment in this sector decreased during the 1990s with declines in the lumber and wood products sector. Food products accounted for more than half of covered manufacturing employment in Morrow County in 2000, with lumber and wood products accounting for approximately 15 percent of total covered manufacturing employment (Oregon Employment Department, 2001a).

Total employment in Union County increased by 18 percent during the 1990s, with 15,304 full- and part-time jobs identified in the county in 2000. Data for 2001 indicate that Union County is relatively specialized in the farm and government sectors, with the farm sector accounting for 8 percent of total employment in 2001 compared to 3 percent statewide (Table 110). The government sector accounted for 19 percent of total employment compared to 13 percent statewide (U.S. Bureau of Economic Analysis, 2003a; 2003b). Covered employment in the wood products sector in Union County declined by 369 jobs during the 1990s. Relatively large job losses also occurred in the transportation and public utilities sector (Oregon Employment Department, 2001b).

### **Potentially Affected Industries**

The following provides an overview of the industries (lumber and wood products, recreation and tourism, and agriculture) that could be potentially affected by the Proposed Land Exchange.

*Lumber and Wood Products.* A total of 81 firms employed 1,610 people in the forestry and logging and wood products manufacturing sectors in the six-county area in 2002 (Table 111). Wood products manufacturing accounted for approximately 84 percent of this total. The 16 wood products manufacturing facilities identified in the six-county area in 2002 were located in Union (7), Umatilla (5), and Grant (4) counties (Oregon Employment Department, 2003b). These three counties, Union, Umatilla, and Grant, accounted for 49 percent (660 jobs), 36 percent (484 jobs), and 16 percent (213 jobs) of total wood products employment in the area, respectively (Table 111).

**Table 111. Forest Products Employment, 2002**

County	Employment			
	Forestry and Logging	Wood Products Manufacturing	Forest Products Total	Percent of County Total
Baker	47	0	47	0.9
Grant	97	213	310	11.5
Morrow	0	0	0	0
Umatilla	52	484	536	1.8
Union	0	660	660	6.9
Wallowa	57	0	57	2.4
<b>Total</b>	<b>253</b>	<b>1,357</b>	<b>1,610</b>	<b>3.1</b>

1) These data compiled by the Oregon Employment Department are a count of workers on the payrolls of business, nonprofit, and government establishments. These data are by place of employment and represent a head county of both full-time and part-time workers, with each job that a person holds counted at full weight. Self-employed workers are not included in these totals.

2) These totals have the potential to both over count and under count employment in the forestry and logging sector where employment is often seasonal or part-time and workers are often self-employed.

3) These data are reported using the North American Industry Classification System (NAICS), which was introduced in 2001. Prior to 2001, Federal and state agencies used the Standard Industrial Classification (SIC) system for payroll, earnings, and employment reporting.

Source: Oregon Employment Department, 2003b.

Direct employment in the forestry and logging and wood products manufacturing sectors accounted for approximately 3.1 percent of total non-farm covered employment in the six-county area in 2002, ranging from 0 in Morrow County to 11.5 percent of total employment in Grant County (Table 111). Employment in the lumber and wood products sector is relatively well paid. The average annual salaries for the forestry and logging and wood products manufacturing sectors in the six-county area were \$27,747 and \$33,221 in 2002, respectively, compared to an average area salary of \$26,956 (Oregon Employment Department, 2003b).

Covered employment in the lumber and wood products sector in the six-county area declined from 3,771 to 2,501 jobs between 1990 and 2000, a loss of 1,270 jobs or 34 percent. Absolute job loss by county ranged from 112 jobs (24 percent) in Baker County to 369 jobs (29 percent) in Union County, with large relative losses occurring in Morrow (84 percent) and Wallowa (61 percent) counties (Figure 4) (Oregon Employment Department, 2003c).

Timber harvest levels in the six-county area have shown an overall pattern of decline since 1990 (Figure 5). Harvest levels ranged from a peak of 690 million board feet (MMBF) in 1990 to a low of 198 MMBF in 2003. Harvest in the analysis area occurs mainly on private and Federal lands. Much of the decline over the past decade has occurred on Federal lands, with harvest levels decreasing from 447 MMBF in 1990 to 29 MMBF in 2003 (Figure 5). Grant County experienced the largest absolute decrease in harvest over this period, with total harvest from all ownerships decreasing from 263 MMBF in 1990 to 37 MMBF in 2003. Total harvest in 2003 ranged from 14 MMBF in Morrow County to 67 MMBF in Wallowa County. The majority of the harvest occurred on private lands (Figure 6).

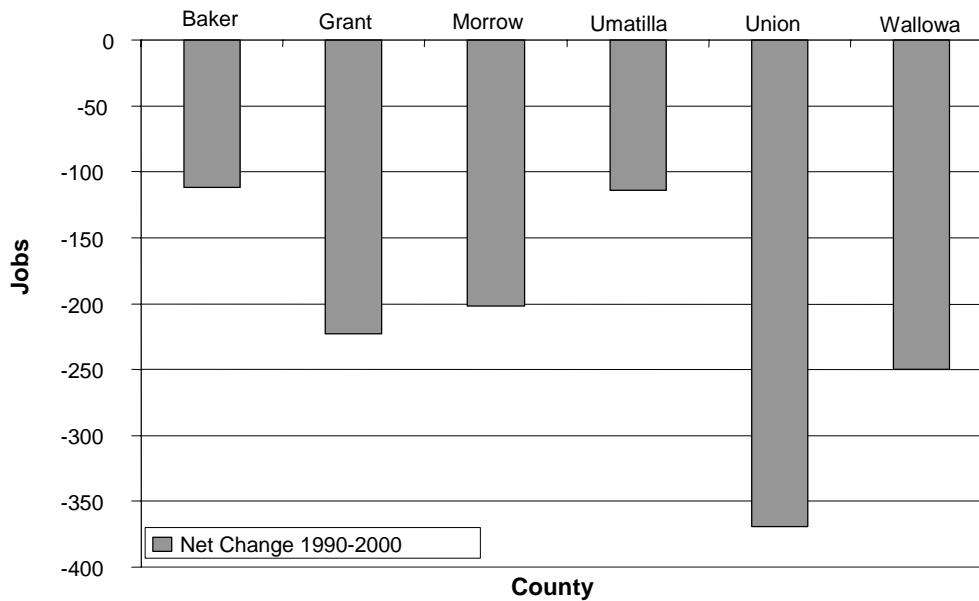
*Recreation and Tourism.* This sector plays an important role in the economies of Wallowa, Baker, and Grant counties (Table 112). Recreation and tourism is not classified or measured as a standard industrial category and, therefore, employment and income data are not specifically collected for this sector. Components of recreation and tourism activities are instead captured in other industrial sectors, primarily the retail sales and services sectors. Estimates of travel impacts developed for the Oregon Tourism Division indicated that travel-related expenditures supported approximately 4,060 jobs in the six-county area in 2002, representing approximately 5.2 percent of total employment in the area compared to 4.3

percent statewide (Table 112). Travel-related employment ranged from 3.3 percent of total employment in Morrow County to 12.1 percent in Wallowa County.

Employment in the recreation and tourism sector generally tends to be seasonal and relatively low paid, with a high proportion of the labor force self-employed. The study prepared for the Oregon Tourism Division indicated that the average annual salary for this sector in the six-county area in 2002 was \$13,916 compared to an area average salary of \$26,956 for all sectors (Dean Runyon Associates, 2004; Oregon Employment Department, 2003b).

*Agriculture.* Agriculture is the primary land use in the six-county area, with farmlands comprising 49 percent of the area. The 1997 Census of Agriculture identified 4,310 farms in the area, with an average farm size of 1,324 acres that varied by county, ranging from 639 acres in Union County to 2,655 acres in Grant County (Table 113). The overall market value of agricultural products sold in the six-county area in 1997 was about \$537 million, with crops and livestock accounting for 67 percent and 33 percent of this total, respectively. The division between crops and livestock did, however, vary by county, with livestock comprising the majority of agricultural products sold in Grant (85 percent), Baker (75 percent), and Wallowa (64 percent) counties. Cattle and calves were the main livestock produced in the area (Table 113).

**Figure 5. Net Change in Lumber and Wood Products Employment, 1990 to 2000**



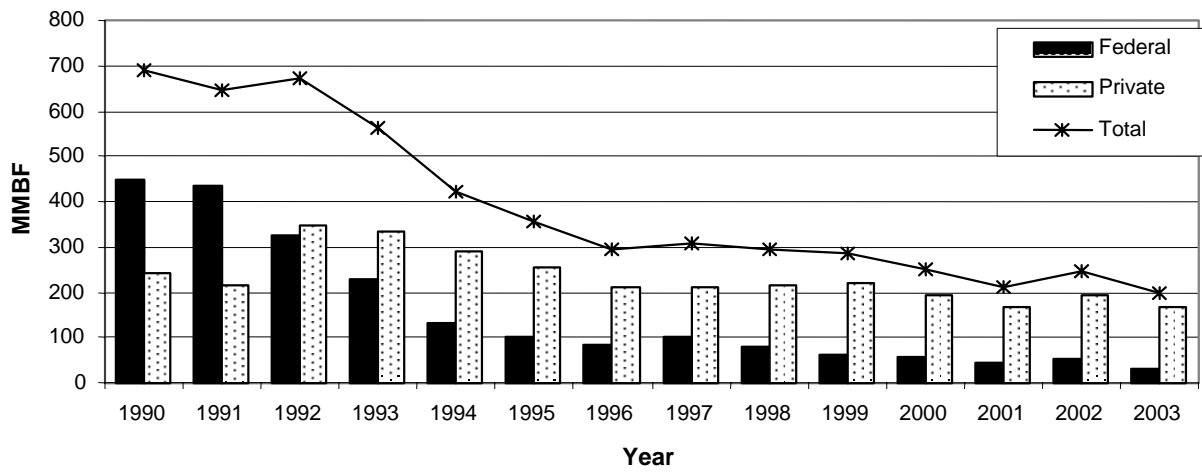
1) Data are covered employment totals for SIC 24 – Lumber and wood products. This group includes establishments engaged in cutting timber and pulpwood; merchant sawmills, lath mills, shingle mills, cooperage stock mills, planing mills, plywood mills, and veneer mills engaged in producing lumber and wood basic materials; and establishments engaged in manufacturing finished articles made entirely or mainly of wood or related materials

2) These data are for SIC 24 and not directly comparable to those in Table 111 (see Table 111, note 3). Employment formerly reported for SIC 24 is distributed over 5 separate NAICS codes including wood product manufacturing and forestry and logging (Table 111), as well as furniture and related product manufacturing, miscellaneous manufacturing, and machinery manufacturing.

Source: Oregon Employment Department, 2003c.

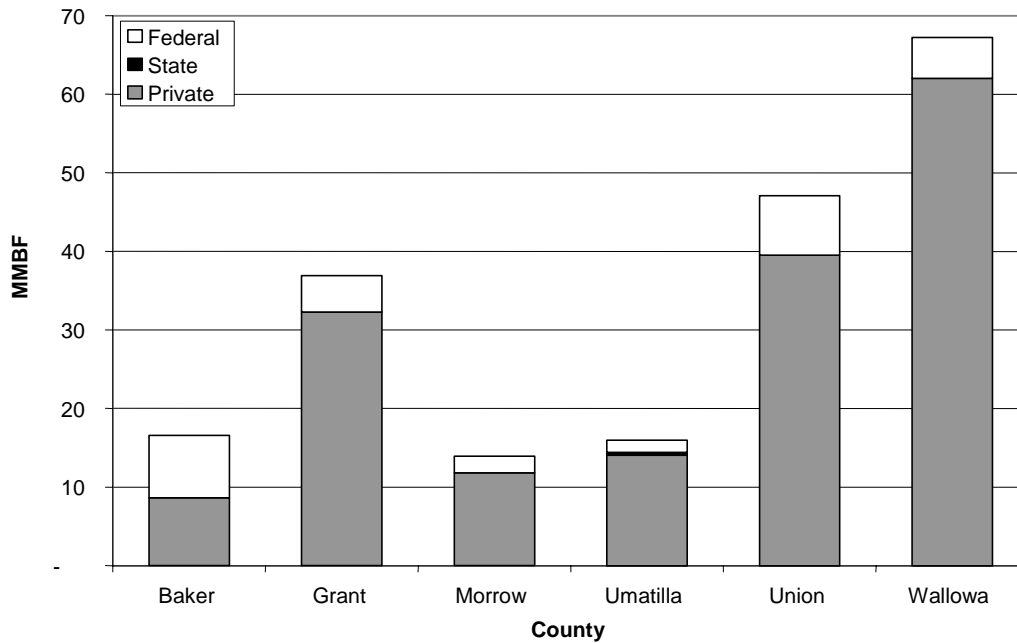


**Figure 6. Northeast Oregon Total Timber Harvests by Ownership, 1990-2003**



1) The data is for Baker, Grant, Morrow, Umatilla, Union, and Wallowa counties.  
 2) Harvest from State lands ranged from 0 to just over 1 MMBF over this period.  
 Source: ODF, 2003/2004

**Figure 7. Timber Harvest by County, 2003**



Source: ODF, 2004

**Table 112. Travel Related Economic Impacts, 2002**

County	Travel-Related Employment <sup>1/</sup>	Percent of Total Employment <sup>2/</sup>	Local Tax Revenue (\$million) <sup>3/</sup>
Baker	810	9.1	0.2
Grant	270	6.1	0
Morrow	190	3.3	0
Umatilla	1,710	4.4	0.7
Union	530	3.5	0.3
Wallowa	550	12.1	0.2
<b>Total</b>	<b>4,060</b>	<b>5.2</b>	<b>1.4</b>
Oregon	90,160	4.3	73.0

1) This table presents estimates of employment, average annual income, and local tax revenues generated by travel-related expenditures on accommodation, food and beverages, local transportation, recreation and entertainment, and shopping. These totals include estimates of spending by U.S. residents and foreign visitors, as well as Oregon residents traveling from other counties, provided those trips are not work commutes or other routine travel.

2) The percent of total employment estimates were generated by Dean Runyan Associates based on estimates of total employment calculated from Bureau of Economic Analysis 2001 estimates of total employment and Bureau of Labor Statistics 2002 estimates for covered employment.

3) Local taxes, as shown here, consist of local room taxes, or transient lodging taxes, and local sales and use taxes applicable to traveler purchases in eating and drinking establishments, in retail stores, and on automobile rentals. These totals do not include state sales taxes applied to traveler spending on accommodations, retail shopping, restaurant meals, entertainment, and automobile rentals or the state fuel tax levied on motor fuel purchases.

Source: Dean Runyan Associates, 2004.

Dependence on forage from Federal lands varies based on a variety of factors, including season of use, availability of Federal and private forage, and the number of Federal permits available. Estimates of dependence on forage from Federal lands in the six-county study area range from 2 percent of the total in Umatilla County to 17 percent in Wallowa County (Table 113).

Farms in the six-county area provided about 8,000 jobs in 2001, approximately 10 percent of total employment. Agricultural employment was relatively important in Morrow, Wallowa, and Grant counties, accounting for approximately 21 percent, 16 percent, and 13 percent of total employment in 2001 (Table 114).

**Table 113. Summary of Agriculture by County, 1997**

	Baker	Grant	Morrow	Umatilla	Union	Wallowa	Total
Number of Farms	704	407	420	1,488	832	459	4,310
Land in Farms (acres)	1,007,737	1,080,756	1,118,226	1,345,097	531,990	620,886	5,704,692
Percent of Total County Area	51	37	85	65	41	31	49
Average Farm Size (acres)	1,431	2,655	2,662	904	639	1,353	1,324
Total Market Value of Agricultural Products Sold (\$000)	53,876	17,093	141,531	249,201	47,731	27,436	536,868
Crops (% of total market value)	25	14	77	76	71	36	67
Livestock, poultry, and their products (% of total market value)	75	86	23	24	29	64	33

**Table 113. Summary of Agriculture by County, 1997 (continued)**

	Baker	Grant	Morrow	Umatilla	Union	Wallowa	Total
Cattle and Calves (% of total market value)	68	84	22	21	26	62	31
Dependence on Federal Forage (%)	8	15	3	2	5	17	na

1) All data are from the 1997 Census of Agriculture and are for 1997, with the exception of the Dependence on Federal Forage, which was estimated based on allotment data for 1993 and data from the 1982, 1987, and 1992 agricultural census (Frewing-Runyon, 1995).  
Source: Frewing-Runyon, 1995; U.S. Department of Agriculture, 1999.

**Table 114. Agricultural Employment by County, 2001**

County	Baker	Grant	Morrow	Umatilla	Union	Wallowa	Total
Farm Employment	1,112	588	1,124	3,280	1,195	694	7,993
Percent of Total Employment	12	13	21	9	8	16	10

1) These data include covered and self-employed farm workers.  
Source: U.S. Bureau of Economic Analysis, 2003b.

## Government Taxes and Revenues

State and local governments in Oregon receive revenues from both privately owned and Federal lands through several types of payment mechanisms. These are the Federal 25 Percent Fund, Federal Payments In-Lieu of Taxes (PILT), and property taxes paid on private lands. These sources of revenue are discussed below. The Oregon Forest Products Harvest Tax is also addressed.

### Federal 25 Percent Fund

In previous years, a portion of the returns to the U.S. Treasury from revenue producing FS activities, such as timber sales, were returned to each state containing national forestlands for distribution back to counties having acreage within a national forest. These revenue distributions, referred to as Federal 25 Percent Fund payments, were dedicated to schools and roads. Payments for Fiscal Years 1998 to 2000 are presented by county in Table 115.

In October 2000, the Secure Rural Schools and Community Self-Determination Act of 2000 was enacted to stabilize 25 percent fund payments to states for schools and roads. Under the new legislation, counties can elect for fiscal years 2001 through 2006 to take a full payment approach that is not linked to annual FS revenues. Full payment is based on the average of the highest three payments made to the state between 1986 and 1999. The full payment amounts are presented for each county in Table 111. All six counties elected to take full payment. Projected changes in NFS land under the action alternatives would, therefore, have no effect on amount of Federal 25 Percent Fund payments that the affected counties receive, at least through 2006.

**Table 115. Federal 25 Percent Fund Payments**

County	1998	1999	2000	Full Payment
Baker	373,800	229,600	240,973	1,197,000
Grant	1,438,300	1,034,100	380,293	9,549,300
Morrow	68,300	98,300	42,841	351,700
Umatilla	192,900	266,200	122,239	959,600
Union	323,700	238,800	226,741	980,000
Wallowa	536,600	446,600	392,763	1,308,400

Source: FS, 2004a.

### Federal Payments In-Lieu of Taxes (PILT)

PILT payments are Federal payments to local governments that help counties offset losses in property taxes associated with nontaxable Federal land located within a county's boundary. PILT payments are distributed by the BLM and are made for tax-exempt Federal land administered by the BLM, the FS, the National Park Service, U.S. Fish and Wildlife Service, and for Federal water projects and some military installations.

These payments are designed to supplement other Federal land receipt-sharing payments that local governments may receive, including timber receipts from national forests, grazing fee receipts, mineral material sales receipts, and some receipts collected on wildlife refuges. PILT payments traditionally helped balance the uneven distribution of Federal 25 Percent Fund payments between counties with NFS land and counties with other types of Federal land that do not generate timber revenues. PILT has historically been a more stable and dependable revenue source than Federal 25 Percent Fund payments because it is a flat per-acre payment that is not tied to levels of revenue generated by NFS land. There are two formulas that may be used to calculate PILT payments, with authorized payments based on the highest resulting value.

Annual PILT payments are presented by county for 1999 to 2003 in Table 116. Annual payments fluctuate from year to year as the total number of entitlement acres in a county changes and the method of calculating payments switches between the two formulas.

**Table 116. Annual PILT Payments by County, 1999 to 2003 (\$)**

County/Fiscal Year	1999	2000	2001	2002	2003
Baker	305,556	377,545	642,721	675,881	326,877
Grant	174,267	185,980	269,604	347,883	319,996
Morrow	36,324	95,999	124,802	158,929	27,268
Umatilla	98,712	265,205	349,428	440,521	119,409
Union	290,262	388,683	597,937	640,353	389,426
Wallowa	139,329	153,028	265,783	313,148	212,372

1) For 2003, some counties will receive slightly reduced PILT payments to adjust for increased revenue received during the previous fiscal year under the Secure Rural Schools and Community Self-Determination Act. Changes in PILT payments can also occur based on the amount that Congress appropriates for the program in a given fiscal year.

Sources: BLM, 2004; National Association of Counties, 2004.

### Oregon Property Tax

Property tax revenues are one of the most important sources of revenue for the public sector in Oregon (Oregon Department of Revenue, 2004a). Property taxes imposed for fiscal year (FY) 2003-04 are presented by county in Table 117. This table also presents total real market value, net assessed value, and average tax rates by county. Total property taxes imposed ranged from approximately \$5.3 million in Grant County to approximately \$53.7 million in Umatilla County. Average tax rates, based on assessed value, range from \$13.34 per \$1,000 in assessed value for Wallowa County to \$17.05 per \$1,000 in assessed value in Morrow County (Table 117).

**Table 117. Oregon Property Tax by County, Fiscal Year 2003-04**

County	FY 2003-04 (\$000s)			Average Tax Rate (\$/\$1000)	
	Real Market Value (RMV)	Net Assessed Value (NAV)	Property Tax Imposed	NAV Base	RMV Base
Baker	1,071,147	914,269	12,339	13.50	11.52
Grant	429,167	344,000	5,332	15.50	12.42
Morrow	1,157,353	1,007,518	17,175	17.05	14.84
Umatilla	4,165,958	3,373,716	53,727	15.93	12.9
Union	1,354,602	1,089,045	14,740	13.53	10.88
Wallowa	619,759	481,092	6,418	13.34	10.36

FY = Fiscal Year

1) Tax rates are applied to net assessed values.

2) Property subject to taxation includes all privately owned real property (land, buildings, and improvements) and business personal property (machinery, office furniture, and equipment). Forestland and farm and range property are included in this definition.

Source: Oregon Department of Revenue, 2004a

*Oregon Forest Products Harvest Tax*- The Oregon Forest Products Harvest Tax is paid on timber cut from all land in Oregon. Tax is paid annually to the Department of Revenue by January 31 for harvested timber that is measured between January 1 and December 31 of the prior calendar year. The tax, which is based on volume harvested, does not apply to the first 25 MBF harvested each calendar year. This tax rate can change annually due to balances in the emergency fire fighting fund and the needs of other programs. The rate (\$3.07 per MBF in 2003; \$2.95 per MBF in 2004) is reviewed each legislative season (Oregon Department of Revenue, 2003).

Forest Products Harvest Tax data are presented by analysis Area County for 1997 through 2002 in Table 118. The revenue from this tax is used to help support the ODF provide emergency fire fighting funds for lands protected by the state of Oregon and administer the Forest Practices Act on private land. It also provides funds for operations of the Oregon Forest Resources Institute.

**Table 118. Oregon Forest Products Harvest Tax Revenues, 1999 to 2002 (\$)**

	Baker	Grant	Morrow	Umatilla	Union	Wallowa
1999	67,120	209,382	47,813	87,041	127,706	213,479
2000	70,901	159,599	34,650	53,330	198,555	184,845
2001	42,766	140,953	12,603	88,044	127,721	134,366
2002	74,192	166,595	24,363	137,304	137,352	170,240

1) Harvest data used to estimate tax revenues for 2002 are from the ODF 2002 Annual Report. All other years are from the Oregon Department of Revenue (2003).

2) Estimated tax revenues were calculated by multiplying the Forest Products Harvest Tax Volume in MBF by annual rates published by the Oregon Department of Revenue (2003).

Sources: Oregon Department of Revenue, 2003; ODF, 2003.

### Land Management Administrative Costs

Public land managers perform a variety of ongoing administrative functions. FS operating units are typically organized according to the standard administrative functions involved in managing public land for multiple uses. These functions include engineering (primarily road system planning, construction, and maintenance), land and minerals management, recreation management, land management planning, timber and range management, watershed management, wildlife and fisheries management, and fire management. Privately owned land typically has less management emphasis on multiple use and a more simplified management structure. Fragmented ownership patterns create a number of complexities or difficulties in conducting land management activities on NFS lands. Some management difficulties result in costs that can be

quantified. Other impacts on management are less tangible and more difficult to quantify, but nevertheless real.

The following discusses FS management requirements and costs associated with fragmented ownership patterns. This discussion specifically addresses property boundaries, roads, and access. Other management costs that could be potentially affected by the action alternatives include noxious weed treatment, fire management costs, special use authorizations, and management of facilities, mine portals, and acquired lands.

### **Property Boundaries**

The FS is required by law to post, survey, and maintain all exterior boundaries of NFS land. Total FS boundary length is greater in areas with fragmented ownership patterns than in comparable sized areas with consolidated ownership. The Federal exchange parcels include existing unmarked boundaries that would need to be surveyed and marked under the No Action Alternative.

### **Roads**

Fragmented land ownership patterns can affect the density of roads constructed in a given area and thereby affect the cost of road construction and maintenance. The FS needs more miles of road to serve fragmented land than the same acreage in a consolidated pattern. In addition, different landowners have varying preferences for road construction and logging systems. Road-related administrative costs include deferred maintenance and annual maintenance costs. Deferred maintenance costs are one-time investments required to mitigate existing road problems.

### **Access and Compliance**

In cases where NFS parcels do not have legal access, it is FS policy to acquire permanent exclusive easements to allow full use of these lands. The Federal exchange lands include a number of parcels that do not currently have legal access.

In addition, by law, private property owners are guaranteed access across NFS land to their private property. Timber companies, for example, often request easements to cross NFS land to gain access to other parcels, typically for timber harvesting. In cases where the FS does not need the road, the private party must pay all of the road maintenance costs based on the assigned National Forest road classification.

Granting access requires the administrative processing of an application, negotiating easement agreements, granting and filing easements, approving permits, and compliance with NEPA and other environmental laws and regulations. Processing access requests can be administratively burdensome, costly, and time consuming for the FS.

## **Environmental Consequences**

The following discusses the potential direct and indirect social and economic effects associated with the proposed Blue Mountain Land Exchange alternatives. These effects are primarily evaluated in terms of employment and the economy, traditional uses and lifestyles, government taxes and revenues, and land management administrative costs.

The acres that would be conveyed and/or acquired under each alternative are summarized by county in Chapter 2. There would be no acres conveyed or acquired under Alternative 2 and current land ownership patterns would remain unchanged. Table 119 shows net change in Federal acres for each county by alternative.

**Table 119. Net Change by County in Federal Acres by Alternative**

County	Alternative				
	1	2	3	4	5
Baker	269	0	0	(42)	269
Grant	3,494	0	59	(4,398)	3,215
Morrow	(231)	0	0	(231)	(231)
Umatilla	1,091	0	343	(2,349)	2,585
Union	(79)	0	47	(100)	(40)
Wallowa	9,025	0	3,800	6,067	8,566
<b>Total</b>	<b>13,569</b>	<b>0</b>	<b>4,249</b>	<b>(1,053)</b>	<b>14,364</b>

Alternative 2 is the No Action Alternative. No lands would be conveyed or acquired under this alternative.

### Alternative 1: Proposed Exchange

Under Alternative 1, the USDA Forest Service would exchange approximately 18,172 acres of NFS lands for approximately 31,741 acres of private (28,983 acres) and state (2,758 acres) land. The lands proposed for exchange under this alternative are distributed across Baker, Grant, Morrow, Umatilla, Union, and Wallowa counties, with the majority of the lands involved (approximately 95 percent) located in Grant (28 percent), Umatilla (30 percent), and Wallowa (37 percent) counties. The FS would experience a net gain of 13,569 acres under this alternative, with two-thirds (9,025 acres) of this gain occurring in Wallowa County. There would also be a net gain in Federal acres in Baker, Grant, and Umatilla counties (Table 119).

### Employment and the Economy

The following evaluates the potential effects of Alternative 1 on local employment and income in the lumber and wood products, recreation, and agricultural sectors. These are the main sectors that could be directly affected by the Proposed Land Exchange.

*Lumber and Wood Products-* Alternative 1 would result in a net loss of private acres, but would likely result in an increase in the supply of timber available for harvest. The conveyed parcels would include approximately 82.9 MMBF of harvestable timber resources that would be available for harvest under this alternative (Table 120). This volume, which is equivalent to 42 percent of total harvest in the six-county area in 2003, would not be available for harvest if these lands remain part of the NFS. The available volume would be concentrated in Grant, Umatilla, and Wallowa counties (Table 120), and represents approximately 91 percent of the total volume harvested in Grant County in 2003 and almost twice the volume harvested in Umatilla County (PR).

The acquired parcels under this alternative include approximately 35.5 MMBF of harvestable timber presently available for harvest (Table 120). This volume would no longer be available for harvest if these lands were acquired.

The net increase in volume under this alternative would, therefore, be 47.4 MMBF (82.9 MMBF – 35.5 MMBF). The majority of this increase would occur in Grant and Umatilla counties and the net increase would be equivalent to approximately 65 percent and 94 percent of total harvest in these counties in 2003, respectively.

Assuming this volume would be harvested within 10 years and the harvest spread evenly over this period, the net increase in average annual volume would be approximately 4.7 MMBF (Table 120). This net annual increase in harvest would support approximately 43 full-time equivalent (FTE) jobs and approximately \$1.2 million in income each year (Table 121). Assuming that the employment would for the most part take place in the same county that the harvest occurs, the majority of this employment and

income would be supported in Grant (22 jobs; \$615,000) and Umatilla (14 jobs; \$380,000) counties (Table 121).

These employment estimates include direct, indirect, and induced employment. Direct employment would be generated in the logging and sawmill sectors. Additional employment would be generated as the directly affected logging and sawmill operations purchase services and materials as inputs (“indirect” effects) and employees spend their earnings within the local economy (“induced” effects). The income estimates also include direct, indirect, and induced effects.

**Table 120. Projected Timber Volume by County and Alternative**

County	Alternative					Net Change from Alternative 2			
	1	2	3	4	5	1	3	4	5
<b>Total Available Volume by Alternative (MBF)<sup>1</sup></b>									
Baker	266	0	0	250	266	266	0	250	266
Grant	33,433	9,492	9,492	23,012	33,431	23,940	0	13,519	23,939
Morrow	1,585	0	0	163	1,585	1,585	0	163	1,585
Umatilla	31,364	16,420	16,318	18,086	23,658	14,944	-102	1,665	7,238
Union	420	0	0	-21	301	420	0	-21	301
Wallowa	15,805	9,562	9,283	11,339	16,321	6,243	-278	1,777	6,759
<b>Total</b>	<b>82,873</b>	<b>35,474</b>	<b>35,094</b>	<b>52,829</b>	<b>75,562</b>	<b>47,398</b>	<b>-381</b>	<b>17,355</b>	<b>40,088</b>
<b>Annual Available Volume by Alternative (MBF)<sup>2</sup></b>									
Baker	27	0	0	25	27	27	0	25	27
Grant	3,343	949	949	2,301	3,343	2,394	0	1,352	2,394
Morrow	158	0	0	16	158	158	0	16	158
Umatilla	3,136	1,642	1,632	1,809	2,366	1,494	-10	167	724
Union	42	0	0	-2	30	42	0	-2	30
Wallowa	1,580	956	928	1,134	1,632	624	-28	178	676
<b>Total</b>	<b>8,287</b>	<b>3,547</b>	<b>3,509</b>	<b>5,283</b>	<b>7,556</b>	<b>4,740</b>	<b>-38</b>	<b>1,735</b>	<b>4,009</b>

MBF = Thousand board feet

1) Total available volume represents the total harvestable volume (i.e., stands older than 25 years) that would be available for harvest. These volumes exclude stands within state-mandated stream buffers and were adjusted to account for the volume that would need to be retained for green-up and/or minimum stocking under the Forest Practices Act. Volumes for the Federal lands included in Alternative 4 were also adjusted to account for the deed restrictions that are part of that alternative.

2) Annual available volumes assume that the total available volume would be harvested within 10 years, with the harvest spread evenly over this period.

Source: Atterbury Consultants, 2004; Barber, 2004.

Note: Slight differences occur in totals due to rounding of figures.

This projected increase in average annual harvest would not be expected to substantially alter current trends in local timber harvest or existing forest-related employment levels. The total net annual increase in timber available for average annual harvest would be equivalent to approximately 2.4 percent of total harvest in the six study area counties in 2003. The projected net annual increases as a percentage of 2003 harvest levels would range from approximately 0.1 percent for Union County to 6.5 percent and 9.4 percent for Grant and Umatilla counties, respectively.

These estimates assume that the availability of timber resources would directly affect harvest and associated employment and income. There are, however, a number of other factors that affect harvest rates, including prevailing demand and market price, as well as competition from other lower cost timber producing regions. Further, timber harvested in a particular county may not necessarily be processed in that county. The distribution of processing facilities within the six-county area does, however, suggest that in this case processing would likely primarily take place in Grant and Umatilla counties.



**Table 121. Projected Annual Lumber and Wood Products Employment and Income by County and Alternative**

County	Alternative					Net Change from Alternative 2			
	1	2	3	4	5	1	3	4	5
<b>Estimated Annual Employment (FTE Jobs)<sup>1</sup></b>									
Baker	0	0	0	0	0	0	0	0	0
Grant	30	9	9	21	30	22	0	12	22
Morrow	1	0	0	0	1	1	0	0	1
Umatilla	28	15	15	16	21	14	0	2	7
Union	0	0	0	0	0	0	0	0	0
Wallowa	14	9	8	10	15	6	0	2	6
<b>Total</b>	<b>75</b>	<b>32</b>	<b>32</b>	<b>48</b>	<b>68</b>	<b>43</b>	<b>0</b>	<b>16</b>	<b>36</b>
<b>Estimated Annual Income (\$000s)<sup>1</sup></b>									
Baker	7	0	0	6	7	7	0	6	7
Grant	859	244	244	591	859	615	0	347	615
Morrow	41	0	0	4	41	41	0	4	41
Umatilla	806	422	419	465	608	384	-3	43	186
Union	11	0	0	-1	8	11	0	-1	8
Wallowa	406	246	239	291	419	160	-7	46	174
<b>Total</b>	<b>2,129</b>	<b>911</b>	<b>902</b>	<b>1,357</b>	<b>1,941</b>	<b>1,218</b>	<b>-10</b>	<b>446</b>	<b>1,030</b>

FTE Jobs = Full-time equivalent jobs

1) FTE jobs were calculated based on job/MMBF coefficients developed by the FS for the HCNRA CMP Final EIS (Kohrman, 2004a). These coefficients include direct, indirect, and induced employment. FTE jobs are calculated based on the volumes in Table 120.

2) Total income was calculated based on income/MMBF coefficients developed by the FS for the HCNRA CMP Final EIS (Kohrman, 2004a). These coefficients include direct, indirect, and induced income. Income is calculated based on the volumes in Table 120.

Note: Slight differences occur in totals due to rounding of figures.

*Recreation and Tourism-* Alternative 1 would provide increased recreation access. Public access on 66.3 miles of road associated with the parcels would not change because the Forest Service currently has a right-of-way or would reserve a right-of-way as a condition of parcel conveyance. In addition, the Forest Service would acquire parcels containing 101 miles of road, while conveying parcels containing about 60 miles of road. This net gain of approximately 41 miles of roaded access would increase public access (Glassford, 2006).

There would, however, be some changes in access to the NFS parcels conveyed to Clearwater Land Exchange – Oregon, with verbal, written, or gate access likely to be required in some cases. However, these decreases in access would be minimal because none of the 60 miles of road to be conveyed provides through access to NFS lands.

Acquired parcels under Alternative 1 would provide much needed fishing access to the Imnaha River and improve trail user satisfaction in the Hells Canyon and Eagle Cap wildernesses (USDA Forest Service, 2004c). These developments could result in increased recreation use in the future relative to Alternative 2 and could, in turn, have positive employment and income effects. It is not, however, possible to quantify this potential increase in use or the amount of this potential increase that would represent new recreation use in the area.

*Agriculture-* Grazing on NFS lands is authorized through grazing permits on established grazing allotments. Allotments are designated on NFS lands and other lands offered with the owners consent to form logical grazing management units. In addition to grazing on NFS, State of Oregon, and private lands that are located within established grazing allotments, there are private exchange parcels within the project area that are grazed independent of FS allotments.

Under Alternative 1, the FS would acquire 141 parcels (24,144 acres) within existing allotments and convey 62 parcels (15,136 acres) within allotments for a net gain of 9,008 acres. Although the acquired parcels would add capacity to the affected allotments, there would be no increase in stocking until further analysis is conducted. The FS would, however, cancel five existing grazing permits, which would result in a reduction of permitted stocking by 723 Animal Unit Months (AUMs). The parties receiving the conveyed lands have, however, expressed interest in continuing to graze these lands with two exceptions. These two exceptions combined currently account for 106 permitted AUMs (FS, 2004k; 2006). This projected change is not expected to have a measurable effect on local employment or income.

The FS would also acquire 2,322 acres outside allotments that are presently being grazed and convey 1,133 acres outside allotments that the parties receiving the lands have expressed an interest in grazing. Grazing would be discontinued on the parcels that would be acquired (FS, 2004k; 2006). The associated net change in AUMs is unknown, but it is not expected to have a measurable effect on local employment or income.

### **Traditional Uses and Lifestyle**

*Hells Canyon National Recreation Area-* Under alternative 1, the FS would acquire 8,199 acres of non-Federal lands located within the HCNRA and convey 695 acres of Federal lands in the HCNRA. This would represent a net gain of 7,504 acres within the HCNRA boundary from the FS's perspective and a net decrease in privately owned lands of the same amount. This net decrease would represent approximately 23 percent of the existing private lands in the HCNRA. This reduction in private lands would represent a foregone opportunity to continue a ranching lifestyle on those properties. This reduction may be considered detrimental by local residents and communities who are concerned with preserving traditional uses and lifestyles in the area and may already feel that their way of life is being negatively affected by other factors. Other factors affecting traditional uses and lifestyles in and around the HCNRA include changes in Federal land management policies, reductions in timber harvest from area national forests, and developments on surrounding private lands that are not consistent with the existing landscape character. As people have become aware of the attractions and amenities associated with the HCNRA, a number have purchased property and moved to the area or developed recreation or seasonal homes, with 1 in 8 homes in Wallowa County used only for seasonal, recreational, or occasional purposes in 2000 (FS, 2004c; U.S. Census Bureau, 2000). New residential developments include log and other relatively large homes that are inconsistent with the existing pastoral landscape, traditionally dominated by working ranches and associated structures (Kohrman, 2004b).

The transfer of these private HCNRA exchange lands to the FS would also affect ownership patterns along the Imnaha River corridor. Much of the private land within the Wallowa County portion of the HCNRA is focused along this corridor, with private inholdings extending some distance upstream from the town of Imnaha and generally extending north from the HCNRA boundary to the confluence of the Imnaha and Snake rivers. The parcels that would be acquired would affect the overall connectivity of these private corridors. Under this alternative, some private parcels that are adjacent to the non-Federal exchange parcels would be surrounded by Federal lands on all sides following the acquisition, which could affect existing working relationships.

Although there would be no change in access in the short-term, the parcels in the HCNRA acquired would ultimately provide fishing access to the Imnaha River and improve trail user satisfaction in these areas (FS, 2004c). This change in access and improvements in trail user satisfaction could result in increased recreation use in these areas in the future, which could be perceived as negative by long-term residents of the adjacent private lands. Increased recreational access could affect existing working relationships and could also result in an increase in trespassing on the remaining adjacent private lands.

### Government Taxes and Revenues

*Overview-* Alternative 1 would result in a net reduction in private lands subject to property taxes. This net reduction would result in a small decrease in local property tax revenues that would be partially offset by an increase in PILT payments, which are intended to help offset losses in property taxes associated with nontaxable Federal land. Estimates developed for this analysis indicate that this alternative would result in an overall net reduction in annual property tax revenue of approximately \$4,500 for the six counties as a whole, with the majority of this reduction occurring in Wallowa County (approximately \$3,000). These reductions are equivalent to less than 0.1 percent of total property taxes imposed in FY 2003-04 for the six-county area and Wallowa County, respectively (Table 117).

*Federal 25 Percent Fund-* There would be no change in Federal 25 Percent Fund payments under this alternative. All six study area counties elected to take the full payment approach under the Secure Rural Schools and Community Self-Determination Act of 2000. As a result, Federal 25 Percent Fund payments to these counties are fixed through 2006 and are not tied to revenue produced from FS activities.

*Federal Payments in Lieu of Taxes-* Alternative 1 would have a minimal effect on Federal PILT payments to the six study area counties. PILT payments in the study area in 2003 ranged from \$27,268 in Morrow County to \$389,426 in Union County (Table 116). NFS land accounted for over 90 percent of total entitlement lands in all of the study area counties, with the exception of Baker County, where NFS lands comprised 64 percent of total entitlement acres. The net gain in NFS acres under this alternative (13,569 acres) represents 0.26 percent of the total entitlement acres in the six-county study area in 2003, ranging from 0.03 percent of the total in Baker County to 0.77 percent in Wallowa County. Based on 2003 payment levels, this net increase in acres would result in a total increase in annual PILT payments of approximately \$2,600 to the six-county study area.

*Oregon Property Tax-* Potential changes in property tax revenues were estimated for each county based on 2004 property tax rates and actual 2004 assessed values for the private exchange parcels. Assessed values were estimated for the Federal exchange parcels based on the average assessed value per acre for private exchange parcels in the same tax code classification. In cases where there were no private exchange parcels in the same code, the average assessed value per acre for the private parcels in that county was used.

This analysis indicates that Alternative 1 would result in an overall net reduction in property tax revenue of approximately \$4,500 for the six counties as a whole, with the majority of this reduction occurring in Wallowa County (approximately \$3,000) (Table 122).

**Table 122. Estimated Property Tax Revenues by Alternative and County**

	Alternative 1		Alternative 3		Alternative 4		Alternative 5	
	\$000s <sup>1/</sup>							
County	Convey	Acquire	Convey	Acquire	Convey	Acquire	Convey	Acquire
Baker	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2
Grant	4.2	4.7	0.0	0.0	4.2	1.2	4.2	4.7
Morrow	0.0	0.1	0.0	0.0	0.0	0.1	0.3	0.1
Umatilla	1.5	2.4	0.0	0.1	1.5	1.7	1.2	2.4
Union	0.4	0.5	0.0	0.2	0.4	0.3	0.3	0.5
Wallowa	3.1	5.8	0.0	1.3	3.1	5.0	3.1	5.7
<b>Total</b>	<b>9.2</b>	<b>13.8</b>	<b>0.0</b>	<b>1.6</b>	<b>9.2</b>	<b>8.3</b>	<b>9.0</b>	<b>13.6</b>

**Table 122. Estimated Property Tax Revenues by Alternative and County (continued)**

Net Change by Alternative (\$000s)					
	1	2	3	4	5
Baker	-0.2	0.0	0.0	0.0	-0.2
Grant	-0.5	0.0	0.0	3.0	-0.5
Morrow	-0.1	0.0	0.0	-0.1	0.2
Umatilla	-0.9	0.0	-0.1	-0.2	-1.2
Union	-0.1	0.0	-0.2	0.1	-0.2
Wallowa	-2.8	0.0	-1.3	-1.9	-2.6
<b>Total</b>	<b>-4.5</b>	<b>0.0</b>	<b>-1.6</b>	<b>0.9</b>	<b>4.6</b>

1) Numbers are rounded to the closest 1,000 to reflect the level of accuracy of this analysis, which is primarily intended for the comparison of alternatives

Note: Slight differences occur in totals due to rounding of figures.

*Oregon Forest Products Harvest Tax*- Based on the projected annual available volumes shown in Table 120 and assuming for the purposes of analysis that the applicable tax rate would be \$3.27 per MBF, Alternative 1 would result in a net annual increase of approximately \$15,500 in this tax.

### Land Management Administrative Costs

*Overview*- Alternative 1 would potentially affect projected land management administrative costs for the three participating National Forests. There would be one-time costs and savings, as well as changes in annual administrative costs. One-time costs and savings are summarized by alternative in Table 123. There would be an estimated one-time saving of approximately \$1.4 million under this alternative. The majority of these savings would be due to property boundary surveys and easement acquisitions that would no longer be necessary under Alternative 1.

**Table 123. One-Time Administrative Costs and Savings by Alternative<sup>1</sup>**

	Alternative			
	1	3	4	5
Property Boundary Administration <sup>2</sup>	-\$1,177,000	-\$265,000	-\$332,000	-\$1,127,000
Boundary Disputes	\$46,000	\$0	\$46,000	\$46,000
Deferred Road Maintenance <sup>3</sup>	\$116,000	\$3,000	\$41,000	\$118,000
Mine Portal Closure	\$5,000	\$2,500	\$ 5,000	\$5,000
Facility Acquisition	\$20,000	\$10,000	\$10,000	\$20,000
Special Use Permit Administration	-\$18,500	\$0	-\$18,500	\$11,000
Easement Acquisition	-\$440,000	-\$20,000	-\$360,000	-\$440,000
Private and State Land Purchase	\$0	\$245,000	\$0	\$0
<b>Total</b>	<b>-\$1,448,500</b>	<b>-\$24,500</b>	<b>-\$608,500</b>	<b>-\$1,367,000</b>

1) A positive change represents an increase in FS costs and a negative change represents a reduction in FS costs.

2) Property boundary administration includes new boundary survey and marking costs, boundary line removal costs, existing boundary survey and marking savings, and existing boundary maintenance savings (see Table 125).

3) The costs summarized here are the midpoint of the estimated range of potential costs (see Table 126).

Note: Slight differences occur in totals due to rounding of figures.

Annual administrative cost changes are summarized in Table 124. There would be a net increase in annual administrative costs of approximately \$145,000 under Alternative 1. The majority of these costs would be incurred for noxious weed management on the lands that would be acquired under this alternative. These management costs would likely decrease over time because active management would reduce the number of acres occupied by weeds.

**Table 124. Annual Administrative Costs and Savings by Alternative<sup>1</sup>**

	Alternative			
	1	3	4	5
Road Maintenance	\$8,000	\$400	-\$500	\$8,000
Noxious Weed Management	\$137,000	\$47,000	\$128,600	\$136,800
Deed Restriction Monitoring	\$0	\$0	\$30,500	\$0
<b>Total</b>	<b>\$145,000</b>	<b>\$47,400</b>	<b>\$158,600</b>	<b>\$144,800</b>

1) A positive change represents an increase and a negative change represents a reduction in cost to the Forest Service

2) Road maintenance costs and savings are the difference between the miles and costs on the acquired and conveyed lands (see Table 127).

Note: Slight difference occur in totals due to rounding of figures.

There are also several types of potential costs and savings that cannot be quantified. These include changes in fire management costs and potential reductions in requests for access across NFS lands.

The following discusses projected administrative costs in more detail by affected resource.

*Property Boundaries*- Alternative 1 would result in property boundary-related costs and savings. Costs would be associated with surveying and marking new boundaries and removing existing marked boundaries. Savings would be associated with existing unmarked boundaries that would no longer need to be surveyed and marked, and maintenance for existing marked boundaries that would no longer be necessary.

Total additional property boundary costs under Alternative 1 would be approximately \$929,000, with the majority of this cost (\$753,000) associated with surveying and marking the 75 miles of new property boundary that would result under this alternative. Approximately 50 percent of these costs would be incurred on the Wallowa-Whitman National Forest where approximately 42 miles of new property boundary would need to be surveyed and marked (Table 125).

**Table 125. Estimated Property Boundary Costs and Savings by Alternative**

National Forest	Alternative 1		Alternative 3		Alternative 4		Alternative 5	
	Miles	\$000s	Miles	\$000s	Miles	\$000s	Miles	\$000s
<b>New Boundary Survey and Marking (\$10,000/mile)</b>								
Malheur	7.8	78	0.0	0	7.3	73	7.8	78
Umatilla	25.8	258	1.5	15	20.8	208	24.8	248
Wallowa-Whitman	41.8	418	9.3	93	40.0	400	40.8	408
<b>Total</b>	<b>75.3</b>	<b>753</b>	<b>10.8</b>	<b>108</b>	<b>68.0</b>	<b>680</b>	<b>73.3</b>	<b>733</b>
<b>Boundary Line Removal Costs (\$650/mile)<sup>1</sup></b>								
Malheur	99.5	65	0.0	0	0.0	0	97.0	63
Umatilla	111.9	73	2.5	2	21.1	14	99.8	65
Wallowa-Whitman	59.7	39	9.8	6	31.3	20	56.5	37
<b>Total</b>	<b>271.0</b>	<b>176</b>	<b>12.3</b>	<b>8</b>	<b>52.4</b>	<b>34</b>	<b>253.2</b>	<b>165</b>
<b>Total Costs</b>	<b>346.3</b>	<b>929</b>	<b>23.0</b>	<b>116</b>	<b>120.4</b>	<b>714</b>	<b>326.5</b>	<b>898</b>

**Table 125. Estimated Property Boundary Costs and Savings by Alternative (continued)**

National Forest	Alternative 1		Alternative 3		Alternative 4		Alternative 5	
	Miles	\$000s	Miles	\$000s	Miles	\$000s	Miles	\$000s
<b>SAVINGS</b>								
<b>Existing Boundary Survey and Marking (\$10,000/mile)<sup>2</sup></b>								
Malheur	0.0	0	0.0	0	0.0	0	0.0	0
Umatilla	33.9	-339	2.0	-20	9.1	-91	32.1	-321
Wallowa-Whitman	122.6	-1,226	33.7	-337	85.0	-850	119.7	-1,197
<b>Total</b>	<b>156.4</b>	<b>-1,564</b>	<b>35.7</b>	<b>-357</b>	<b>94.1</b>	<b>-941</b>	<b>151.8</b>	<b>-1,518</b>
<b>Existing Boundary Maintenance (\$2,000/mile)<sup>3</sup></b>								
Malheur	99.5	-199	0.0	0	0.0	0	97.0	-194
Umatilla	111.9	-224	2.5	-5	21.1	-42	99.8	-200
Wallowa-Whitman	59.7	-119	9.8	-20	31.3	-63	56.5	-113
<b>Total</b>	<b>271.0</b>	<b>-542</b>	<b>12.3</b>	<b>-25</b>	<b>52.4</b>	<b>-105</b>	<b>253.2</b>	<b>-506</b>
<b>Total Savings</b>	<b>427.4</b>	<b>-2,106</b>	<b>47.9</b>	<b>-382</b>	<b>146.5</b>	<b>-1,046</b>	<b>405.0</b>	<b>-2,024</b>
<b>Net Change<sup>4</sup></b>								
Malheur		-57		0		73		-53
Umatilla		-231		-8		88		-208
Wallowa-Whitman		-889		-257		-492		-866
<b>Total</b>		<b>-1,177</b>		<b>-265</b>		<b>-332</b>		<b>-1,127</b>

1) These costs are associated with removing existing marked boundaries. There are no removal costs associated with existing unmarked boundaries that would no longer exist.

2) These savings are for existing unmarked boundaries that would need to be marked at some point in the future.

3) These costs are for maintenance of existing boundaries that would be eliminated under the identified alternative. These types of costs would be incurred only once over the 10-year planning period for this assessment.

4) Net change is the difference between the property boundary costs and cost savings that would occur under each action alternative. A negative net change represents a net reduction in cost to the Forest Service.

Source: USDA Forest Service, 2005a

Note: Slight differences occur in totals due to rounding of figures.

Property boundary savings under this alternative would be approximately \$1.2 million. Approximately \$1.6 million of these savings would result from 156 miles of existing unmarked boundaries that would no longer need surveys (Table 125). The remaining \$540,000 of these savings would result from existing marked property boundaries that would no longer need to be maintained. Approximately 64 percent of these total savings would occur on the Wallowa-Whitman National Forest where 123 miles of existing unmarked boundaries would no longer need to be surveyed and marked.

Combined, the estimated property boundary costs and savings associated with Alternative 1 would result in a net cost-saving of approximately \$1.2 million (Table 125). This would be a total one time cost-saving over the 10-year planning period used for this analysis.

In addition to the costs of marking and maintaining National Forest boundaries, the FS also incurs costs associated with property boundary disputes, primarily encroachments/trespass by adjacent landowners. It is possible that the number of these disputes and the associated costs would be reduced under Alternative 1 because there would be a decrease in the number of isolated parcels owned by the FS, as well as a decrease in privately-owned and State of Oregon in-holdings surrounded by NFS lands. The FS has

identified potential encroachment-related costs of approximately \$46,000 that would be saved under Alternative 1 (Table 123).

*Roads*- The Proposed Land Exchange would affect deferred road maintenance and annual maintenance costs. Deferred maintenance costs are one-time investments required to mitigate existing road problems. Deferred road maintenance activities related to public safety, protection of cultural resources or threatened and endangered species, or the provision of functional drainage would most likely be implemented within one year following the exchange. Other deferred road maintenance would be implemented within 10 years following the land exchange. Annual maintenance costs are the annual costs of maintaining the roads to standard at their current maintenance level.

Under Alternative 1, the FS would acquire 101 miles of roads and convey 59.6 miles for a net gain of 41.4 miles (Table 126). The Malheur National Forest would experience a net reduction in road miles (-17.1 miles) while the Umatilla and Wallowa-Whitman would both experience net gains (26.9 miles and 31.6 miles, respectively). Overall, the FS would experience a net increase in one-time, deferred maintenance costs that would range from about \$66,000 to \$166,000 (Table 126).

**Table 126. Road Miles and Deferred Maintenance Costs by Alternative**

Forest	Alternative							
	1		3		4		5	
	Miles	\$000s	Miles	\$000s	Miles	\$000s	Miles	\$000s
<b>Acquired<sup>1</sup></b>								
Malheur	18.5	20 to 40	0	0	0	0	17.6	20 to 40
Umatilla	47.1	30 to 60	3	0	27.4	10 to 20	46.2	30 to 60
Wallowa-Whitman	35.4	50 to 100	5.5	2 to 4	25.6	40 to 80	32.0	50 to 100
<b>Total</b>	<b>101</b>	<b>100 - 200</b>	<b>8.5</b>	<b>2- 4</b>	<b>53</b>	<b>50 - 100</b>	<b>95.8</b>	<b>100 - 200</b>
<b>Conveyed</b>								
Malheur	35.6	20	0	0	35.6	20	35.6	20
Umatilla	20.1	11	0	0	20.1	11	16.6	9
Wallowa-Whitman	3.8	4	0	0	3.8	4	3.8	4
<b>Total</b>	<b>59.6</b>	<b>34</b>	<b>0</b>	<b>0</b>	<b>59.6</b>	<b>34</b>	<b>56.0</b>	<b>32</b>
<b>Net Change<sup>2</sup></b>								
Malheur	-17.1	0.5 to 20	0	0	-35.6	-20	-18.0	0.5 to 20
Umatilla	26.9	19 to 49	3	0	7.2	-1 to 7	29.6	21 to 51
Wallowa-Whitman	31.6	46 to 96	5.5	2 to 4	21.8	36 to 76	28.2	46 to 96
<b>Total</b>	<b>41.4</b>	<b>66 to 166</b>	<b>8.4</b>	<b>2 to 4</b>	<b>-6.6</b>	<b>16 to 66</b>	<b>39.8</b>	<b>68 to 168</b>

1) Deferred costs for acquired lands are given in terms of a range of values because limited information is available for the roads on these parcels.

2) Net change is the difference between the miles and costs on the acquired and conveyed lands. A positive net change indicates an increase in annual maintenance costs to the Forest Service.

Source: FS, 2004d

Note: Slight differences occur in totals due to rounding of figures.

Annual maintenance costs would increase by approximately \$8,000 under this alternative. These costs would decrease slightly on the Malheur National Forest (-\$700) and increase on the Umatilla and Wallowa-Whitman (\$4,200 and \$4,400, respectively) (Table 127).

The exchange parcels include an additional 66.3 miles of roads that would remain under their existing jurisdiction. The FS would reserve jurisdiction on approximately 10 miles of existing roads on conveyed lands to maintain access to other Forest roads or lands. The rest of these roads are located on parcels that would be acquired.

The Proposed Land Exchange would have no effect on any existing cost share easement agreements (FS, 2003b).

**Table 127. Road Miles and Annual Maintenance Costs by Alternative**

National Forest	Alternative							
	1		3		4		5	
	Miles	\$000s <sup>1</sup>	Miles	\$000s <sup>1</sup>	Miles	\$000s <sup>1</sup>	Miles	\$000s <sup>1</sup>
<b>Acquired</b>								
Malheur	18.5	2.9	0	0.0	0	0.0	17.6	2.9
Umatilla	47.1	6.3	3	0.1	27.4	2.7	46.2	6.2
Wallowa-Whitman	35.4	5.3	5.5	0.3	25.6	3.5	32.0	4.9
<b>Total</b>	<b>101</b>	<b>14.5</b>	<b>8.5</b>	<b>0.4</b>	<b>53</b>	<b>6.2</b>	<b>95.8</b>	<b>14.0</b>
<b>Conveyed</b>								
Malheur	35.6	3.6	0	0.0	35.6	3.6	35.6	3.6
Umatilla	20.1	2.1	0	0.0	20.1	2.1	16.6	1.5
Wallowa-Whitman	3.8	0.9	0	0.0	3.8	0.9	3.8	0.9
<b>Total</b>	<b>59.6</b>	<b>6.6</b>	<b>0</b>	<b>0.0</b>	<b>59.6</b>	<b>6.6</b>	<b>56</b>	<b>6.0</b>
<b>Net Change<sup>2/</sup></b>								
Malheur	-17.1	-0.7	0	0.0	-35.6	-3.6	-18.0	-0.8
Umatilla	26.9	4.2	3	0.1	7.2	0.6	29.6	4.7
Wallowa-Whitman	31.6	4.4	5.5	0.3	21.8	2.5	28.2	4.0
<b>Total</b>	<b>41.4</b>	<b>7.9</b>	<b>8.5</b>	<b>0.4</b>	<b>-6.6</b>	<b>-0.5</b>	<b>8.0</b>	<b>8.0</b>

1) Annual maintenance costs represent the annual costs of maintaining the roads to standard at their current maintenance level. Current costs for annual maintenance are estimated at \$35 per mile for closed roads and \$245 per mile for roads that are open and maintained for high clearance vehicles.

2) Net change is the difference between the miles and costs on the acquired and conveyed lands. A positive net change indicates an increase in deferred maintenance costs to the Forest Service.

Source: FS, 2004d

Note: Slight differences occur in totals due to rounding of figures.

*Mine Portals-* There are a number of open mine portals on the Proposed Exchange lands that would be acquired under Alternative 1. Two of these portals, located on parcels PW6 and PW2B, respectively, would need to be gated. The FS would install bat-friendly gates at each portal at an estimated one-time cost of \$2,500 per portal (Table 123). There are also two open portals located on parcel PW-1. These parcels are, however, located on the east side of the Imnaha River and generally inaccessible, and, therefore, pose a very low safety hazard risk.

*Facilities-* Facilities and parcel inspections completed by the FS identified a range of facilities on the private and State of Oregon parcels that would be acquired under Alternative 1. These facilities include cabins and outhouses, as well as household garbage and wood and metal debris, such as household appliances and old cars. The FS would prefer that most of these parcels be cleaned up and all materials, including existing structures, removed prior to acquisition. There are two exceptions, parcels PM26 and PW48, where the FS would acquire the parcels with existing structures intact. These structures include two cabins, two sheds, two pit toilets, and a barn. There would be a one-time cost of approximately \$10,000 associated with the acquisition of each parcel (Table 123). This includes the cost of historic



evaluation and recording, as well as management/retention of the each site for its historic value (FS, 2004e).

*Noxious Weeds*- Noxious weed sites presently exist on the parcels that would be conveyed and also on the parcels that would be acquired. Transferring the deeds for the parcels would not itself create conditions favoring noxious weed establishment, but it would result in a net change in the acres of noxious weed sites on NFS lands. Noxious weed management costs on NFS lands are approximately \$160 per acre per year. Alternative 1 would result in the FS exchanging 54 acres of inventoried noxious weeds for approximately 910 acres of mapped noxious weeds. This net increase of 856 acres would result in a net increase in annual weed management costs of \$137,000 (Table 124). These costs would likely decrease over time because active management would decrease the number of acres occupied by noxious weeds (FS, 2004f).

*Fire Suppression Management*- This alternative would involve the exchange of Federal parcels that are either isolated individual parcels or extensions of NFS lands that result in irregular-shaped boundaries for non-Federal parcels that are either surrounded by or adjacent to existing NFS lands. Reducing the number of isolated parcels and irregular-shaped boundaries would generally reduce Federal fire suppression costs.

The structures on PM26 and PW48 would require structure protection, which would be facilitated by the preparation of structure protection plans following the exchange. There would be a net gain of 13,569 acres under Alternative 1. This net increase represents less than 1 percent of the total acreage on the Malheur, Umatilla, and Wallowa-Whitman National Forests, which include almost 5 million acres, and is not expected to affect any existing FS fire suppression budgets (FS, 2004g).

*Fuels Management*- Alternative 1 would have the overall effect of blocking up ownerships and reducing the number of non-Federal inholdings. This type of consolidation generally has the effect of allowing fuel reduction work on public lands to be applied on larger landscape scales with fewer boundary issues, with a net effect of reducing the cost and complexity of prescribed treatments. It is not, however, possible to estimate the potential savings associated with this alternative.

There are several Federal parcels that would be conveyed under Alternative 1 that are important from a fuels reduction perspective. These include parcels FW6D, FW6F, FW10, FW24, FU26, FU28, and FM12. These parcels are strategically placed on the landscape to most effectively implement fuels reduction treatments on these and adjacent public lands (FS, 2004h).

Some harvested non-Federal parcels that would be acquired under this alternative would require public investment in future fuel treatments (thinning, piling, underburning). Some timbered conveyed parcels would also need fuels treatment. Most of the larger and more fire resistant trees have been removed on the private parcels where logging has occurred. Recent harvest on private parcels has also removed larger second growth trees. Large tree harvest has also occurred on public lands, but not so uniformly. Alternative 1 would result in a net loss of large trees and may need fuel reduction work in some acquired parcels. Heavily logged parcels that would be acquired currently have slash and slash piles. These parcels have either complied with State BMPs slash disposal requirements or would achieve compliance prior to their acquisition. It is not possible to estimate the extent of the fuels treatment work that may be required or the associated costs, but these costs would represent a net increase in cost compared to the No Action Alternative (FS, 2004h). In summary, because of the large number of acres that would be acquired the benefits of blocking up ownership outweigh the negative consequences of Alternative 1.

*Special Use Authorizations*- The parcels that would be conveyed under Alternative 1 include 10 special-use permits. Three of these permits would likely be eliminated, resulting in a net saving in special-use permit costs of approximately \$18,500 (Table 123). This saving would occur once over the 10-year

planning period. The other seven permits would remain in place because they also involve other land that would remain part of the NFS.

*Access and Compliance-* In cases where Federal parcels do not have legal access, it is FS policy to acquire permanent exclusive easements to allow full use of these lands if available. All parcels acquired under Alternative 1 would be acquired with legal access, including access for the public, as appropriate. The FS would, therefore, not incur additional easement acquisition costs on lands that would be acquired under this alternative. There do, however, exist easement acquisition costs that would be no longer be incurred under Alternative 1.

There are two types of cases where easement acquisition costs currently exist. First, there are Federal exchange parcels where legal access does not currently exist or has not been perfected. Second, there are non-Federal exchange parcels where the need for a right-of-way across these parcels to access adjacent public lands has been identified but not yet acquired.

Twenty-eight Federal parcels that would be conveyed under Alternative 1 do not currently have legal access. There are currently 18 non-Federal parcels that would be acquired under Alternative 1 where the need for a right-of-way to access adjacent public lands have been identified but not yet acquired. The easement acquisition saving associated with Alternative 1 is estimated to be a one time saving of \$440,000 (Table 123) (FS, 2004i).

Alternative 1 could also result in a reduction in the number of requests from private landowners to construct access roads across Federal lands that would be conveyed. If this were to occur, Alternative 1 would result in a reduction in costs incurred by the FS to process easement and permit requests or conduct NEPA analyses that might otherwise be needed. There would also be a reduction in requests from the Forest Service to cross State-managed lands. These potential savings cannot be estimated because the FS cannot predict future access requests and the costs associated with processing these types of requests can vary considerably. Some cases are resolved relatively quickly, while others involve numerous regulatory or legal issues and can take years to complete at a substantial cost.

## **Alternative 2: No Action**

The lands proposed for exchange would continue to be owned and managed by their current owners. Current social and economic trends would continue under Alternative 2. Private parcels identified for exchange would, for example, continue to contribute to tax revenues. These continued effects, which are described in the following paragraphs, represent the base case against which the other alternatives are evaluated.

### **Employment and the Economy**

Total employment in the six-county exchange study area would not be affected under Alternative 2. Employment in this area increased by 13,780 jobs, or 22 percent, between 1990 and 2000 (PR). Non-farm employment projections developed by the Oregon Employment Department anticipate continued employment growth in the three Oregon regions that include the six study area counties. Projected increases in these regions from 2002 to 2012 range from 7.4 percent to 8.5 percent, compared to a statewide average increase of 13.7 percent (Oregon Employment Department, 2003d).

*Lumber and Wood Products-* Assuming that all of the available timber on the private exchange lands would be harvested within 10 years and the harvest spread evenly over this period, the average annual harvest from these lands would be approximately 3.6 MMBF (Table 120). This average annual harvest, which represents approximately 1.8 percent of the total harvest in the six study area counties in 2003, would support approximately 32 FTE direct, indirect, and induced jobs and approximately \$0.9 million in

income (Table 121). Assuming that the employment would for the most part take place in the same county that the harvest occurs, the majority of this employment and income would be supported in Grant, Umatilla, and Wallowa counties (Table 121).

*Recreation and Tourism-* Under Alternative 2, recreation opportunities would remain essentially unchanged from current conditions. Access to NFS, private, and State of Oregon lands would remain the same. Fishing access to the Imnaha River would remain limited and some trails in Wilderness areas would continue to cross private parcels (FS, 2004c).

*Agriculture-* There would be no change to current livestock management under Alternative 2.

### **Traditional Uses and Lifestyles**

*Hells Canyon National Recreation Area-* There would be no lands exchanged within the HCNRA under Alternative 2. This does not, however, necessarily mean that current land uses on private lands within the HCNRA would continue unchanged into the future. The survey summary of the current non-Federal exchange parcels owners conducted by Clearwater Land Exchange-Oregon suggested that the majority of current owners within the HCNRA would offer their properties for sale if they are not included as part of this Proposed Exchange (Andersen, 2003). If these properties were sold rather than exchanged, the future use would depend on the new owner. It is possible that these parcels could be acquired for agricultural use. It is also possible that they could be acquired for private recreational or seasonal use. The results of the Clearwater survey also suggested that the owners of 20 of the private exchange parcels located within the HCNRA would develop recreational home sites on these parcels if they are not included as part of the Proposed Exchange. Recent land use trends in Wallowa County include the development of log and other relatively large homes that are inconsistent with the existing pastoral landscape, traditionally dominated by working ranches and associated structures (Kohrman, 2004b).

### **Government Taxes and Revenues**

*Federal 25 Percent Fund-* Federal 25 Percent Fund payments to all six study area counties are fixed through 2006 and are not tied to revenue produced from FS activities. County full payment amounts (identified by county in Table 115) range from \$351,700 for Morrow County to \$9,549,300 for Grant County.

*Federal Payments in Lieu of Taxes-* Alternative 2 would not affect Federal PILT payments to the six counties. There would be no exchange of land and no change in entitlement acres. PILT payments in the study area in 2003 ranged from \$27,268 in Morrow County to \$389,426 in Union County (Table 116).

*Oregon Property Tax-* There would be no change in the number of acres subject to Oregon property taxes under this alternative and, therefore, no change in local property tax revenues.

*Oregon Forest Products Harvest Tax-* The Oregon Forest Products Harvest Tax is paid on timber cut on all land in Oregon. There would be no change in projected exchange land harvests under this alternative. Assuming for the purposes of analysis that the rate would be \$3.27 per MBF, harvest under Alternative 2 would generate annual tax revenues of approximately \$12,000.

### **Land Management Administrative Costs**

*Property Boundaries-* Under Alternative 2, the boundaries of the Federal exchange parcels would remain as they currently are. As part of ongoing management activities, an estimated 157 miles of property boundaries associated with these parcels would need to be located and marked. This would result in estimated one-time boundary survey and marking costs of approximately \$1.5 million. The FS would also continue to maintain these Federal parcel boundaries that have already been located and marked, with a total maintenance cost of approximately \$542,000 (Table 125).

In addition to the costs of marking and maintaining National Forest boundaries, the FS also incurs costs associated with property boundary disputes, primarily encroachments/trespass by adjacent landowners. There would be no change in the potential for these types of disputes to occur in the future under the No Action Alternative.

*Roads*- Under Alternative 2, the FS would continue to be responsible for annual maintenance costs of approximately \$7,000 for the roads located on the non-exchange Federal parcels. The FS would also be responsible for deferred maintenance costs of about \$34,000 (FS 2004d).

Alternative 2 would have no effect on any existing cost share easement agreements (FS, 2003b).

*Mine Portals and Facilities*- There would be no new lands acquired under this alternative and, as a result, there would be no additional mine management or facilities costs.

*Noxious Weeds*- Alternative 2 would have no net change in the acres of noxious weeds.

*Fire Management*- There would be no change in existing fire management or fuel assessment costs and savings under Alternative 2.

*Special Use Authorizations*- There would be no change to existing special use authorizations under Alternative 2.

*Access and Compliance*- There would be no lands exchanged or purchased under this alternative. There do, however, exist easement acquisition costs associated with some Federal parcels where legal access does not currently exist or has not been perfected. There is also existing easement acquisition costs associated with some non-Federal exchange parcels where the need for legal access across these parcels has been identified but not yet acquired. These costs are estimated to be approximately \$440,000 (FS, 2004i).

The FS could potentially incur costs associated with processing requests from private landowners to construct access roads across Federal lands that would be conveyed under Alternative 1. These costs include the costs of processing easement and permit requests, as well as evaluating environmental compliance and conducting NEPA analyses. There would also be a reduction in requests from the Forest Service to cross state-managed lands. These costs cannot be estimated because the FS cannot predict future access requests and the costs associated with processing these types of requests can vary considerably.

### **Alternative 3: Purchase**

Under this alternative, the Forest Service would purchase 4,249 acres of private (4,019 acres) and State of Oregon (230 acres) property. No Federal parcels would be conveyed. The majority of the lands that would be acquired under this alternative (87 percent) would become part of the Wallowa-Whitman National Forest (3,676 acres). The remaining 13 percent (573 acres) would become part of the Umatilla National Forest. The majority of these acres (89 percent) are located in Wallowa County, with parcels also located in Umatilla (343 acres), Grant (59 acres), and Union (47 acres) counties (Table 119).

### **Employment and the Economy**

*Lumber and Wood Products*- Alternative 3 would result in a net loss of private acres and a small reduction in average annual timber available for harvest (Table 120). This change in projected harvest volume is not expected to affect current trends in local timber harvest and existing forest-related employment levels. The projected net reduction in volume would equate to less than one FTE job (Table 121).

*Recreation and Tourism-* Access would increase under this alternative with minimal disruption to visitors and recreationists because no Federal land would be conveyed. The parcels purchased would provide much needed fishing access to the Imnaha River and improve trail user satisfaction in the Hells Canyon and Eagle Cap wildernesses (FS, 2004c; Glassford, 2006). These developments could result in increased recreation use in the future relative to Alternative 2 and could, in turn, have positive employment and income effects. It is not, however, possible to quantify this potential increase in use or the amount of this potential increase that would represent new recreation use in the area.

*Agriculture-* There would be no Federal parcels conveyed under Alternative 3. The FS would instead purchase a total of 34 parcels (3,669 acres) that are within identified grazing allotments and five parcels located outside active allotments. None of the parcels outside active allotments are presently being grazed. There would be no change in current management or stocking on FS allotments and livestock activities would continue on purchased parcels within active allotments (FS, 2004k; 2006). This alternative would, therefore, have no effect on livestock grazing-related employment or income.

### **Traditional Uses and Lifestyles**

*Hells Canyon National Recreation Area-* The FS would purchase 3,414 acres of private lands located within the HCNRA under this alternative, approximately 10 percent of the existing private lands in the HCNRA. This represents approximately half of the private HCNRA parcels that would be acquired under Alternative 1 and includes a number of parcels located along the Imnaha River corridor. As a result, the potential effects of Alternative 3 on traditional uses and lifestyles within and adjacent to the HCNRA are likely to be similar to those discussed under Alternative 1. While the effects are likely to be the same in some areas, the overall effects would likely be less under Alternative 3 than under the other action alternatives because fewer private HCNRA parcels would be purchased.

### **Government Taxes and Revenues**

*Overview-* This alternative would involve the purchase of 4,019 private acres and a commensurate net reduction in the number of acres subject to Oregon property taxes. Approximately 89 percent (3,570 acres) of this reduction would occur in Wallowa County.

This net reduction in private lands subject to property taxes would result in a small decrease in local property tax revenues that would be partially offset by an increase in PILT payments, which are intended to help offset losses in property taxes associated with nontaxable Federal land. Estimates developed for this analysis indicate that Alternative 3 would result in an overall net reduction in property tax revenue of approximately \$1,600 for the six counties as a whole, with the majority of this reduction occurring in Wallowa County (Table 118). This reduction would be equivalent to less than 0.1 percent of total property taxes imposed in Wallowa County in FY 2003-04 (Table 117).

*Federal 25 Percent Fund-* There would be no change to these payments under this alternative.

*Federal Payments in Lieu of Taxes-* Alternative 3 would have a minimal effect on Federal PILT payments to the six study area counties. The net gain in Federal acres under this alternative (4,249 acres) represents approximately 0.1 percent of the total entitlement acres in the six-county study area in 2003. Based on 2003 payment levels, this net increase in acres would result in a total increase in annual PILT payments of less than \$1,000 to the six-county study area.

*Oregon Property Tax-* There would be an estimated net reduction in property tax revenue of approximately \$1,600 for the six-county study area as a whole under this alternative, with the majority of this reduction occurring in Wallowa County (Table 122). This reduction would be equivalent to less than 0.1 percent of total property taxes imposed in Wallowa County in FY 2003-04 (Table 117).

*Oregon Forest Products Harvest Tax-* There would be a minor net annual reduction in harvest under this alternative (Table 118). Assuming for the purposes of analysis that the rate would be \$3.27 per MBF, there would be a net annual decrease in Oregon Forest Products Harvest Tax revenues of less than \$500 under Alternative 3.

### **Land Management Administrative Costs**

*Overview-* Alternative 3 differs from the other two action alternatives because it involves the purchase of private and State of Oregon lands, rather than the exchange of Federal lands for non-Federal lands of equal value. The purchase of these lands would be spread over a five-year period and would likely involve 14 separate purchase cases, with an estimated one-time case processing cost of \$17,500 per case. These estimated case processing costs include appraisal costs, legal description review, deed preparation, title docket preparation, and title insurance/closing costs. This would result in a total estimated case processing cost of \$245,000. It is likely that the value of the parcels to be purchased would increase annually, increasing the cost to the Federal government for the parcels purchased after the first year. It is not possible to accurately quantify this potential cost increase, but discussions with local realtors and appraisers suggest the properties that would be purchased, which likely have a highest and best use as recreational properties, would increase in value at an average annual rate of approximately 5 percent.

There would be a one-time reduction in administrative costs of approximately \$25,000 under this alternative (Table 123). This saving is lower than under the other action alternatives because there would be less land purchased under Alternative 3 and fewer property boundary surveys and marking costs that would no longer be necessary. There would also be the estimated case processing cost, described above, that would not be incurred by the other action alternatives.

There would be a net increase in annual administrative costs of approximately \$47,000 (Table 124). The majority of these costs would be incurred for noxious weed management on the lands that would be purchased under this alternative. These management costs would likely decrease over time because active management would reduce the number of acres occupied by weeds.

There are also several types of potential costs and savings that cannot be quantified. These include changes in fire management costs and potential reductions in requests for access across NFS lands.

The following discusses projected administrative costs in more detail by affected resource.

*Property Boundaries-* Total additional property boundary costs under Alternative 3 would be approximately \$116,000, with the majority of this cost (\$108,000) associated with surveying and marking the 10.8 miles of new property boundary that result under this alternative. Approximately 86 percent of these costs would be incurred on the Wallowa Whitman National Forest where approximately 9 miles of new property boundary would need to be surveyed and marked (Table 125).

Property boundary savings under this alternative would be approximately \$382,000. Approximately \$357,000 of these savings would result from 36 miles of existing unmarked boundaries that would no longer need to be surveyed and marked. The remaining savings (approximately \$25,000) would result from existing marked property boundaries that would no longer need to be maintained. Approximately 93 percent of these savings would occur on the Wallowa-Whitman National Forest where approximately 34 miles of existing unmarked boundaries would no longer need to be surveyed and marked (Table 125).

Combined, the estimated property boundary costs and savings associated with Alternative 3 would result in a net saving of approximately \$265,000 (Table 125). This would be a total one time saving over the 10 year planning period used for this analysis.

In addition to the costs of marking and maintaining National Forest boundaries, the FS also incurs costs associated with property boundary disputes, primarily encroachments/trespass by adjacent landowners. There would be no change in the potential for these types of disputes to occur in the future under Alternative 3.

*Roads-* Under this alternative the FS would acquire jurisdiction over approximately 8.4 miles of road, with deferred maintenance costs that would range from about \$2,000 to \$4,000 (Table 126). Annual maintenance costs would increase by approximately \$400 (Table 127). The parcels acquired under this alternative include nine miles of roads that would remain under their existing jurisdiction.

This alternative would have no effect on any existing cost share easement agreements (FS, 2003b).

*Mine Portals-* One mine portal, located on parcel PW2B, would need to be gated under this alternative at an estimated one-time cost of \$2,500 (Table 123).

*Facilities-* Facilities and parcels inspections completed by the FS identified a range of facilities on the private and State of Oregon parcels that would be purchased. The FS would prefer that most of these parcels be cleaned up and all materials, including existing structures, removed prior to acquisition. There is one exception, parcel PW48, where the FS would purchase the parcel with existing structures, which include a cabin, shed, pit toilet, and barn, intact. There would be a one-time cost of approximately \$10,000 associated with the acquisition of this parcel (Table 123). This includes the cost of historic evaluation and recording, as well as management/retention of the site for its historic value (FS, 2004e).

*Noxious Weeds-* Noxious weed sites presently exist on the parcels that would be purchased under this alternative. The FS would purchase approximately 294 acres that would require management at an annual cost of approximately \$160 per acre. This would result in a net annual increase in noxious weed management costs of approximately \$47,000 (Table 124). These costs would likely decrease over time because active management would decrease the number of acres occupied by noxious weeds (FS, 2004f).

*Fire Suppression Management-* Under Alternative 3, the FS would purchase parcel PW48 and associated structures that would require structure protection. Protection of these structures would be facilitated by the preparation of a structure protection plan.

There would be a net gain of 4,249 acres under this alternative (Table 119). This net increase represents less than 1 percent of the total acreage on the Malheur, Umatilla, and Wallowa-Whitman National Forests, which include almost 5 million acres, and is not expected to affect any existing FS fire suppression budgets (FS, 2004g).

*Fuels Management-* Alternative 3 would have the overall effect of blocking up ownerships and reducing the number of non-Federal inholdings. This type of consolidation generally has the effect of allowing fuel reduction work on public lands to be applied on larger landscape scales with fewer boundary issues, with a net effect of reducing the cost and complexity of prescribed treatments. The purchased parcels would, however, require public investment in future fuel treatments (thinning, piling, underburning) (FS, 2004h). It is not possible to estimate the costs or savings that would be associated with this alternative.

*Special Use Authorization-* There would be no change to existing special use authorizations under Alternative 3.

*Access and Compliance-* All private and State of Oregon land purchased would be acquired with legal access including access for the public, as appropriate. The FS would, therefore, not incur any easement acquisition costs on private and State of Oregon lands that would be purchased under Alternative 3. There do, however, exist easement acquisition costs that would no longer be incurred under this alternative.

There are three non-Federal parcels that would be purchased where legal access has not been acquired and a right-of-way need is currently identified to access adjacent public lands. The easement acquisition saving associated with this alternative is estimated to be a one-time saving of \$20,000 (Table 123; FS, 2004b).

#### **Alternative 4: Deed Restriction**

Under Alternative 4, the FS would exchange approximately 18,172 acres of NFS lands for 17,119 acres of private (16,889 acres) and state (2,758 acres) land. Under this alternative, Federal parcels would be conveyed with deed restrictions that the FS would monitor for the foreseeable future. These deed restrictions would include general harvest restrictions, as well as riparian habitat-related restrictions. Alternative 4 would involve the same Federal parcels as Alternative 1, but the amount of non-Federal acres to be acquired would be reduced from 31,741 acres under Alternative 1 to 17,119 acres. This would occur because the deed restrictions would reduce the commercial value of the Federal parcels. This reduction in commercial value is difficult to quantify but was assumed to be in the region of approximately 50 percent for the purposes of developing Alternative 4.

More than half of the total acres that would be acquired under this alternative (62 percent) are located in Wallowa County (10,677 acres), with the remaining acres spread across Umatilla (4,718 acres), Grant (1,277 acres), Union (288 acres), and Morrow (159 acres) counties (Table 119). There would be a net loss in Federal acres in all counties, with the exception of Wallowa County where there would be a net increase of 6,067 acres.

#### **Employment and the Economy**

*Lumber and Wood Products-* Alternative 4 would result in a net increase in private acres and an increase in the supply of timber available for harvest. The conveyed parcels plus the private parcels not acquired include approximately 52.8 MMBF of harvestable timber resources that would be available for harvest under this alternative (Table 120). This volume is lower than the volume that would be available under Alternative 1, which involves the same Federal parcels, because of the deed restrictions that would be imposed under this alternative.

This total volume is equivalent to 27 percent of total harvest in the six-county area in 2003. The available volume would be concentrated in Grant, Umatilla, and Wallowa counties, and represents approximately 62 percent and 114 percent of the respective volumes harvested in Grant and Umatilla counties in 2003.

The net increase in volume available for harvest under this alternative would be approximately 17.4 MMBF (Table 120), which is equivalent to approximately nine percent of the volume harvested in the six-county area in 2003. The net increase in Grant and Umatilla counties would be equivalent to 37 percent and 11 percent of total harvest in 2003, respectively.

Assuming that this volume would be harvested within 10 years and the harvest spread evenly over this period, the net gain in average annual harvest would be approximately 1.7 MMBF (Table 120). This net increase in harvest would support approximately 16 FTE jobs and \$446,000 in income each year (Table 121). Assuming that the employment would for the most part take place in the same county that the harvest occurs, the majority of this employment and income would be supported in Grant County (Table 121).

This projected increase in average annual harvest is not expected to substantially alter current trends in local timber harvest or existing forest-related employment levels. The total net increase in timber available for average annual harvest is equivalent to 1 percent of the total harvest in the six study area



counties in 2003. The majority of this net annual increase would occur in and is equivalent to approximately 4 percent of the harvest in Grant County in 2003.

*Recreation and Tourism-* This alternative includes a covenant on the Federal lands that would be conveyed to Clearwater Land Exchange – Oregon. Public access on 49 miles of road would not change under this alternative due to existing rights-of-way and rights-of-way to be granted upon parcel conveyance. While the same 60 miles of road would be conveyed as described for Alternative 1, only 53 miles of road would be acquired (approximately half of the 101 miles associated with Alternative 1) (Glassford, 2006).

The parcels acquired by the Forest Service would, however, provide much needed fishing access to the Imnaha River and improve trail user satisfaction in the Hells Canyon and Eagle Cap wildernesses (USDA Forest Service, 2004c). These developments could result in increased recreation use in the future relative to Alternative 2 and have associated positive employment and income effects. It is not, however, possible to quantify this potential increase in use or the amount of this potential increase that would represent new recreation use in the area.

*Agriculture-* Under Alternative 4, the FS would acquire 96 parcels (14,131 acres) within existing allotments and convey 62 parcels (15,136 acres) within allotments for a net loss of 1,005 acres. Although the acquired parcels would add capacity to the affected allotments, there would be no increase in stocking until further analysis is conducted. The FS would, however, no longer manage five pastures on four allotments, which would result in a reduction of permitted stocking by 404 AUMs. The parties receiving the conveyed lands have, however, expressed interest in continuing to graze these lands with two exceptions. These two exceptions combined currently account for 106 permitted AUMs (FS, 2004k; 2006). This projected change is not expected to have any measurable effect on local employment or income.

The FS would also acquire 677 acres outside allotments that are presently being grazed and convey 1,133 acres outside allotments that the parties receiving the lands have expressed an interest in grazing. Grazing would be discontinued on the parcels that would be acquired (FS, 2004k; 2006). The associated net change in AUMs is unknown, but it is not expected to have a measurable effect on local employment or income.

### **Traditional Uses and Lifestyles**

*Hells Canyon National Recreation Area-* The FS would acquire 8,199 acres of non-Federal parcels located within the HCNRA under Alternative 4 and would, in turn, convey 695 acres of Federal parcels in the HCNRA. These are the same parcels that would be exchanged under Alternative 1 and, as a result, the potential effects of Alternative 4 on traditional uses and lifestyles within and adjacent to the HCNRA would be the same as those discussed under Alternative 1.

### **Government Taxes and Revenues**

*Overview-* This alternative would involve the conveyance of 18,172 Federal acres and acquire 17,119 non-Federal acres, which would result in a net loss of 1,053 Federal acres (an increase of private lands when compared to Alternative 2). Viewed at a county level, this alternative would result in a net loss of approximately 4,398 Federal acres and 2,349 Federal acres in Grant and Umatilla counties, respectively, and a net gain of 6,067 Federal acres in Wallowa County (Table 119).

This overall net increase in private lands subject to property taxes would result in a slight overall net increase in property tax revenue of approximately \$1,000 for the six-county study area as a whole. The net reduction in private acres in Wallowa County would result in an estimated net reduction of property

tax revenues of approximately \$2,000, less than 0.1 percent of total property taxes imposed in this county in FY 2003-04 (Table 117).

*Federal 25 Percent Fund-* Federal 25 Percent Fund payments to all six study area counties are fixed through 2006 and are not tied to revenue produced from FS activities. There would be no change in Federal 25 Percent Fund payments under this alternative.

*Federal Payments in Lieu of Taxes-* Alternative 4 would have a minor effect on Federal PILT payments to the six study area counties. The small net loss in Federal acres under this alternative (-1,053 acres) represents less than 0.1 percent of the total entitlement acres in the six-county study area in 2003. Based on 2003 payment levels, this net reduction in acres would result in a total annual reduction in annual PILT payments of approximately \$500 to the six-county study area.

*Oregon Property Tax-* There would be an estimated net increase in property tax revenue of approximately \$1,000 for the six-county study area as a whole under this alternative (Table 122). The majority of the increase in property tax revenues under this alternative would occur in Grant County (Table 122). The net reduction in private acres in Wallowa County would result in an estimated net reduction of property tax revenues of approximately \$2,000, less than 0.1 percent of total property taxes imposed in this county in FY 2003-04 (Table 117).

*Oregon Forest Products Harvest Tax-* There would be a net annual increase in timber harvest of approximately 1.7 MMBF under this alternative (Table 120). Assuming for the purposes of analysis that the rate would be \$3.27 per MBF, there would be a net annual increase of about \$6,000 in this tax under Alternative 4.

### **Land Management Administrative Costs**

*Overview-* The estimated annual cost for overseeing and monitoring deed restrictions is \$30,500 (Table 124). This estimate is based on the time that would be necessary to conduct and administer annual inspections on the deed restriction parcels. The estimate does not include potential costs associated with non-compliance with deed restrictions or challenges to deed restrictions. Resolution of these types of issues, should they occur, may range from simple mitigation to court action.

There would be an estimated one-time administrative saving of about \$610,000 under Alternative 4. The majority of these savings would be due to easement acquisitions and property boundary surveys that would no longer be necessary (Table 123). There would be a net increase in annual administrative costs of approximately \$160,000 under Alternative 4 (Table 124). The majority of these additional costs would be incurred for noxious weed management on the lands that would be acquired under this alternative. These management costs would likely decrease over time because active management would reduce the number of acres occupied by weeds.

There are also several types of potential costs and savings that cannot be quantified. These include changes in fire management costs and potential reductions in requests for access across NFS lands.

The following discusses projected administrative costs in more detail by affected resource.

*Property Boundaries-* Total additional property boundary costs under Alternative 4 would be approximately \$714,000, with the majority of this cost (\$680,000) associated with surveying and marking the 68 miles of new property boundary that result under this alternative. Approximately 59 percent of these additional costs would be incurred on the Wallowa-Whitman National Forest where approximately 40 miles of new property boundary would need to be surveyed and marked (Table 125).

Property boundary savings under this alternative would be approximately \$1 million. Approximately \$0.9 million of these savings would result from 94 miles of existing unmarked boundaries that would no longer need to be surveyed and marked (Table 125). The remaining savings would result from existing marked property boundaries that would no longer need to be maintained. Approximately 87 percent of these total savings would occur on the Wallowa-Whitman National Forest where 85 miles of existing unmarked boundaries would no longer need to be surveyed and marked (Table 125).

Combined, the estimated property boundary costs and savings associated with Alternative 4 would result in a net saving of approximately \$332,000 (Table 125). This would be a total one time saving.

In addition to the costs of marking and maintaining National Forest boundaries, the FS also incurs costs associated with property boundary disputes, primarily encroachments/trespass by adjacent landowners. It is possible that the number of these disputes and the associated costs would be reduced under Alternative 4 because there would be a decrease in the number of isolated parcels owned by the FS, as well as a decrease in privately-owned and State of Oregon in-holdings surrounded by NFS lands. The FS has identified potential encroachment-related costs of approximately \$46,000 that would be saved under Alternative 4 (Table 123).

*Roads-* Under Alternative 4, the FS would acquire 53 miles of roads and convey 59.6 miles for a net decrease of 6.6 miles of road (Table 126). Approximately 2.5 miles of the acquired roads that are currently open would need to be closed for public safety. The Malheur National Forest would experience a net reduction in road miles (-35.6 miles) while the Umatilla and Wallowa-Whitman would both experience net gains (7.2 miles and 21.8 miles, respectively). Overall, the FS would experience a net increase in one-time, deferred maintenance costs that would range from about \$16,000 to \$66,000 (Table 126).

Annual maintenance costs would decrease by approximately \$500. These costs would decrease on the Malheur National Forest and increase on the Umatilla and Wallowa-Whitman (Table 127).

The exchange parcels include an additional 49 miles of roads that would remain under their existing jurisdiction. The FS would reserve jurisdiction on approximately 10 miles of existing roads on conveyed lands to maintain access to other Forest roads or lands. The rest of these roads are located on parcels that would be acquired.

This alternative would have no effect on any existing cost share easement agreements (FS, 2003b).

*Mine Portals-* Bat-friendly gates would need to be installed at two mine portals on parcels PW6 and PW2B at a total cost of \$5,000 (Table 123).

*Facilities-* Facilities and parcels inspections completed by the FS identified a range of facilities on the private and State of Oregon parcels that would be acquired under Alternative 4. The FS would prefer that most of these parcels be cleaned up and all materials, including existing structures, removed prior to acquisition. There is one exception, parcel PW48, where the FS would acquire the parcel with existing structures, which include a cabin, shed, pit toilet, and barn, intact. There would be a one-time cost of approximately \$10,000 associated with the acquisition of this parcel (Table 123). This includes the cost of historic evaluation and recording, as well as management/retention of the site for its historic value (FS, 2004e).

*Noxious Weeds-* Noxious weed sites presently exist on the parcels that would be conveyed and also on the parcels that would be acquired. Transferring the deeds for the parcels would not itself create conditions favoring noxious weed establishment, but it would result in a net change in the acres of noxious weed

sites on Federal lands. Noxious weed management costs on NFS lands are approximately \$160 per acre. Alternative 4 would result in the FS exchanging 54 acres of inventoried noxious weeds for approximately 858 acres of mapped noxious weeds. This net increase of 804 acres would result in a potential net increase in annual weed management costs of approximately \$128,600 (Table 124). These costs would likely decrease over time because active management would decrease the number of acres occupied by noxious weeds (FS, 2004f).

*Fire Suppression Management-* This alternative would involve the exchange of Federal parcels that are either isolated individual parcels or extensions of NFS lands that result in irregular-shaped boundaries for individual non-Federal parcels that are either surrounded by or adjacent to existing NFS lands. Reducing the number of isolated parcels and irregular-shaped boundaries would generally reduce Federal fire suppression costs. Under this alternative, the FS would acquire parcel PW48 and associated structures that would require structure protection. Protection of these structures would be facilitated by the preparation of a structure protection plan.

Alternative 4 would result in a net loss of 1,053 acres (Table 119). This net decrease represents less than 0.1 percent of the total acreage on the Malheur, Umatilla, and Wallowa-Whitman National Forests, which include almost 5 million acres, and is not expected to affect existing FS fire suppression budgets (FS, 2004g).

*Fuels Management-* Alternative 4 would have the overall effect of blocking up ownerships and reducing the number of non-Federal inholdings. This type of consolidation generally has the effect of allowing fuel reduction work on public lands to be applied on larger landscape scales with fewer boundary issues, with a net effect of reducing the cost and complexity of prescribed treatments. It is not, however, possible to estimate the potential savings associated with this alternative.

There are several Federal parcels that would be conveyed under Alternative 4 that are important from a fuels reduction perspective. These include parcels FW6D, FW6F, FW10, FW24, FU26, FU28, and FM12. These parcels are strategically placed on the landscape for fuels reduction treatments on these and adjacent public lands (FS, 2004h).

Some harvested non-Federal parcels that would be acquired under this alternative would require public investment in future fuel treatments (thinning, piling, underburning) although some timbered conveyed parcels also need fuels treatment. Most of the larger and more fire resistant trees have been removed on the private parcels where logging has occurred. Recent harvest on private parcels has also removed larger second growth trees. Large tree harvest has also occurred on public lands, but not so uniformly. This alternative would result in a net loss of large trees and some need for fuel reduction work in a few acquired parcels. Heavily logged parcels that would be acquired have slash and slash piles. These parcels have either complied with State BMPs slash disposal requirements or would achieve compliance prior to their acquisition. It is not possible to estimate the extent of the fuels treatment work that would be required or the associated costs, but these costs would represent a net increase in cost compared to the No Action Alternative (FS, 2004h). In summary, because of the large number of parcel acres that would be acquired the benefits of blocking up ownership outweighs the negative consequences of Alternative 4.

*Special Use Authorization-* The conveyed parcels under this alternative include 10 special use permits. Three of these permits would likely be eliminated resulting in a net saving in special use permit costs of approximately \$18,500 (Table 123). This saving would occur once over the 10-year planning period. The other seven permits would remain in place because they involve other land that would remain part of the NFS.

*Access and Compliance-* Twenty-eight Federal parcels that would be conveyed under Alternative 4 do not currently have legal access. There are also 10 parcels that would be acquired under Alternative 4 where legal access has not been acquired and a right-of-way need is currently identified to access adjacent NFS lands. The costs associated with acquiring this legal access and necessary rights-of-way would not be incurred under Alternative 4, resulting in an estimated one time saving of \$360,000 (Table 123; FS, 2004b).

Alternative 4 could result in a reduction in the number of requests from private landowners to construct access roads across lands that would be conveyed. This would result in savings because the FS would not have to process easement and permit requests or conduct NEPA analyses that might otherwise be needed. There would also be a reduction in requests from the Forest Service to cross state-managed lands. These potential savings cannot be estimated because the FS cannot predict future access requests and the costs associated with processing these types of requests can vary considerably. Some cases are resolved relatively quickly, while others involve numerous regulatory or legal issues and can take years to complete.

### **Alternative 5: Preferred Alternative**

Under Alternative 5, the FS would exchange approximately 16,473 acres of NFS lands for approximately 30,837 acres of private (28,079 acres) and state (2,758 acres) land in scattered parcels throughout the Blue Mountain province of northeast Oregon. The lands considered for exchange are distributed across Baker, Grant, Morrow, Umatilla, Union, and Wallowa counties, with the majority of these lands (approximately 97 percent) located in Grant (32 percent), Umatilla (27 percent), and Wallowa (38 percent) counties. The FS would experience a net gain of 14,364 acres under this alternative, with about 60 percent (8,566 acres) of this gain occurring in Wallowa County. There would also be a net gain in Federal acres in Baker, Grant, and Umatilla counties (Table 119).

### **Employment and the Economy**

*Lumber and Wood Products-* The Preferred Alternative would result in a net increase in private acres and an increase in the supply of timber available for harvest. The conveyed parcels plus the private parcels not acquired include approximately 75.6 MMBF of harvestable timber resources that would be available for harvest under this alternative (Table 120). This total volume is equivalent to 38 percent of total harvest in the six-county area in 2003. The available volume would be concentrated in Grant, Umatilla, and Wallowa counties, and represents approximately 91 percent and 149 percent of the respective volumes harvested in Grant and Umatilla counties in 2003.

The net increase in volume available for harvest under this alternative would be approximately 40.1 MMBF (Table 120), which is equivalent to approximately 20 percent of the volume harvested in the six-county area in 2003. The net increase in Grant and Umatilla counties would be equivalent to 35 percent and 45 percent of total harvest in 2003, respectively.

Assuming that this volume would be harvested within 10 years and the harvest spread evenly over this period, the net increase in average annual volume would be approximately 4 MMBF (Table 120). This net annual increase in harvest would support approximately 36 full-time equivalent (FTE) jobs and approximately \$1 million in income each year (Table 121). Assuming that the employment would for the most part take place in the same county that the harvest occurs, a large share of this employment and income would be supported in Grant County (22 jobs; \$615,000) and Umatilla County (7 jobs and \$190,000) (Table 121).

This projected increase in average annual harvest is not expected to substantially alter current trends in local timber harvest or existing forest-related employment levels. The total net increase in timber

available for average annual harvest is equivalent to 2 percent of the total harvest in the six study area counties in 2003. A large share of this net annual increase would occur in Grant County and is equivalent to approximately 6.5 percent of total Grant County harvest in 2003.

*Recreation and Tourism-* This alternative involves the majority of the parcels that would be exchanged under Alternative 1. The effects under this alternative are, therefore, expected to be essentially the same as those described for Alternative 1.

Although there would be no change in access to the parcels acquired by the FS in the short-term, these areas would ultimately provide much needed fishing access to the Imnaha River and improve trail user satisfaction in the Hells Canyon and Eagle Cap wildernesses (FS, 2004c; Glassford, 2006). These developments could result in increased recreation use in the future relative to Alternative 2 and could, in turn, have positive employment and income effects. It is not, however, possible to quantify this potential increase in use or the amount of this potential increase that would represent new recreation use in the area.

*Agriculture-* Under Alternative 5, the FS would acquire 139 parcels (23,557 acres) within existing allotments and convey 57 parcels (13,770 acres) within allotments for a net gain of 9,787 acres. Although the acquired parcels would add capacity to the affected allotments, there would be no increase in stocking until further analysis is conducted. The FS would, however, cancel five existing grazing permits, which would result in a reduction of permitted stocking by 723 Animal Unit Months (AUMs). The parties receiving the conveyed lands have, however, expressed interest in continuing to graze these lands with two exceptions. These two exceptions combined currently account for 106 permitted AUMs (FS, 2004k; 2006). This projected change is not expected to have a measurable effect on local employment or income.

The FS would also acquire 2,245 acres outside allotments that are presently being grazed and convey 812 acres outside allotments that the parties receiving the lands have expressed an interest in grazing. Grazing would be discontinued on the parcels that would be acquired (FS, 2004k; 2006). The associated net change in AUMs is unknown, but it is not expected to have a measurable effect on local employment or income.

### **Traditional Uses and Lifestyles**

*Hells Canyon National Recreation Area-* The FS would acquire 8,060 acres of private lands located within the HCNRA under this alternative and would, in turn, convey 695 acres of NFS lands in the HCNRA to private individuals. These are the same parcels that would be exchanged under Alternative 1, with the difference in acres acquired—8,199 (Alternative 1) versus 8,060 (Alternative 5)—due to adjustments to five of the parcels. The potential effects of this alternative on traditional uses and lifestyles within and adjacent to the HCNRA would be the same as those discussed under Alternative 1.

### **Government Taxes and Revenues**

*Overview-* The Preferred Alternative would result in a 14,364 acre net increase in Federal lands, with the largest increases occurring in Wallowa (8,566 acres), Grant (3,215 acres), and Umatilla (2,585 acres) counties (Table 119). The corresponding net reduction in private lands subject to property taxes would result in a small decrease in local property tax revenues that would be partially offset by an increase in PILT payments, which are intended to help offset losses in property taxes associated with nontaxable Federal land. Estimates developed for this analysis indicate that this alternative would result in an overall net reduction in annual property tax revenue of approximately \$4,600 for the six counties as a whole, with the majority of this reduction occurring in Wallowa County (\$2,600). These reductions are equivalent to less than 0.1 percent of total property taxes imposed in fiscal year 2003-04 for the six county area and Wallowa County, respectively (Table 117).

*Federal 25 Percent Fund-* Federal 25 Percent Fund payments to all six study area counties are fixed through 2006 and are not tied to revenue produced from FS activities. There would be no change to these payments under this alternative.

*Federal Payments in Lieu of Taxes-* The net gain in NFS acres under Alternative 5 (14,364 acres) represents 0.28 percent of the total entitlement acres in the six county study area in 2003, ranging from 0.03 percent of the total in Baker County to 0.73 percent in Wallowa County. Based on 2003 payment levels, this net increase in acres would result in a total increase in annual PILT payments of approximately \$2,900 to the six county study area.

*Oregon Property Tax-* This analysis indicates that the Preferred Alternative would result in an overall net reduction in property tax revenue of approximately \$4,600 for the six counties as a whole, with the majority of this reduction occurring in Wallowa County (\$2,600) (Table 122).

*Oregon Forest Products Harvest Tax-* There would be a net annual increase in timber harvest of approximately 4.0 MMBF under this alternative (Table 120). Assuming for the purposes of analysis that the rate would be \$3.27 per MBF, there would be a net annual increase of about \$13,100 in this tax under Alternative 5.

### **Land Management Administrative Costs**

*Overview-* The Preferred Alternative would potentially affect projected land management administrative costs for the three participating National Forests. There would be one-time costs and savings, as well as changes in annual administrative costs. There would be an estimated one-time saving of almost \$1.5 million under this alternative (Table 123). The majority of these savings would be due to property boundary surveys and easement acquisitions that would no longer be necessary under this alternative.

There would, however, be a net increase in annual administrative costs of approximately \$144,800 under this alternative (Table 124). The majority of these costs would be incurred for noxious weed management on the non-Federal lands that would be acquired under this alternative. These management costs would likely decrease over time because active management would reduce the number of acres occupied by weeds.

There are also several types of potential costs and savings that cannot be quantified. These include changes in fire management costs and potential reductions in requests for access across NFS lands.

The following sections discuss projected administrative costs in more detail by affected resource.

*Property Boundaries-* Total additional property boundary costs under Alternative 5 would be approximately \$900,000, with the majority of this cost (\$733,000) associated with surveying and marking the 73 miles of new property boundary that would result under this alternative. Approximately 49 percent of these costs would be incurred on the Wallowa Whitman National Forest where approximately 41 miles of new property boundary would need to be surveyed and marked (Table 125).

Property boundary cost savings under this alternative would be approximately \$2 million. Approximately \$1.5 million of these savings would result from 152 miles of existing unmarked boundaries that would no longer need to be surveyed (Table 125). The remaining \$500,000 of these savings would result from existing marked property boundaries that would no longer need to be maintained. Approximately 65 percent of these total savings would occur on the Wallowa Whitman National Forest where approximately 120 miles of existing unmarked boundaries would no longer need to be surveyed and marked.

Combined, the estimated property boundary costs and cost savings associated with Alternative 5 would result in a net cost saving of approximately \$1.1 million (Table 125). This would be a total one-time cost saving over the 10 year planning period used for this analysis.

In addition to the costs of marking and maintaining National Forest boundaries, the FS also incurs costs associated with property boundary disputes, primarily encroachments/trespass by adjacent landowners. It is possible that the number of these disputes and the associated costs would be reduced under the Preferred Alternative because there would be a decrease in the number of isolated parcels owned by the FS, as well as a decrease in privately-owned and state-managed in-holdings surrounded by NFS lands. The FS has identified potential encroachment-related costs of approximately \$46,000 that would be saved under Alternative 5 (Table 123).

*Roads-* Under Alternative 5, the FS would acquire approximately 96 miles of roads and convey 56 miles for a net gain of approximately 40 miles of road (Table 126). The Malheur National Forest would experience a net reduction in road miles (-18 miles) while the Umatilla and Wallowa-Whitman would both experience net gains (approximately 30 miles and 28 miles, respectively). Overall, the FS would experience a net increase in one-time, deferred maintenance costs that would range from about \$68,000 to \$168,000 (Table 126).

Annual maintenance costs would increase by approximately \$8,000 under this alternative. These costs would decrease slightly on the Malheur National Forest (-\$800) and increase on the Umatilla and Wallowa-Whitman (approximately \$5,000 and \$4,000, respectively) (Table 127).

The exchange parcels include an additional 64 miles of roads that would remain under their existing jurisdiction. The FS would reserve jurisdiction on approximately 10 miles of existing roads on conveyed lands to maintain access to other Forest roads or lands. Approximately 2.5 miles of the acquired roads that are currently open have been identified as needing to be closed for public safety reasons. The rest of these roads (54 miles) are located on parcels that would be acquired by the FS.

The Preferred Alternative would have no effect on any existing cost share easement agreements (FS, 2003b).

*Mine Portals-* Bat-friendly gates would need to be installed at two mine portals on parcels PW6 and PW2B at a total cost of \$5,000 (Table 123).

*Facilities-* Facilities and parcel inspections completed by the FS identified a range of facilities on the private and state parcels that would be acquired under Alternative 5. These facilities include cabins and outhouses, as well as household garbage and wood and metal debris, such as household appliances and old cars. The FS would prefer that most of these parcels be cleaned up and all materials, including existing structures, removed prior to acquisition. There are two exceptions, parcels PM26 and PW48, where the FS would acquire the parcels with existing structures intact. These structures include two cabins, two sheds, two pit toilets, and a barn. There would be a one-time cost of approximately \$10,000 associated with the acquisition of each parcel (Table 123). This includes the cost of historic evaluation and recording, as well as management/retention of each site for its historic value (FS, 2004e).

*Noxious Weeds-* Noxious weed sites presently exist on the parcels that would be conveyed by the FS and also on the parcels that would be acquired. Transferring the deeds for the parcels would not itself create conditions favoring noxious weed establishment, but it would result in a net change in the acres of noxious weed sites on NFS lands. Noxious weed management costs on NFS lands are approximately \$160 per acre per year. Alternative 5 would result in the FS exchanging 48 acres of inventoried noxious weeds for approximately 903 acres of mapped noxious weeds. This net increase of 855 acres would result



in a net increase in annual weed management costs of approximately \$138,800 (Table 124). These costs would likely decrease over time because active management would decrease the number of acres occupied by noxious weeds (FS, 2004f).

*Fire Suppression-* This alternative would involve the exchange of NFS parcels that are either isolated individual parcels or extensions of NFS lands that result in irregular-shaped boundaries, for individual non-Federal parcels that are either surrounded by or adjacent to existing NFS lands. Reducing the number of isolated parcels and irregular-shaped boundaries would generally reduce Federal fire suppression costs. The structures on PM26 and PW48 would require structure protection, which would be facilitated by the preparation of structure protection plans following the exchange.

There would be a net gain of 14,364 acres under this alternative (Table 119). This net increase represents less than 1 percent of the total acreage on the Malheur, Umatilla, and Wallowa-Whitman National Forests, which combined include almost 5 million acres, and, as a result, this increase is not expected to affect any existing FS fire suppression budgets (FS, 2004g).

*Fuels Management-* Alternative 5 would have the overall effect of blocking up ownerships and reducing the number of non-Federal inholdings. This type of consolidation generally has the effect of allowing fuel reduction work on public lands to be applied on larger landscape scales with fewer boundary issues, with a net effect of reducing the cost and complexity of prescribed treatments. It is not, however, possible to estimate the potential cost savings associated with this alternative.

There are several NFS parcels that would be conveyed under this alternative that are important from a fuels reduction perspective. These include parcels FW6D, FW6F, FW10, FW24, FU26, and FM12. These parcels are strategically placed on the landscape for fuels reduction treatments on these and adjacent public lands (FS, 2004h).

Some harvested non-Federal parcels that would be acquired under this alternative would require public investment in future fuel treatments (thinning, piling, underburning). Some timbered conveyed parcels would also need fuels treatment. Most of the larger and more fire resistant trees have been removed on the private parcels where logging has occurred. Recent harvest on some private parcels has also removed larger second growth trees. Large tree harvest has also occurred on public lands, but not so uniformly. Alternative 5 would result in a net loss of large trees and fuel reduction work may be required on some of the acquired parcels. Heavily logged parcels that would be acquired currently have slash and slash piles. These parcels have either complied with State Best Management Practices (BMP) slash disposal requirements or would achieve compliance prior to their acquisition. It is not possible to estimate the extent of the fuels treatment work that would be required or the associated costs, but these costs would represent a net increase in cost compared to the No Action Alternative (FS, 2004h).

*Special Use Authorizations-* The NFS lands that would be conveyed to Clearwater Land Exchange – Oregon under this alternative include 10 special use permits. Two of these permits would likely be eliminated resulting in a net saving in special use permit costs of approximately \$11,000 (Table 123). This saving would occur once over the 10-year planning period. The other seven permits would remain in place because they also involve other land that would remain part of the NFS.

*Access and Compliance-* Twenty-eight NFS exchange parcels that would be conveyed to Clearwater Land Exchange - Oregon under Alternative 5 do not currently have legal access. There are currently 18 private parcels that would be acquired under Alternative 5 where the need for a right-of-way to access adjacent public lands has been identified but not yet acquired. The easement acquisition cost saving associated with this alternative is estimated to be a one time saving of \$440,000 (Table 123) (FS, 2004i).

Alternative 5 could also result in a reduction in the number of requests from private landowners to construct access roads across NFS lands that would be conveyed to Clearwater Land Exchange - Oregon under this alternative. If it were to occur, this would result in a reduction in costs incurred by the FS to process easement and permit requests or conduct NEPA analyses that might otherwise be needed. These potential savings cannot be estimated because the FS cannot predict future access requests and the costs associated with processing these types of requests can vary considerably. Some cases are resolved relatively quickly, while others involve numerous regulatory or legal issues and can take years to complete.

## **All Action Alternatives**

### **Civil Rights, Minority Groups, Women, and Consumers**

The Forest Service Handbook (FSH 1909.17.33) indicates that FS social analyses should consider the effects of each alternative on civil rights, minority groups, women, and consumers. The action alternatives and the NEPA process for this project comply with the Forest Service Handbook's definition of "civil rights", which it states implies fair and equal treatment under the law, both within the agency and in its relations with the public (FSH 1909.17.33). Potential effects to minority groups are discussed in Environmental Justice below, as well as in the separate tribal reports prepared for this project (FS, 2004j & PR). The potential employment and income, tax, administrative cost, and social effects assessed in the preceding discussions would apply to both men and women. The potential effects to consumers are assessed in terms of available recreation opportunities (FS, 2004c).

### **Environmental Justice**

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires each Federal agency to make the achievement of environmental justice part of its mission by identifying and addressing disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low income populations. The Order further stipulates that the agencies conduct their programs and activities in a manner that does not have the effect of excluding persons from participation in, denying persons the benefits of, or subjecting persons to discrimination because of their race, color, or national origin.

Potentially affected minority populations include American Indian tribes with an interest in the lands considered for exchange. The Preferred Alternative occurs within areas ceded to the United States by the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), the Nez Perce Tribe, the Burns Paiute Tribe, and the Confederated Tribes of the Warm Springs Reservation. The FS is in the process of ongoing government-to-government consultation with these American Indian tribes. The potential effects to American Indian Tribes are assessed in separate reports prepared for the Proposed Exchange (FS, 2004j & PR). The Tribal Interests reports assess the potential effects of all action alternatives on American Indian tribes in terms of access for traditional uses and exercise of Treaty rights, impacts to open and unclaimed lands, cultural resources, and protection of Treaty-identified resources.

While other minority populations and low income populations exist within the six-county study area, the Preferred Alternative is not expected to cause disproportionately adverse effects on these populations. The FS has considered all input from persons or groups regardless of race, income status, or other social and economic characteristics.

## **Commercial Timber**

Commercial timber volume was determined by using a timber cruise design similar to that used on FS timber sales but tailored to private industry standards in the NE Oregon area. The cruise as a whole

achieved a standard error of 10% or less. It was designed to achieve an error of plus or minus 8% on gross measurements and plus or minus 12% on net measurements for each landowner’s parcels.

The minimum log specifications were to a six-inch top diameter inside bark. The minimum log length was sixteen lineal feet, or a minimum piece size of 20 board feet. Trees were not cruised if they did not have a minimum piece size. If export logs were observed upon field inspection, these logs were recorded as such on the Federal and non-Federal parcels.

Parcels that were harvested and where essentially all merchantable trees (as defined above) were removed where not cruised.

### Summary

The existing characteristics of the commercial timber conveyed/acquired/purchased by alternative are displayed in Table 128.

**Table 128. Commercial Timber Characteristics to Convey/Acquire/Purchase by Alternative**

	Alternatives						
	1-Cv	1-Aq	3-Pr	4-Cv	4-Aq	5-Cv	5-Aq
Total. Net Volume. (MBF)	99,722	61,967	2,708	99,722	22,415	90,542	61,065
Net Average Board Feet per Acre	10,357	6,813	7,458	10,357	6,584	10,357	6,813
Average DBH	15.1	13.9	14.1	15.1	13.9	15.1	13.9
Average Basal Area per Acre	81	65	69	81	55	81	65
Average Trees per Acre	65	60	60	65	48	65	60
Average Site Index <sup>1</sup>	84	83	84	84	83	84	83
Commercial Timberlands (Acres)	9,628	9,095	363	9,628	3,405	8,231	8,737

1) Site index is the total height to which dominate cruised conifers will grow at age 100.

All averages were weighted by acreages of stand alone cruise areas.

The data in this table represents only cruised commercial timber. The cruise design was for Alternative 1, therefore the standard errors for Alternative 3, 4 and 5 may not meet Alternative 1 standards.

Cv – convey, Aq – acquire, Pr – purchase

### Alternative 1: Proposed Exchange

The direct effect of the Proposed Exchange Alternative would be a net reduction of 37,755 MBF (thousand board feet) of timber volume in the Federal estate. The 37,755 MBF represents approximately 38% of the conveyed commercial timber volume on cruised commercial forest lands for this alternative. The cruised commercial forest acres on non-Federal parcels were 533 acres less than on Federal lands (Table 128). The net average board feet per acre would be significantly less on acquired parcels. This is likely due to previous harvesting on most commercially timbered private parcels. The average DBH on cruised commercial forested lands acquired would be smaller than conveyed by 1.2 inches. Average commercial trees per acre and site index would be close to the same on conveyed and acquired commercial timberlands that were cruised.

### **Alternative 2: No Action**

Under the No Action Alternative, commercial timberland would not change ownership. Anticipated management plans on private parcels supporting commercial timber indicate logging would occur on most of these lands within the next 10 years.

### **Alternative 3: Purchase**

The Purchase Alternative would result in the FS purchasing 363 acres of commercially timbered areas with a total of 2,708 MBF. The average net board feet per acre on cruised commercial timbered purchased parcels would be significantly less than conveyed parcels under Alternative 1. The average DBH on purchased commercial timberlands would be slightly larger than the average DBH of acquired commercial timber lands under Alternative 1.

### **Alternative 4: Deed Restriction**

The Deed Restriction Alternative would result in a net reduction of 77,307 MBF of cruised commercial timber volume. The 77,307 MBF represents approximately 78% of the cruised conveyed commercial timber on forested lands. The average net board feet per acre would be significantly less on acquired commercial forested parcels as is the case for Alternative 1. The average DBH, basal area per acre, and trees per acre are considerably smaller on acquired cruised commercial timberland than on conveyed timberland. The substantially more commercial timberlands conveyed than acquired (Table 128) would be the result of higher priority parcels being non-commercial timberlands and the reduced value of conveyed parcels because of deed restrictions.

### **Alternative 5: Preferred Alternative**

The direct effect of the Preferred Alternative would be a net reduction of 29,477 MBF (thousand board feet) of timber volume. The 29,477 MBF represents approximately 33% of the conveyed commercial timber volume on the cruised commercial forest lands for this alternative. The cruised commercial forest acres on non-Federal parcels were 506 acres more than on Federal lands (Table 128). The average board feet per acre, average DBH, average basal area per acre and average site index would not change between Alternative 1 and the Preferred Alternative. Alternative 5 conveys 9,180 MBF less than Alternative 1 and acquires 902 MBF less than Alternative 1.

## **Cumulative Effects**

Cumulative effects are effects on the environment that result when the incremental effect of the proposal is added to other past, present, and reasonably foreseeable future actions. This discussion is organized by resource area, and cumulative actions for each resource area are identified.

### **Social and Economic Environment**

Cumulative actions that are pertinent to an analysis of the social and economic environment are as follows:

- A proposal for revision of the Blue Mountain Province Forest Plans has been initiated. This planning effort is scheduled for completion in 2007. At present, a desired future condition has been identified.
- Land exchanges that have occurred in the Blue Mountain vicinity for the last 15 years include the Triangle Land Exchange, the Northeast Oregon Assembled Land Exchange (NOALE), the 1997 Minam/Big Canyon Land Exchange, and the 1994 Clearwater Land Exchange. Other

land adjustment activities (purchases, donations, and sales) are also included in Table 129, which shows changes in Federal and private jurisdiction.

- A land exchange in the State of Washington, also called the “Blue Mountain Land Exchange” and two BLM exchanges in the State of Washington are ongoing at this time. None of these exchanges are located within the analysis area or affect the counties involved in this exchange.
- A potentially foreseeable future land exchange regarding acquisition of lands within the Minam River drainage in Wallowa County by the State of Oregon was considered. However, the Minam River acquisition could not be quantified with respect to the size, location, or scope of the parcels to be acquired. Consequently, it was not considered within the cumulative effects analysis.

The total number of acres leaving and entering Federal management since 1990 and the net change are shown in Table 129. With the exception of Grant County, there have been net gains in Federal management in all of the counties.

**Table 129. Lands Leaving and Entering Federal Jurisdiction by County**

County	Leaving Federal Jurisdiction (Acres)	Entering Federal Jurisdiction (Acres)	Net Change (Acres)
Baker	1,358	3193	1835
Grant	43,696	35,752	(7,945)
Morrow	761	2,016	1,255
Umatilla	3,752	13,930	10,178
Union	3,133	6007	2,874
Wallowa	9,035	16,944	7,909
<b>Total</b>	<b>61,735</b>	<b>77,841</b>	<b>16,102</b>

### Employment and the Economy

The six counties in the study area have had employment increase by 13,780 jobs or 22 percent between 1990 and 2000 (PR). Projections developed for the 2002 to 2012 period anticipate continued overall employment growth in all six counties (Oregon Employment Department, 2003d). These projections are prepared by region and not county. The six counties in the study area are parts of Region 12 (Morrow and Umatilla counties), Region 13 (Baker, Union, and Wallowa counties), and Region 14 (Grant, Harney, and Malheur counties).

Employment projections anticipate that total covered employment in the lumber and wood products sector will decrease between 2002 and 2012 in Regions 12 and 13 by 5 percent and 3 percent, respectively. Projections were not provided for the lumber and wood products sector in Region 14, but the durable goods manufacturing sector (which includes lumber and wood products) was expected to increase by 1.3 percent between 2002 and 2012 (Oregon Employment Department, 2003d). There would be a net increase in timber available for harvest under alternatives 1 and 4, but these increases are not expected to affect these trends.

Overall demand for recreation opportunities is expected to increase in the Blue Mountain region with associated economic impacts. Bowker et al. (1999), for example, estimate that recreation days demanded in the Pacific Region will increase substantially by 2020, with large projected increases occurring in sightseeing (55 percent), non-consumptive wildlife activities (48 percent), rafting/floating (45 percent), primitive camping (39 percent), developed camping (32 percent), and visiting historic places (28 percent), among others.

These estimates are based on estimated demand rather than the supply of opportunities. However, a relative increase in recreation opportunities under the action alternatives could help facilitate this growth in demand within the study area. The land adjustments that have occurred in the area may have made a minor contribution in this way, with the FS acquiring lands in the Eagle Cap Wilderness and other important recreation areas. Improved fishing access and improved trail satisfaction that would ultimately occur under the action alternatives may also help facilitate this projected growth in demand.

### **Traditional Uses and Lifestyles**

Population projections developed by the State of Oregon in 1997 anticipate continued population growth through 2010 in all of the six counties in the study area, with further increases anticipated by 2020 (PR). Net in-migration accounted for approximately 66 percent of total population growth in the six counties in the study area in the 1990s (PR) and net in-migration is likely to continue, with newcomers continuing to place pressure on traditional uses and lifestyles.

Past land adjustments have resulted in a net increase of 16,102 Federal acres in the six counties in the study area, with much of this increase (10,178 acres and 7,909 acres) occurring in Umatilla and Wallowa Counties, respectively. Grant County, in contrast, has seen a net decrease in Federal acres (-7,945 acres) as a result of past land exchanges (Table 129).

Alternative 5 would result in the largest net increase in Federal acres, with a net gain of 14,364 acres in the six counties in the study area and much of this increase (8,566 acres) occurring in Wallowa County. Combined with the net increase resulting from prior land adjustments, Alternative 5 would result in a net increase of 30,466 Federal acres, less than 1 percent of the total Federal acres in the six counties in the study area. The net cumulative increases in Federal lands in Umatilla and Wallowa counties would be equivalent to approximately 3.1 percent and 1.4 percent of total Federal acres in those counties, respectively.

The direct and indirect effects of a net gain of 7,442 acres for Federal management within the HCNRA were disclosed as a foregone opportunity to continue a ranching lifestyle on those properties. This reduction may be considered detrimental by local residents and communities who are concerned with preserving traditional uses and lifestyles in the area and may already feel that their way of life is being negatively affected by other factors. The incremental effect of Alternative 1 would be heightened by the past effect of approximately 6,755 acres of Federal land acquisition in the Oregon portion of the HCNRA in the past 15 years (approximately 7,870 acres in both Idaho and Oregon).

### **Government Taxes and Revenues**

Viewed in the context of total property tax revenues, the cumulative effects of the Blue Mountain Land Exchange action alternatives and past land adjustments that have occurred in the area on property taxes and revenues are minor. The cumulative net reduction in private acres of Alternative 5 (11,606 acres; the net increase in Federal lands noted above also includes 2,758 acres of State land) and the previous land adjustments in the study area counties (16,102 acres) represent approximately 0.4 percent of private land in the six counties (McGinnis et al, 1996). The net cumulative decrease in private lands in Wallowa and Umatilla counties would be equivalent to approximately 1.8 percent and 0.8 percent of the total private acres in those counties, respectively. These net reductions would be partially offset by increases in PILT payments associated with the corresponding increase in Federal acres.

### **Recreation**

Cumulative actions that are pertinent to an analysis of the recreation resource are as follows:

- A Draft National OHV Policy was distributed for public review in 2004 and was finalized in November 2005. This policy gives managers four years to conduct site-specific analysis for designating OHV routes which would result in the elimination of unregulated cross country travel.
- Implementation of the HCNRA Comprehensive Management Plan has begun and its effect would soon be evident to forest visitors as the plan's provisions are posted and enforced. The decision associated with this plan changed traditional access within the HCNRA by specifying that all motorized travel will be restricted to designated routes.

Two existing uses influence the ROS for exchange parcels: Off-Highway Vehicle (OHV) use and private road construction in support of associated activities such as logging. These activities modify the vegetation, access, and social settings which determine an area's ROS setting. Sales and use of OHVs have been on a dramatic increase in the last 10 years. This increased use is noticeable in formerly remote and isolated areas in the Blue Mountains. Although OHV use is restricted to designated routes in individual and/or seasonal closure areas on much of the analysis area, OHV use in thousands of areas is not regulated. This unregulated use has contributed to the creation of user trails and an increase in noise levels that could move some of the Primitive and Semi-primitive ROS settings toward the motorized and Roded Modified end of the spectrum. The FS has adopted a final policy which directs land managers to conduct analyses for designating suitable OHV routes and areas. Within four years, it is anticipated OHV use on NFS lands would become fully regulated and less likely to cause shifts in ROS settings.

Alternative 1 would result in a net increase of all ROS class acres except for a reduction of 205 acres in Roded Modified. The largest increases occur in Semi-primitive Motorized (4,649 acres) and Roded Natural (7,792 acres).

Future potential changes in ROS class toward more motorized opportunities would be reduced as regulation of OHV use begins. The cumulative effect of this trend, along with the implementation of Alternative 1 would lead to an overall trend toward the less developed end of the ROS spectrum. The cumulative effect of Alternative 4 and 5 would be the same since these alternatives have similar direct and indirect effects as Alternative 1. Alternative 3 would purchase parcels only, but would have a similar cumulative effect because this alternative also contributes to a trend toward less motorized ROS opportunities.

Recreation opportunities in the HCNRA would increase as a result of the acquisition of almost 23 percent of the private lands. However, recreation experiences in the HCNRA are shifting toward fewer motorized opportunities with implementation of the HCNRA Comprehensive Management Plan. This decision restricts motorized travel to designated routes only. While a certain amount of restriction on off-road motorized travel previously existed, the decision further reduces motorized travel. Opportunities for non-motorized recreation would increase. The trend of past land adjustments has been to increase the Federal component of lands within HCNRA (8,200 acres). The Proposed Land Exchange would continue that trend with the net acquisition of another 7,504 acres. Cumulative effects of implementing Alternatives 4 and 5 would be the same as Alternative 1 since similar acreages within the HCNRA would be exchanged. Alternative 3 would purchase overall less area than Alternatives 1, 4, or 5 would acquire, but many of the parcels in the HCNRA would be purchased, so the effects of Alternative 3 would be the same as Alternative 1.

## **Watershed**

Parcels in the land exchange are widely dispersed and generally make up a very small portion of the land base at a Watershed (HUC 5) or Subwatershed (HUC 6) scale. Generally, the magnitude of water quality effects of the land exchange would be expected to be low on both the watershed and subwatershed scale.

Hydrologic indicators are most sensitive at smaller scales. The fifteen (15) Subwatersheds (SWS) where 5% or more of subwatershed acres are included in the Proposed Exchange were looked at in detail, and the cumulative effect analysis is focused on the six (6) subwatersheds where 5% or more of the acres are proposed for conveyance. Where less than 5 percent of the acres are proposed for conveyance, the direct and indirect effects of the Proposed Exchange were assumed to be negligible at the subwatershed and watershed scale. The incremental effects of the Proposed Land Exchange would then be considered the same as the direct and indirect effects when considered in light of past, present, and foreseeable future actions. Cumulative effects on physical and biological resources were analyzed for these 6 subwatersheds because Federal management standards for these resources were considered more protective than private land management standards. Where lands are conveyed, the risk of adverse cumulative effects increases.

Three of the subwatersheds have 5% or more of their acres in merchantable timber stands offered for conveyance (Table 130).

**Table 130. Alternative 1 – Subwatersheds Conveying Over 5% Acres with Over 5% in Merchantable Timber**

Subwatershed Name	% Merchantable Timber Conveyed	% Merchantable Timber Acquired
Butcher Creek	10.5 %	6.6 %
Bear Creek	20.2 %	0
Upper Deer Creek	12%	0

### **Butcher Creek Subwatershed**

Past, present and foreseeable actions on NFS lands in the SWS include:

Sheep grazing as a part of the Butcher Creek Allotment is the only past, present, or foreseeable action on NFS lands in the SWS.

The Proposed Action would lead to a net conveyance of about 4% of merchantable timber acres on the SWS. The effect of additional acres of foreseeable logging on private lands would be immeasurable for water yield and peak flow. The potential recipient of these lands has indicated intent to use them for timber production, livestock grazing, and real estate investment. Logging would be subject to the Oregon State Forest Practices Act. Grazing could increase on private land after logging, some effects to ground cover and erosion potential could occur. The Butcher Creek allotment includes the west slope of Butcher Creek. Sheep are on the allotment for 5 weeks in June and July. Sheep are controlled by the presence of a herder and effects to the water quality of the SWS are negligible and would not cumulate with foreseeable timber harvest on private lands.

### **Bear Creek Subwatershed**

Past, present and foreseeable actions on NFS lands in the SWS include:

Continued grazing of the Round Top and Dixie allotments in the area.  
Past harvest (clearcut with reserve trees) of 6 acres in 1994, referred to as Bet Unit 2.  
A planned roadside hazard tree removal project along County Road 18.

About 20.2% of SWS merchantable timbered acres would be conveyed in the Proposed Action. No change would occur in grazing standards due to the exchange. Therefore, no changes in existing aquatic conditions would occur. Because there would be no incremental effect of the Proposed Action from grazing system changes, there would be no cumulative effects from grazing. The relatively small amount



of past harvest (Bet Unit 2) and planned future harvest (roadside hazard tree removal), makes virtually no contribution to cumulative effects, so cumulative effects would be the same as the direct and indirect effects described for Alternative 1 and 5 already disclosed for this subwatershed.

### Upper Deer Creek Subwatershed

Past, present and foreseeable actions on NFS lands in the SWS include

- Continued grazing of allotments in the area.
- Harvest (regeneration) of 96 acres in 1997 for the Deer John Timber Sale (Units 257, 262, and 096).

About 12% of SWS merchantable timbered acres would be conveyed in the Proposed Action.

The potential recipient of these lands has indicated intent to use them for timber production and livestock grazing. Logging would be subject to the Oregon State Forest Practices Act. Grazing could increase on private land after logging, some effects to ground cover and erosion potential could occur. The contribution of the 96 acres of past regeneration harvest to cumulative effects would not be measurable. Consequently the cumulative effects would be the same as the direct and indirect effects already disclosed for this subwatershed.

Five or more percent of SWS acres would be conveyed in 3 other Subwatersheds. In these SWS, merchantable timbered acres would be less than 5% (Table 131).

**Table 131. Alternative 1 – Subwatersheds Conveying Over 5% Acres with Less Than 5% in Merchantable Timber**

Subwatershed Name	% of SWS Conveyed	% of SWS Acquired
Big Sheep/Carrol Crk	6.7 %	
Lower Mud Creek	8.6 %	3.6 %
Snipe	5.0 %	

### Big Sheep/Carrol Creek Subwatershed

Past, present and foreseeable actions on NFS lands in the SWS include:

Grazing of the Divide, Carrol Creek, and Big Sheep cattle allotments would continue to be authorized. At the same time, private landowners would continue to graze their portions of the watershed with cattle and horses.

The 1999 Carrol Creek Fire burned approximately 1920 acres. A fire salvage and restoration project was initiated in 2000. This project included helicopter salvage on 441 acres, decommissioning of 7.2 miles of road, and reforestation and seeding of 330 acres. All salvage and restoration activities were completed by 2002.

About 6.7% of SWS acres would be conveyed, less than 5 % are forested. The effect of foreseeable logging when added to burned acres (about 11% of the SWS total over 10 to 15 years) would be immeasurable for water yield and peak flow. Ground cover on burned acres has recovered and erosion and sedimentation effects have decreased to near pre-burn levels. Conveying the parcels to private ownership is unlikely to result in changes in grazing intensity; therefore, no change in aquatic conditions is anticipated. Because there would be no incremental effect of the Proposed Action from grazing system changes, there would be no cumulative effects on aquatic resources from grazing.

### **Mud Creek – Lower Mud Creek Subwatershed**

Past, present and foreseeable actions on NFS lands in the SWS include:

Grazing of the North Powwatka and Buck Creek cattle allotments would continue to be authorized. At the same time, private landowners would continue to graze their portions of the watershed with cattle and horses.

About 8.6% of the SWS would be conveyed, less than half of which is timbered. About 4.6% of the SWS would be acquired. The net change in ownership would be about 4% of SWS acres conveyed into private ownership, about 3% with merchantable timber. The effect of additional acres of foreseeable logging on private lands would be immeasurable for water yield and peak flow. Grazing could increase on private land after logging, some effects to ground cover and erosion potential could occur. However, the parcels to be conveyed are steep and have not been previously assigned to an allotment. Conveying the parcels is not likely to result in an increase in grazing intensity or effects on aquatic resources because cattle are attracted to flatter terrain. Because there would be no incremental effect of the Proposed Action from grazing system changes, there would be no cumulative effects on aquatic resources from grazing.

### **Snipe Subwatershed**

Past, present and foreseeable actions on NFS lands in the SWS include:

About 200 acres of this subwatershed were harvested in 1990.  
The Lucky Strike allotment would continue to be grazed.

Five percent of the acres in this subwatershed would be conveyed; about 3% of which has merchantable timber stands. The effect of harvest, including existing NFS harvest and additional acres of foreseeable logging on private lands would be negligible for water yield and peak flow. Grazing could increase on private land after logging, some effects to ground cover and erosion potential could occur. These parcels have been grazed as a part of the Cooper and Hutchinson allotments under term grazing permits with on/off provisions. Stocking levels of 62 and 18 AUM respectively have been acceptable to the permit holder in the past, and it is assumed by agency range managers that grazing systems would continue to be grazed under the current system. Because there would be no incremental effect of the Proposed Action from grazing system changes, there would be no cumulative effects on aquatic resources from grazing.

The previous analysis of cumulative effects on aquatic resources was completed for the Proposed Action (Alternative 1). Alternative 2 would result in no changes in ownership patterns and would therefore cause no changes in aquatic resources related to land exchange and therefore, no cumulative effects. As described in the direct and indirect effects for Hydrology, Wetlands, and Floodplains, Alternative 3 only purchases parcels and would have no adverse effect on aquatic resources. Therefore, no incremental adverse effects would result from implementing Alternative 3, and there would be no adverse cumulative effects on aquatic resources. Alternative 4 would temper any adverse effects on aquatic resources from parcel conveyance by instituting deed restrictions. Refer to the direct and indirect effects for Hydrology, Wetlands, and Floodplains earlier in this chapter. Any potential cumulative effects from Alternative 4 would be even less than described for Alternative 1. Alternative 5 conveys and acquires lands very similar to Alternative 1. Therefore, the cumulative effects of Alternative 5 are assumed to be the same as Alternative 1.

### **Fisheries & Wildlife**

Cumulative effects are addressed to the extent practicable in the Fisheries and Wildlife Effects Analysis. Following is a summary of the cumulative effects by species or habitat as discussed in the Effects

Analysis. The Effects Analysis often combines “indirect” and “cumulative” effects because they are not easily separated for a project of this nature, scale, and geographically scattered pattern. Cumulative effects result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions. Also, cumulative effects must overlap in time and space. For the purpose of this cumulative effects discussion, existing conditions are considered equivalent to “past” actions, and anticipated actions on private lands (based on private landowners’ questionnaire responses, and observed patterns) and projections about management on public lands (based on existing Forest Plans and other applicable laws) can be considered “reasonably foreseeable” actions. Very few current actions other than this land exchange constitute “incremental impacts” that are practicable to analyze with a reasonable degree of certainty.

### **Old Growth Habitat**

The cumulative effects unit for Old Growth Habitat was analyzed on two scales. The Blue Mountains scale was used since the Forest Plans coordinated in the development of a dedicated old growth network. Cumulative effects were also analyzed on a more localized scale that addressed specific dedicated old growth stands.

### **Alternative 1: Proposed Exchange**

This alternative would contribute cumulatively to a reduction in old growth habitat in a landscape that is already recognized as deficient in old growth. The conveyance and subsequent logging of old growth parcels would have localized negative effects by displacing individual animals at the sub-watershed scale for the long-term. “Interim Protection for Late-Successional Forests, Fisheries and Watersheds: National Forests East of the Cascade Crest, Oregon and Washington” was compiled in 1994 by the Eastside Forests Scientific Society Panels representing The Wildlife Society, The Ecological Society of America, Society for Conservation Biology, American Ornithologists Union, and American Fisheries Society. The executive summary states that “present levels of late-successional/old growth forest on the Eastside fall far below historic levels, particularly in lower-elevation forests dominated by ponderosa pine, western larch, and Douglas-fir. Only about 20-25% of remaining old growth is now protected administratively or by statute (from 8% in Wallowa-Whitman NF to 32% in Deschutes NF). From 70 to 95% of the old growth patches that remain cover less than 100 acres each – too small to provide for the basic needs of many old growth-associated species” (Karr et. al. 1994, page 5). This report goes on to recommend no logging of old growth forests in eastern Oregon and Washington. “The significantly reduced area, fragmentation, and degraded condition of eastside late-successional/old growth forests caused by past logging and road construction threaten many forest and aquatic species. These impacts and consequent loss of critical aquatic and terrestrial habitats – have significantly diminished the region’s ability to absorb and buffer disturbances, thus leading us to conclude that all remaining old growth blocks and fragments are ecologically significant” (Karr et. al. 1994, page 7).

The watersheds that would experience the greatest negative effect to old growth associated wildlife are: 1) Lower North Fork John Day River (parcels FM15 through FM21); 2) Upper Butter Creek (FU21); and 3) Meacham/Butcher Creek (FU3A, FU4).

The loss of dedicated old growth for Alternative 1 is 493 acres, which is about 0.3% of the total acres of dedicated old growth on the three National Forests. The net loss of LOS habitat is 1,508 acres, which is about 0.9% of the total acres of dedicated old growth habitat estimated by the Forest Plans in Decade 2 (currently) (Table 132). Within the last 15 years, land transactions in the Blue Mountains forests have resulted in conveyance of 286 acres of designated old growth and acquisition of approximately 3 acres that were then allocated as old growth. As individual watersheds have experienced departure from HRV, some species have been locally eliminated, contributing to poor distribution, low interchange of genetic

material, and increased vulnerability to catastrophic events as animals were forced into smaller and more isolated islands of suitable habitat. Current vegetation management activities on FS lands are geared toward returning to the HRV; thereby restoring habitat for many species in Families 1 and 2 over time. The conveyance of parcels containing LOS would have localized negative effects by displacing individual animals, and reducing the geographic extent to which some species can persist at the watershed (fifth level HUC) scale. For example, parcels FM15-FM21 on the “North Finger” of the Blue Mountain Ranger District, parcels FU3A-FU4 in the vicinity of Meacham and Butcher Creeks on the Walla Walla Ranger District, and parcel FU21 on the North Fork John Day Ranger District represent the largest, most contiguous areas of LOS that are locally important for old growth associated wildlife in this project. Land transactions within the last 15 years have resulted in the conveyance and acquisition of stands containing LOS. During the time the concept of LOS has been introduced many of these past exchanges occurred; it is likely that a similar trend to the current proposal occurred regarding conveyance and acquisition of LOS – a greater proportion of LOS was likely conveyed than acquired.

**North Finger (Hamilton Ridge):** The conveyance of the North Finger parcels would effectively reduce the western extent of old growth habitat along a relatively narrow band of conifer forest running east and west. Conveying the North Finger parcels would also have a negative effect on the spacing of dedicated old growth areas. The North Finger old growth provides the only interior old growth habitat in the vicinity. Interior conditions refer to forested patches that have an edge to area ratio low enough to alleviate effects from edges. Meaning that edge effects (wind, temperature, relative humidity, sunlight, etc.) reach equilibrium, thereby providing conditions favored by goshawks and other old growth associated wildlife species (Harris 1984). The old growth habitat being conveyed on Hamilton Ridge is expected to be logged within 10 years. Once logged, these parcels would be unsuitable for old growth associated wildlife, an effect that would persist into the long-term.

Alternative 1 may negatively affect three goshawk nests. Conveyance of FM15 and FM17, or any of the North Finger parcels (FM15-FM21) would severely reduce the ability of goshawks to continue reproducing in this part of the Blue Mountain Ranger District once logging reduces canopy closure, large tree, snag and log densities, overall prey base habitat and potential nesting structures. The LOS habitat on parcels FM15-FM21 currently provides the highest quality foraging habitat, the most likely dispersal areas for fledglings, and the highest quality nesting options for alternate nests.

**Meacham/Butcher Creek:** The conveyance of the Meacham/Butcher Creek parcels would result in fragmentation and reduction of LOS habitat. This would reduce the capacity of the Butcher Creek drainage to support goshawk, marten, pileated woodpecker, and other old growth associated species. Once logged, these parcels would be unsuitable for old growth associated wildlife, an effect that would persist into the long-term.

**Parcel FU21 (Upper Butter Creek):** Conveyance of parcel FU21 would result in a long-term reduction of multi-strata old growth in an area that is deficient in this type of habitat.

Cumulative effects would be minimal beyond the indirect effects discussed above since very little LOS currently exists on private property to be logged, and LOS on FS lands are essentially off limits to logging. A more detailed discussion of how Alternative 1 affects HRV is found on pages 11-13 of Diskin’s Upland Vegetation report. Within the last 15 years, the Blue Mountain forests have experienced conveyances of Federal lands or acquisition of private lands that involve stands of LOS. Similar to the current proposal, these exchanges generally conveyed more LOS than they acquired. Therefore, the cumulative effect of these past land transactions is to intensify the direct and indirect effects described for LOS under this alternative.

The important findings in Diskin’s HRV analysis is that all watersheds affected by Alternative 1 would continue to be deficit in LOS relative to the HRV mid-point for MSLT and SSLT combined, except for the dry upland forest category in Big Sheep and Birch Creeks, and the cold upland forest category in Rhea Creek. The PR contains figures on the amount of change in LOS by watershed that would result from Alternative 1. The watersheds that would experience the greatest negative effects to old growth associated wildlife are: 1) Lower North Fork John Day River (parcels FM15-FM20); 2) Upper Butter Creek (FU21); and 3) Meacham/Butcher Creek (FU3A-FU4).

**Table 132. Old Growth Habitat Acres Estimated from Forest Plans, Decade 2 (Acres)**

	<b>W-W NF</b>	<b>Umatilla NF</b>	<b>Malheur NF</b>	<b>Total</b>
Wilderness	67,000	68,900	35,239	<b>171,139</b>
Dedicated Old Growth Areas <sup>1</sup>	59,789	44,170	65,985	<b>169,944</b>
Other Areas	60,000	51,400	50,350	<b>161,750</b>
<b>Total</b>	<b>186,789</b>	<b>164,470</b>	<b>151,574</b>	<b>502,833</b>

1) These acres are from the three Forests’ geographic information system data on land allocations.

Old growth is defined as areas functioning as habitat of old growth associated species, collectively LOS and dedicated old growth.

Other areas are defined as other old growth outside of dedicated Forest Plan old growth, not within the wilderness management area prescription.

Another way to evaluate old growth habitat is to look at “total” old growth at the Blue Mountain landscape scale. Currently there is no accurate estimation of existing total old growth in the Blue Mountains. However, Table 132 indicates that up to 502,833 acres of old growth habitat was estimated to exist in the second decade (current conditions) from all 3 Forest Plans. The wilderness and “other areas” acreages in Table 132 are estimates from the Forest Plans, and the acreages for dedicated old growth come from current geographic information system data. However, it is important to recognize that the acreage figures in Table 132 over estimate the actual old growth habitat that currently exists since a large number of dedicated old growth areas and much of the wilderness areas do not contain functional old growth habitat. Alternative 1 represents a 1,508-acre net loss in LOS, which is about 0.4% of the total acres of old growth (dedicated old growth plus “Other Areas” not including Wilderness in Table 132) estimated in the 3 Forest Plans. With respect to previous land exchanges, 256 acres of designated old growth have been conveyed from NFS lands and approximately 3 acres have been acquired within the last 15 years. The conveyance occurred in the Prairie City Watershed on the Malheur National Forest, and the acquisition occurred in Eagle Creek on the Wallowa-Whitman National Forest.

In cases where dedicated old growth is conveyed, suitable replacement old growth areas are available nearby on the Wallowa-Whitman and Umatilla National Forests to meet forest plan requirements for replacing dedicated old growth areas that are conveyed in an exchange. The identified replacement areas for the Malheur National Forest represent the best options, but do not meet minimum requirements in the Malheur LRMP for old growth components.

### **Alternatives 2 and 3: No Action and Purchase**

Cumulative effects of these alternatives would involve the logging of 697 acres of LOS on private land within the next 10 years. The typical logging prescriptions on private lands in northeast Oregon do not retain old growth stand characteristics, and often perpetuate early to mid-successional conditions in perpetuity. The 2,205 acres of LOS that remains under FS management would likely not be logged and would continue to function as LOS until policy regarding old growth changes or a disturbance (fire, disease, etc.) sets back succession in these stands. The LOS and dedicated old growth on the North Finger, Meacham/Butcher Creek and parcel FU21 would be retained in FS ownership and managed for their old growth values. These alternatives would have the least negative effect to LOS of all the

alternatives. These alternatives would not contribute to a further departure from HRV for LOS habitat. These alternatives would have the least negative effect on declines of source habitats for Families 1 and 2.

Cumulative effects to LOS from these alternatives are limited to the future logging of LOS from private lands that would not be acquired (697 acres), and past logging activities that have created the fragmented, deficient LOS situation that currently exists. As described for Alternative 1, the Blue Mountain forests have experienced conveyances of Federal lands or acquisition of private lands that involve stands of LOS. Similar to the current proposal, these exchanges generally conveyed more designated old growth and LOS than they acquired. Under Alternative 2, the effects of these past land transactions would intensify the direct and indirect effects on LOS previously described.

#### **Alternative 4: Deed Restriction**

The more substantial stream buffers and retention of larger trees pose a slightly less negative effect than Alternative 1, but the difference is negligible when considered in the context of species viability for marten, pileated woodpecker, goshawk, and three-toed woodpecker. There would be 284 fewer acres of LOS acquired by the FS and subsequently managed for old growth values with this alternative. These 284 acres would likely be logged, resulting in less available habitat for the old growth wildlife community, even though >21” diameter trees would be retained. Alternatives 1 and 4 would essentially have the same effects to LOS habitat in terms of habitat suitability reduced from logging of LOS in private ownership, and the effects would persist into the long-term (greater than 50 years).

This alternative would result in nearly the same degree of departure from HRV as Alternative 1, with the exception of the minor amount of LOS retained in riparian buffers, the occasional (too few to quantify) single-strata stands that would not be economical to log due to the restriction on removal of 21” d.b.h. trees, and the 284 acres that would remain under private ownership and subsequently logged.

Cumulative effects would be minimal beyond the potential effects discussed above since very little LOS currently exists on private property to be logged, and logging of LOS on FS lands is largely prohibited by current regulations. As described for Alternative 1, past land transactions have resulted in conveyance of 256 acres of old growth and acquisition of approximately 3 acres. Similar to the current proposal, these exchanges generally conveyed more LOS than they acquired. Under Alternative 3, the effects of these past land transactions would intensify the direct and indirect effects on LOS previously described.

#### **Alternative 5: Preferred Alternative**

The effects of Alternative 5 would be the same as Alternative 1 except the effects of conveying parcel FU21 would not occur. FU21 would continue to function as late/old structure and would be considered in any future analysis of HRV that involves the area around this parcel.

### **Rocky Mountain Elk**

The cumulative effects unit for Rocky Mountain elk was the wildlife management unit (WMU), and the parcel groupings and surrounding area that approximates a subwatershed scale.

#### **Alternative 1: Proposed Exchange**

The cumulative effects of this alternative could result in more efficient management of big game ranges where FS boundaries are consolidated; making planning, project implementation, and monitoring more easily accomplished.

Alternative 1 includes the following parcel groupings that would be a benefit to elk habitat management: Powwatka Ridge/Wildcat Creek; Imnaha River North; Imnaha River South; Swiss Flat, NF John Day

River /Bridge Creek; and Bear Creek/Hall Creek. The effect of these groupings being exchanged would be an improved ability by ODFW and FS to manage habitat, elk distribution, and hunters.

Alternative 1 also includes the following parcels or groupings that would complicate management of elk habitat or lead to habitat degradation from accelerated logging: Meacham/Butcher Creek; Coalmine Hill; and North Finger/WF Deer Creek. The effect of these groupings being exchanged would contribute to poor elk distribution, a loss of important cover stands, and reduced public access for viewing and hunting elk.

The FS would acquire approximately 101 miles of road and convey about 60 miles, for a net increase of 41 miles. This amount of road in a scattered distribution does not represent a measurable effect in regard to elk habitat.

Cover provided by mid and late seral forest structure would likely be reduced to forage (less than 40% canopy closure) on lands conveyed to private ownership as indicated by the private participants' surveys and past practice. Alternative 1 could result in reductions in cover within the next 10 years over an estimated 9,615 acres.

Changes to livestock grazing would be minimal and likely negligible relative to elk habitat. See the Range Report for detailed changes to allotments and stocking. The National OHV Policy would eliminate unregulated cross country motorized use, thus improving security habitat for elk and contributing to improved seasonal distribution of elk across available habitat. This could result in an overall improvement in habitat quality for elk by reducing disturbance from motorized access, and increasing predictability of motorized use patterns. Foreseeable future fuels reduction projects are planned for many of the Wildlife Management Units surrounding conveyed or acquired parcels. These projects would result in some reductions in hiding cover on winter ranges where cover is often limited, which could make elk more vulnerable to disturbance. In response elk would move onto adjacent private lands where conflicts with highways, agricultural crops, and fences could occur. The quality and quantity of big game forage from fuel reduction projects that include prescribed burning would likely improve for about 1 to 3 years following treatment. Problems with poor elk distribution and private lands can be mitigated through forage enhancement and reducing disturbance from motorized access.

The cumulative effect of these past, ongoing, and foreseeable future actions would be to intensify the direct and indirect effects previously described. Where positive effects on elk habitat management would occur from the proposal, (Powwatka Ridge/Wildcat Creek; Imnaha River North; Imnaha River South; Swiss Flat, NF John Day River /Bridge Creek; and Bear Creek/Hall Creek groupings), the positive effects would be intensified. Where adverse effects on elk habitat management would occur from the proposal, (Meacham/Butcher Creek; Coalmine Hill; and North Finger/WF Deer Creek groupings), the adverse effects would be intensified.

### **Alternative 2: No Action**

By continuing the current ownership patterns, Alternative 2 does not address the Purpose and Need of consolidating Federal ownership to provide for more efficient management of National Forest System lands. Elk that currently reside on private lands would continue to be largely unavailable to the public for hunting and viewing. Cover on private lands would continue to be reduced through logging. The FS does not have data on levels of timber harvest for adjacent private lands, and only considers these effects as practicable. The large majority of forested private parcels has been logged and functions as forage for elk, conditions that would likely exist in perpetuity.

Alternative 2 would retain the following important elk habitat areas in public ownership, which allows for management efficiency, increases the probability of habitat enhancements and restoration, and provides access to the public for hunting and viewing of elk: Meacham/Butler Creek (FU2-FU5); Coalmine Hill (FU26); and North Finger/WF Deer Creek (FM15-FM20). This alternative would also keep the following important elk habitat areas in private ownership, which complicates landscape scale habitat management plans and access by the public: Imnaha River South (PW24A-E, PW25, and PW27); Imnaha River North (PW1-PW23); Meacham/Butcher Creek (PU5-PU12); NF John Day River/Bridge Creek (PU16A-H); and North Finger (PM23-PM24).

The following public land parcels would remain in public ownership, which perpetuates problems associated with managing small, isolated land parcels: Swiss Flat (FU6-FU14, FU19-FU24, and FU30) and Bear Creek/Hall Creek (FM4-FM10).

Road densities would remain unchanged. Currently 43 sixth level subwatersheds exceed the threshold of 2.5 miles per square mile typically recognized as an upper limit for road densities in habitat managed for elk. As described for Alternative 1, implementation of the National OHV Policy and foreseeable future fuels reduction projects would intensify the beneficial direct and indirect effects and intensify the adverse direct and indirect effects on elk.

### **Alternative 3: Purchase**

Cover would continue to be reduced on approximately 8,824 acres of private lands that would not be acquired under Alternative 3. Approximately 791 acres of cover purchased by the FS would continue to function as cover and contribute to a desirable distribution of elk herds. These purchased acres would be eligible for treatments (logging) in the future, but elk cover and habitat effectiveness would be management considerations in future plans to change the cover/forage arrangement. These cover stands are more likely to continue functioning as cover under FS management than under private ownership.

Changes to access by the general public would be relatively minor with this alternative. The FS would gain eight additional miles of road and would not convey roads. These changes are too small to represent a measurable change in road densities that would be meaningful to an analysis of elk habitat. As described for Alternative 1, implementation of the National OHV Policy and foreseeable future fuels reduction projects would generally represent an upward trend in the quality of elk habitat across the analysis area. This positive trend would be greater in areas containing parcel groupings that would benefit elk habitat, and the trend would be neutral (perpetuate the current condition) or positive over a smaller area where parcel groupings would be detrimental to elk habitat.

### **Alternative 4: Deed Restriction**

Alternative 4 would result in an estimated 6,649 acres of cover coming under FS stewardship, and would be managed with elk habitat as a primary consideration. Left in private ownership these acres of cover would be converted to foraging areas within 10 years following the exchange. However, 9,231 acres of cover would be conveyed to private resulting in a potential net decrease in cover of 2,582 acres. These changes are negligible at the Blue Mountains scale, but could have detrimental effects at the local scale.

The following parcel groupings are proposed in Alternative 4 and would increase management efficiency, positively influence elk distribution, and improve the public's access to elk on public lands: Powwatka Ridge/Wildcat Creek; Imnaha River North and South; Swiss Flat; NF John Day River/Bridge Creek; and Bear Creek/Hall Creek.

The following parcel groupings are part of Alternative 4 and would decrease management efficiency of elk habitat, perpetuate poor elk distribution, and decrease the public's access to elk on public lands: all



FS parcels and a portion of the private parcels in the Meacham/Butcher Creek grouping; Coalmine Hill; and North Finger/WF Deer Creek (all FS parcels would be conveyed, but neither of the private parcels would be acquired).

Alternative 4 would acquire approximately 53 miles of roads and would convey about 60 miles, for a net reduction of around 7 miles of road. These changes in road densities are negligible in terms of effects to elk habitat. There would generally need to be concentrated changes of road miles in specific watersheds before a measurable change in road densities would occur, which is not the case in this Alternative. As described for Alternative 1, implementation of the National OHV Policy and foreseeable future fuels reduction projects would generally represent an upward trend in the quality of elk habitat across the analysis area. This positive trend would be greater in areas containing parcel groupings that would benefit elk habitat, and the trend would be neutral (perpetuate the current condition) or positive over a smaller area where parcel groupings would be detrimental to elk habitat.

### **Alternative 5: Preferred Alternative**

Effects would be the same as for Alternative 1. Although Alternative 5 introduces minor changes to the total amounts of summer and winter range changing ownerships from Alternative 1, the difference in effects would be negligible when considered at a scale that is meaningful to elk habitat management.

### **Canada Lynx**

The cumulative effects unit for Canada lynx is the Lynx Analysis Units (LAU) that include parcels within lynx habitat. These LAUs are Meadow, North Fork John Day River, Upper Wallowa, Upper Imnaha, and Lostine/Deer Creek Tributaries South.

Refer to the Indirect and Aggregate Effects portion of the Fisheries and Wildlife Biological Assessment for further information on cumulative effects.

### **Alternatives 1, 3, 4 & 5: Proposed Exchange, Purchase, Deed Restriction, and Preferred Alternative**

Alternatives 1, 4 and 5 would result in a 125 acre net increase of lynx habitat (foraging and denning combined) and a net increase of 32 acres in Alternative 3 that would come under the management authority of the FS. These are additional acres would be analyzed and managed to the standards outlined in the LCAS. Also, any projects planned in or around these FS lands would be subject to oversight through public scoping as part of the NEPA process, and through the consultation process with US Fish and Wildlife Service. There is no requirement of private landowners to consider lynx habitat in management of their lands.

There is little reliable information that allows for an analysis of reasonably foreseeable actions that could contribute to cumulative effects from the Proposed Land Exchange. The Mt. Howard fuels reduction project is a reasonably foreseeable future action that has the potential to convert minor amounts (approximately 68 acres) of denning habitat to unsuitable habitat within the Upper Wallowa LAU. The Upper Wallowa LAU contains 73% denning habitat which far exceeds the 10% recommendation for lynx. The Mt Howard project would be discountable in regard to lynx habitat. The Upper Wallowa LAU contains the following parcels in lynx habitat: PW 35A, PW 35B, PW35C, and FW13, which would result in a net increase in lynx habitat. However, the best and worst-case scenarios for lynx habitat between all action alternatives do not represent a measurable benefit or detriment to lynx or lynx habitat. None of the action alternatives would result in a measurable effect to lynx. This finding is based on: 1) the minute acreages involved over five LAUs; 2) the fact that most of these acres are on the periphery of core lynx

habitat; and 3) because none of the lynx habitat involved represent outstanding features or important locations deserving of more detailed consideration.

### **Alternative 2: No Action**

A decision to not proceed with this Proposed Land Exchange would only contribute to cumulative effects in how no change in ownership would affect habitat for lynx. The continuation of current management regimes on private and public lands involved in the exchange would not have an appreciable affect on lynx or their habitat. The current public lands would continue to be considered part of the larger LAU, and managed to standards set fourth in the LCAS. The minor acreages of lynx habitat on private lands would likely be maintained in unsuitable conditions through logging as long as they remain in private ownership, except for PW35A-C and PW37 for the reasons stated above.

If all private lands containing lynx habitat in this project were logged to the greatest intensity allowed by state law, the cumulative effect to lynx would be negligible. The cumulative effect of continuing to manage for lynx on the FS parcels would not contribute appreciably to the conservation and recovery of lynx. Similar to Alternatives 1, 3, 4, and 5, the effects of the Mt. Howard fuels reduction project do not represent a measurable benefit or detriment to lynx or lynx habitat.

### **Bald Eagle**

The cumulative effects unit for bald eagle was Management Zone 9 as identified in The Pacific Bald Eagle Recovery Plan, and a one mile radius around nest and roost sites was used as the site specific scale to analyze effects.

Refer to the Indirect and Aggregate Effects portion of the Fisheries and Wildlife Biological Assessment for further information on cumulative effects to bald eagles.

### **Alternative 1: Proposed Exchange**

The Dry Creek nest tree is very near the border of parcel PU26B, and 0.25 miles from PU26A. These parcels have been heavily logged and would not provide suitable structures for roosting, nesting or perching for several decades. Acquisition of PU26A and PU26B would allow their inclusion into a nest site management plan for this site. A nest site management plan would go into much greater depth than a typical written plan submitted to ODF by a private party as required by the Oregon Forest Practices Act when logging is proposed near a nest or roost. However, parcels FU27 and FU28 are less than 0.75 miles from the Dry Creek nest and represent the best quality replacement habitat in case the existing nest stand is lost (fire, wind, insects, trespass logging, etc.). FU27 and FU28 are contiguous with other FS land and contribute to the long-term viability of nesting bald eagles in this vicinity. These parcels would likely be logged following conveyance, and they are far enough away from the Dry Creek nest to not be subject to requirements of OARs for bald eagle nests.

This alternative would improve management options for this nest in the long-term through acquisition of PU26A and PU26B, but potentially important replacement bald eagle resources would be lost on conveyed parcels FU27 and FU28.

The three roost sites within a mile of parcels would be protected in the short-term (estimated 20 years) whether this Proposed Exchange occurs or not. OARs protect roosts on private and State of Oregon land and the Endangered Species Act protects those on FS lands. The only difference between protections afforded roosts on private verses FS ownerships is that long-term protection is more likely under Federal ownership since OARs do not provide for replacement roosts in case existing ones are lost.

There are no FS timber sale operations in the vicinity of the Dry Creek nest or the Bear Creek, Horse Canyon or Wenaha River roosts that would contribute to cumulative effects of this land exchange. Ongoing recreation, road maintenance, and fire suppression activities are considered in the management of known bald eagle sites and would not contribute to adverse cumulative effects of this Proposed Exchange.

Alternative 1 would be negligible in terms of short-term effects to known bald eagle sites. There would be a potential long-term effect in losing replacement nest and roost trees on parcels FU27 and FU28. However, this potential negative effect would not likely be important enough to influence the rate at which recovery goals are achieved in Management Zone 9.

### **Alternative 2: No Action**

Oregon Administrative Rules apply to eagle sites on private lands, and are designed to protect known bald eagle resource sites (nests, roosts, perch trees, staging trees, etc.) from disturbance and destruction. The only known eagle nest that could be affected by future management within a mile of a land exchange parcel is the Dry Creek nest (628). The OARs would continue to apply to any management actions on parcels PU26A and PU26B. These regulations are generally accepted as adequate to protect eagle resource sites, at least in the short-term (20 years). The long-term viability of this eagle resource site is unknown under the current OARs because the focus of the OARs is on protecting existing nests and does not project future needs in case a nest is lost. PU26A and PU26B have been heavily logged and would not be capable of supporting an eagle nest or roost for several decades. Parcels FU27 and FU28 represent the closest and best quality habitat capable of supporting nesting or roosting bald eagles should the Dry Creek nest stand be lost. These conditions are likely to persist into the long-term if FU27 and FU28 remain in public ownership.

There is a slight chance that some potential replacement roost, perch or nest trees could be lost to logging on PU16F if the parcel remains in private ownership, but the risk to eagles would be low. This low risk is based on the location of the highest quality roost trees within a riparian management area for a “large, type F” stream (North Fork John Day River). Also, ample options for roosts, perches and nest trees exist along the NF John Day River, many of which are located on FS and State of Oregon lands.

FM10 contains some suitable replacement roost trees if the Bear Creek roost were to be lost. The Bear Creek roost is located on BLM land and receives the same considerations under the Endangered Species Act as it would if it were located on FS land.

Alternative 2 would be negligible to the viability of bald eagles in Management Zone 9 in the short-term (20 years). The retention of FU27, FU28, and FM10 in FS ownership would be positive for the long-term viability of known bald eagle sites, but would not likely be important enough to influence the rate at which recovery goals are achieved in Management Zone 9.

### **Alternative 3: Purchase**

The minor positive effects of PU16F coming under public ownership would be immeasurable in regard to viability of the Horse Canyon roost and to the welfare and recovery of bald eagles in Management Zone 9. Otherwise the effects of this alternative are the same as for Alternative 2 (no action).

### **Alternative 4: Deed Restriction**

The potential effects to bald eagles are similar between Alternatives 4 and 1. The differences are as follows.

The deed restrictions placed on FU27, FU28, and FM10 would prohibit the logging of green trees  $\geq 21$ " d.b.h. This would retain the larger, most suitable trees for future replacement of roosting, nesting, and perching trees that are lost.

Parcel PU16F would be acquired by the FS, but this would mean little to no difference in how the Horse Creek eagle roost is managed. The Horse Creek roost is on the south side of the North Fork John Day River, on private property within a "Large, type F" riparian management area, and further protected by the OARs regarding bald eagle roosting resource sites. This site is identified in a Resource Management Plan for the private property containing the roost.

Parcel PU1B would not be acquired by the FS. There would be no difference in potential effects between all alternatives for the Wenaha Roost because PU1B is nearly one mile from the roost and FS and State of Oregon lands surround the roost. State of Oregon is the current owner of PU1B and ODFW is aware of and sensitive to the needs of eagle roosts.

Parcels PU26A and PU26B would not be acquired by the FS in this alternative. The Dry Creek nest would likely receive similar short-term protection (20 years) whether PU26A and PU26B remain private or become public. However, long-term viability of the nest through retention of replacement nest trees would not be ensured if FU27 and FU28 are conveyed.

### **Alternative 5: Preferred Alternative**

The cumulative effects of Alternative 5 would be the same as Alternative 1 except for the Dry Creek nest where PU26A, PU26B, and FU28 were dropped from Alternative 5. Future development of eagle nesting habitat would not likely occur on PU26A if retained in private ownership. If the Dry Creek eagle nest were to be lost (wind, fire, etc.), Alternative 5 would not provide for potential replacement nesting trees in the long-term like Alternative 1 does.

### **Mid-Columbia and Snake River Steelhead**

The cumulative effects units for steelhead were the Distinct Population Segment (DPS), the 5<sup>th</sup> level HUC, and in some cases the 6<sup>th</sup> level HUC or stream.

Refer to the Indirect and Aggregate Effects portion of the Fisheries and Wildlife Biological Assessment for further information on cumulative effects.

### **Alternative 1: Proposed Exchange**

The net increase in steelhead habitat coming under FS management would lead to improvements in fisheries habitat through correction of point sources for sediment from poorly designed/located roads, improved livestock grazing practices near streams, and wider stream buffers in logging areas. These positive effects would represent minor contributions to recovery of steelhead habitat at the Ecologically Significant Unit (ESU) scale, but could result in greater hatching rates and fingerling survival in specific streams that involve higher levels of streams being acquired by the FS. An example would be the Imnaha River (Upper, Middle, and Lower Imnaha) that involves a total of 18.7 miles of steelhead habitat that would be acquired.

Subwatershed 170701030203 in Butcher Creek watershed would convey 10.5% of its area and 6.6% of its area would be acquired. Subwatershed 170702010803 in Bear Creek watershed would convey 20.2% of its area and none would be acquired. Subwatershed 170702021001, Upper Deer Creek in the Lower North Fork John Day River watershed would convey 12% of its area and acquire 1.4% of its area. These three subwatersheds represent the greatest potential for negative effects to steelhead from this land exchange.

The potential for negative effects comes from appreciable percentages of subwatersheds going to less protective management standards.

Fifty-six miles of road within 300' of streams would be acquired by the FS in this alternative, offering the greatest opportunity for restoration or mitigation of road effects to water quality. Not all of these roads are adjacent to steelhead habitat, but total miles of road within 300' of streams provide a good index to compare with other alternatives.

### **Alternative 2: No Action**

The indirect effects of not exchanging the proposed parcels are related to forgone opportunities to consolidate ownership boundaries that would increase management efficiencies on public land relative to steelhead habitat. The no action alternative would also forego an opportunity to acquire approximately 37 miles of steelhead habitat. Under FS management these miles of steelhead habitat would be held to higher environmental standards, monitoring of habitat and fish populations would be more likely to occur, and restoration needs would be addressed in a timelier manner.

These missed opportunities to improve management on 37 miles of steelhead streams represent discountable negative effects when considered at the ESU scale for either the Snake River or Mid-Columbia ESU. The actual effects to fish habitat that could occur in the future are those that would have likely occurred even if this exchange had not been proposed. Cumulative effects of increased sediment to streams from poorly maintained/designed roads, intensive livestock grazing and holding facilities near streams, and logging to Oregon Forest Practices Act standards would continue. These possible effects can be significant at localized scales, but are generally not measurable at the fifth level HUC scale.

Fifty-six miles of road within 300' of streams would remain under private ownership, preventing the FS from addressing site-specific problems with culverts and sediment sources.

### **Alternative 3: Purchase**

There may be improvements in steelhead habitat conditions on 9.27 miles of stream following acquisition, but these positive effects would be miniscule relative to the ESU scale and would likely not be realized in increased survival or production of steelhead.

Logging of approximately 8,824 acres of merchantable private forestlands would continue on parcels not acquired in this alternative. These acres would be subject to the less protective stream buffers of the Oregon Forest Practices Act. Although steelhead streams in these 8,824 acres of forestlands would likely be protected from direct effects from logging, there would be less protection from unexpected events that can compromise or invalidate narrow stream buffers. Wildfire, insects, disease, wind, and floods are more likely to compromise a narrow stream buffer than a wider one.

Five and a half miles of road within 300' of streams would be acquired with Alternative 3. The opportunities for stream restoration (related to roads) and mitigation of road effects to water quality are minimal with this alternative. The small scale of potential improvements to roads in this alternative is discountable relative to steelhead.

### **Alternative 4: Deed Restriction**

One important difference between Alternatives 4 and 1 is the fact that all conveyed lands would be managed the same as FS administered lands in regard to streamside habitat. PACFISH/INFISH buffers would apply to logging projects, livestock grazing would be restricted in spawning habitat during critical periods to protect redds and emerging fish, and livestock grazing standards and monitoring requirements

would match those required for FS lands. These requirements would be accomplished through deed restrictions, essentially protecting fisheries to the same level as on public lands.

Alternative 4 would acquire 33.2 miles of road within 300' of streams, representing opportunities to repair or obliterate roads that are having a negative effect to fisheries or water quality.

#### **Alternative 5: Preferred Alternative**

Effects would be the same as for Alternative 1. Although Alternative 5 introduces minor changes to the total amounts of habitat changing ownerships from Alternative 1, the difference in effects would be negligible when considered at a scale that is meaningful to steelhead habitat management.

#### **Mid-Columbia and Snake River Chinook salmon**

The cumulative effects units for chinook were the Mid-Columbia and Snake River Distinct Population Segments (DPS), the 5<sup>th</sup> level HUC, and in some cases the 6<sup>th</sup> level HUC or stream.

Refer to the Indirect and Aggregate Effects portion of the Fisheries and Wildlife Biological Assessment for further information on cumulative effects.

#### **Alternative 1: Proposed Exchange**

The acquisition of nearly 16 miles of Chinook habitat holds potential for improved management by the FS through more protective standards for forest, range and road management. These improvements could result in increased fish production as degraded riparian habitat recovers, fish passage is restored, livestock is excluded from spawning habitat, and upland forests are restored.

#### **Alternative 2: No Action**

This alternative would perpetuate existing conditions that could negatively affect Chinook production and survival in the Imnaha River. These conditions include, but are not limited to: cattle handling corrals in RHCAs, noxious weeds in uplands and RHCAs, culverts that pose barriers to fish movement, minimal riparian buffers in forested areas, and cattle grazing in spawning habitat while Chinook are present. Although these conditions and potential risks would persist with this alternative, they would have had the same effect had this land exchange not been proposed. Therefore, Alternative 2 perpetuates the existing condition for Chinook habitat.

#### **Alternatives 3 & 4: Purchase and Deed Restriction**

All parcels conveyed by Alternative 4 (none contain Chinook habitat) would have a deed restriction that would apply FS standards to all streams. These deed restrictions essentially result in no change in regard to Chinook habitat on conveyed parcels. Potential positive effects would result from 9.85 and 15.70 miles of habitat being acquired for Alternatives 3 and 4 respectively. Although no Chinook habitat would be conveyed, improvements in management of upstream habitat from acquired parcels could result in a slight positive effect to Chinook habitat. This positive effect would not likely result in improved survival of Chinook salmon, but would contribute to a trend toward improved habitat conditions.

#### **Alternative 5: Preferred Alternative**

Effects would be the same as for Alternative 1. Although Alternative 5 introduces minor changes to the total amounts of habitat changing ownerships from Alternative 1, the difference in effects would be negligible when considered at a scale that is meaningful to chinook habitat management.

## **Bull Trout**

The cumulative effects units for bull trout were the Columbia River Distinct Population Segment (DPS), the 5<sup>th</sup> level HUC, and in some cases the 6<sup>th</sup> level HUC or stream.

Refer to the Indirect and Aggregate Effects portion of the Fisheries and Wildlife Biological Assessment for further information on cumulative effects.

### **Alternative 1: Proposed Exchange**

The addition of nearly 13 miles of bull trout habitat to FS management would likely have minor beneficial effects to bull trout through improved management of roads, upland forests, and livestock grazing. The amount of habitat improvement would likely not be great enough to increase fish production or survival of juvenile fish. Alternative 1 and 4 would have similar effects and represent the greatest potential for improvements to bull trout habitat of any of the alternatives.

### **Alternative 2: No Action**

This alternative would forego an opportunity to improve management on nearly 14 miles of bull trout habitat. Merchantable timber is expected to be logged from private lands not conveyed. This is most important to consider for the subwatersheds that involve >5% of their area in the Proposed Exchange. The FS would retain FS parcels in Butcher Creek, Bear Creek and Upper Deer Creek subwatersheds, while merchantable timber would likely be logged on private parcels in Dry Gulch, Butcher Creek, Bark Cabin Creek, and Texas Bar. See effects to water quality, riparian condition, and water yield in the Hydrology section.

### **Alternative 3: Purchase**

A total of nearly nine miles of bull trout habitat would come under a more protective management regime, which could lead to slight increases in riparian habitat recovery. The minor amount of recovery that would occur on these streams (mostly FMO habitat) would be too small to increase fish production or survival of juvenile fish. The beneficial effects of this alternative are greater than Alternative 2, but less than Alternatives 1 and 4.

### **Alternative 4: Deed Restriction**

The difference between Alternative 4 and other action alternatives is that deed restrictions would apply to 0.14 miles of FMO habitat, which could lead to improvements in habitat conditions over time. Improvements in habitat would likely be immeasurable because the parcels (FW6C and FU1) involved are very small and contain only five acres each of upland forests. The very corners of six other conveyed parcels (FW6A, FW6B, FW6D, FW6E, FW6F and FW9) overlap into the RHCA of Big Sheep Creek, but do not actually involve exchange of stream habitat. Page 2 of the Hydrology Effects Analysis documents that these parcels include "...small segments of floodplain associated with seasonally wet meadows, ...are less than 20 feet wide and located in remote areas with little development pressure". Deed restrictions on these parcels would have immeasurably minor positive effects to bull trout. Even with the minor differences discussed, Alternatives 4 and 1 would have the same beneficial effects to bull trout and a discountable risk of negative effects.

### **Alternative 5: Preferred Alternative**

Effects would be the same as for Alternative 1. Although Alternative 5 introduces minor changes to the total amounts of habitat changing ownerships from Alternative 1, the difference in effects would be negligible when considered at a scale that is meaningful to bull trout habitat management.

### **Westslope Cutthroat Trout**

The westslope cutthroat trout is the only Region-6 sensitive species (fish or wildlife) that would experience a decrease in habitat moving to a less protective management scenario. All other sensitive fish and wildlife species would experience no change or an increase in habitat coming under a more protective management scenario.

Alternatives 1 and 5 would convey 1.24 miles of westslope cutthroat trout habitat in the Bear Creek population (FM4 and FM6) and 0.46 miles in the Beech Creek population (FM11 and FM12). No currently occupied habitat for westslope cutthroat trout would be acquired by either of these alternatives. These miles of habitat would go to a less protective management scenario, thus would be subjected to greater risks of degradation from logging, roads, and grazing. Alternatives 2 and 3 would not convey westslope cutthroat trout habitat. Alternative 4 would convey the same amount of habitat as Alternatives 1 and 5, but PACFISH standards and guidelines would apply, essentially providing the same level of protection as if the habitat were to remain under Forest Service management. Therefore, the effects of Alternatives 2, 3 and 4 are equal.

Any habitat degradation would be a step in the direction of local extirpation for these two populations. The relatively minor amount of habitat to be conveyed in the Beech Creek population (0.46 of 22.56 miles) would not likely have a measurable effect in the short-term. However, considering the tenuous condition of this population, any loss of habitat quality could accelerate its rate of decline toward extirpation. Less protective stream buffers afforded by the Oregon Forest Practices Act, continued grazing by livestock at or near the current level, and allowing the existing road problems (culverts that impede fish passage, roads occupying riparian habitat, and sediment from roads) to persist would constitute a loss of habitat quality.

The Bear Creek population is at high risk of local extirpation under the current ownership pattern and management scenario. If conveyed, the less protective stream buffers afforded by the Oregon Forest Practices Act, continued grazing by livestock at or near the current level, and allowing the existing road problems (culverts, roads occupying riparian habitat, and sediment from roads) to persist would accelerate the rate of population decline toward local extirpation.

### **Alternatives 1 & 5: Proposed Exchange and Preferred Alternative**

Indirect and cumulative effects are essentially the projected logging, grazing and road management that would occur under private ownership following the exchange. Past logging, the existing road system, stocking of non-native trout species, irrigation, and grazing by livestock represent the past and current activities that have affected cutthroat habitat and populations in Bear Creek and Beech Creek. The foreseeable future actions would change if these parcels are conveyed to private ownership. Forested stands containing merchantable timber would be logged within the first decade, and the likelihood of road/riparian problems being corrected is low, and grazing would likely continue without the oversight and monitoring that would occur if these parcels were to remain with the Forest Service. These cumulative effects have led to the tenuous condition of these cutthroat populations, and the conveyance of cutthroat trout habitat would represent an incremental negative effect to these populations.

### **Alternatives 2, 3 & 4: No Action, Purchase and Deed Restriction**

Cumulative effects for these alternatives are similar to those discussed for Alternatives 1, and 5, with the following exceptions. There would be a higher likelihood that habitat degraded by roads, past logging, and grazing would be restored, particularly under Alternative 2. Alternative 4 would likely result in the continuation of the existing conditions, but would not accelerate the rate of degradation that could occur



under less protective management standards (Alternatives 1 and 5). The Bear Creek and Beech Creek populations of westslope cutthroat trout could continue to decline toward local extirpation under these alternatives, but the rate of decline would be less under Alternatives 2, 3 or 4 than with Alternatives 1 or 5.

### Fisheries Summary

Table 133 lists the watersheds discussed in the Watershed Cumulative Effects section and miles of habitat by species being acquired (+) and conveyed (-). At least one percent of the area of these watersheds are either conveyed or acquired in Alternative 1. Watersheds that involve less than one percent of their area in this Proposed Exchange are not included in this table.

The Hydrology, Wetlands, and Floodplains section in this cumulative effects analysis discusses all of the influences that have potential to affect fisheries habitat. Therefore, in addition to the above effects related to miles of habitat being exchanged, other pertinent effects to fisheries can be found within the Hydrology, Wetlands, and Floodplains section.

**Table 133. Summary of Fisheries Habitat for Watersheds that include 1% or more of their Area in the Proposed Exchange**

Watershed	Total Acres	Acres Conveyed	% Conveyed	Acres Acquired	% Acquired	Fisheries Habitat Involved (miles)		
						Sth	BT	Ch
<b>Lower Snake Basin</b>								
M. Imnaha R.	87,946	244	0.28	1,274	1.45	+3.87	+4.42	+3.83
Big Sheep Cr.	88,975	1,348	1.50	261	0.29	+1.59 -0.17	-0.90	+1.03 -0.08
L. Imnaha R.	147,098	452	0.31	6,641	4.51	+10.41	+4.53	+6.00
Meadow Cr.	115,909	388	0.33	241	0.21	+1.52 -0.66	0	+0.35
Grande Ronde R/Five Pts. Cr.	87,882	9	0.01	36	0.04	0	0	0
U. Wallowa R.	157,739	409	0.26	481	0.30	0	0	0
GR River/Mud Cr.	154,048	1,788	1.16	1,034	0.67	0	0	0
Chesnimnus Creek	122,640	0	0	1,538	1.25	+1.07	0	0
Meacham Creek	114,078	3,976	3.50	2,671	2.34	+1.76 -2.11	+1.29 -0.05	0
Murderers Creek	84,940	0	0	1,202	1.42	+1.22	0	0
Strawberry Creek	149,722	2,609	1.74	12	0.01	-3.64	0	0
Beech Cr.	70,873	617	0.87	1,800	2.54	+0.08 -0.46	0	0
Laycock Cr.	108,251	0	0	1,428	1.32	+1.15	0	0
NF John Day River/Big Cr.	105,870	0	0	4,064	3.84	+2.06	0	0
L. Camas Cr.	156,989	1,925	1.23	152	0.10	0	0	0
Wall Creek	128,349	0	0	2,246	1.75	+0.93	0	0
L. NF John Day River	117,028	2,389	2.04	405	0.35	-0.25	0	0

Sth – steelhead, BT – bull trout, Ch – Chinook salmon  
Minus indicates Conveyed and Plus indicates Acquired

## **Specifically Required Disclosures**

The following analysis of effects is provided to show consistency with various laws, policies, and executive orders applicable to the Blue Mountain Land Exchange – Oregon Proposed Action and alternatives.

### **Irreversible or Irretrievable Commitments of Resources**

Irreversible commitments are decisions affecting nonrenewable resources such as soils, wetlands, unroaded areas, and cultural resources. Such commitments are considered irreversible because the resource has deteriorated to the point that renewal can occur only over a long period of time or at great expense, or because the resource has been destroyed or removed.

The construction of roads, to provide access to timber, is an irreversible action because of the time it takes for a constructed road to revert to natural conditions. Irreversible actions also include the associated rock quarries, which are developed in conjunction with roads. On the lands acquired by the FS, no new roads or rock quarries are proposed or anticipated. No new roads are approved by this action on the lands proposed for conveyance. It is anticipated, however, that new roads would be constructed to access timber in currently unroaded areas on these lands.

Irretrievable commitment of natural resources means loss of production or use of resources because of management decisions made in the alternative. This represents opportunities foregone for the period of time that the resource cannot be used. Though FS lands would be conveyed, their use for producing natural resources would be similar under either FS or private management. Differences are discussed in previously disclosed effects on resources such as wildlife, fisheries, hydrology, etc based on a survey of development and use plans by future landowners involved with the proposed land exchange. However, there is no assurance that current management and use provided in the survey results would remain the same in the long term.

### **Short-term Uses and Long-term Productivity**

The use of natural resources for long-term sustained yield is the basis of FS management and direction. The alternatives differ in the amount of change in FS management from Alternative 1 with a net gain of approximately 5754 acres under Alternative 4, to a net gain of approximately 14,364 acres under Alternative 5. Acquired lands would be managed according to the standards and guidelines of the respective Forest Plans and would result in no long-term loss in productivity. Conveyed lands would be managed to maintain timber productivity under Oregon's Forest Practices Act. These rules are designed to insure that there is no long-term loss in productivity. However, in the long term, changes in ownership or management of these future private lands could occur.

### **Possible Conflicts with Plans and Policies of Other Jurisdictions**

The regulations for implementing NEPA require a determination of the possible conflicts between the proposed action and the objectives of federal, state, and local land-use plans, policies, and controls for the area. The major land-use regulations of concern are the Oregon Forest Practices Act and local comprehensive plans.

The Oregon Forest Practices Act provides direction for management of private and state timber lands in Oregon. Timbered lands proposed for conveyance would be managed under, and comply with, those rules

in relationship to all aspects of forest management such as stream buffers, clearcut size, road standards, and reforestation.

Various local comprehensive plans provide direction for management of private lands. Lands proposed for conveyance would be subject to these local comprehensive plans. Lands proposed for acquisition would continue to be subject to local land use ordinances for development, but natural resource management direction would be provided by the appropriate Forest Plan.

### **Energy Requirements and Conservation Potential of Alternatives**

The action alternatives would only result in a change in acreage of FS lands. No specific ground disturbing or development activities are authorized as a result of the proposed action other than the required culvert replacement associated with National Marine Fisheries Service consultation on effects to listed Mid-Columbia steelhead runs in the Bear Creek drainage. Therefore, no unusual energy requirements are associated with implementation of any of the alternatives.

### **Urban Quality and Historic and Cultural Resources**

The exchange parcels do not contain urban areas. Therefore, the only applicable concern under this topic relates to historic and cultural resources. The goal of the Forest Service's Heritage Resource Management Program is to preserve significant heritage resources (termed historic properties) and ensure that they remain available for future research, social/cultural purposes, recreation, and education. Refer to the previous section on heritage for a description of effects on historic and cultural resources by alternative.

### **Effects of Alternatives on Consumers, Civil Rights, Minorities, and Women**

All Forest Service actions have the potential to produce some form of impact, positive and/or negative, on the civil rights of individuals or groups, including minorities and women. The need to conduct an analysis of this potential impact is required by the Forest Service Manual and Forest Service Handbook. The purpose of the impact analysis is to determine the scope, intensity, duration, and direction of impacts resulting from a proposed action. For environmental or natural resource actions, such as proposed for the exchange area, the civil rights impact is an integral part of the procedures and variables associated with the social impact analysis. This analysis is discussed in the Economic and Social Environment section, Heritage section, and American Indian section. The effects of the alternatives on consumers are reflected in the discussion of the various goods and services supplied as a result of the proposed actions. This analysis occurs throughout the chapter and is an integral part of the analysis of effects on other components of the environment.

### **Effects of the Alternatives on Prime Farmland, Rangeland, and Forest Land**

All alternatives are consistent with the intent of the Secretary of Agriculture Memorandum 1827 for prime land. The exchange lands do not contain any prime farm lands or rangelands. Prime forest land does not apply to lands within the National Forest System. In all alternatives, lands administered by the FS would be managed with sensitivity to effects on adjacent lands. Conveyed lands would be managed under Oregon Forest Practices Act with regard to effects on adjacent lands.

### **Environmental Justice**

Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, February 11, 1994), states: "To the greatest extent practicable and permitted by law...each Federal Agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental

effects of its programs, policies, and activities on minority populations and low-income populations...” (Section 1- 101). This policy applies equally to Native American programs (Section 6-606). After publication of EO 12898, the USDA published its own Environmental Justice Implementation Strategy (March 24, 1995) to ensure that “environmental justice principles and initiatives are incorporated into Departmental programs, policies, planning, public participation processes, enforcement, and rulemaking.” This document outlines the environmental strategy to be implemented by all USDA agencies, including the Forest Service and identifies a number of program initiatives that demonstrate USDA’s commitment to environmental justice, as defined in EO 12898.

The CTUIR have indicated that Traditional Cultural Properties (TCP) exist on some parcels proposed for conveyance under Alternatives 1 and 4. Alternative 5 dropped these parcels from the land exchange and would retain them under federal jurisdiction. Refer to the Social and Economic section for further discussion of environmental justice issues.

### **Threatened or Endangered Species**

Consultation with National Marine Fisheries Service and US Fish and Wildlife Service was initiated for effects on threatened or endangered species within the project area as required by Section 7 of the Endangered Species Act. Refer to Appendix F for the full text of the Biological Assessment. Informal concurrence, including letters of concurrence regarding effects on species where a determination of Not Likely to Adversely Affect was made. A decision to implement any of the alternatives contained in this FEIS would not be made until a Biological Opinion from National Marine Fisheries Service is received stating concurrence with the determination of Likely to Adversely Affect for effects on Mid-Columbia steelhead.



# Chapter 4. List of Preparers and Commentors

## Preparers and Contributors

The FS consulted the following individuals, FS and non-FS persons during the development of this environmental assessment:

Name	Project Responsibility	Education	Experience
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Yates, Eugene	Botany	B.A. Botany	15 years FS
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Lysne, Mark	Engineering/Transportation	B.S. General Science	31 years FS
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Dadswell, Matt	Social and Economic	B.S. Economics & Geography M.A. Geography PhD (Candidate) Geography	11 years
Westlund, Glen	Tribal	B.A. Zoology	25 years FS
Diskin, William	Vegetation	B.S. Forestry	27 years FS & Bureau of Land Management
Beck, Charlotte	Editorial Assistant		5 years FS 6 years County Government 12 years Legal
<b>Rocky Mountain Ecosystem Service, Inc.</b>			
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Ague, Susan	Format/Editor		4 years RMES, Inc. 14 years FS
Carlson, Clint	Technical Advisor	B.S. Forest Science M.S. Forest Science PhD Botany & Forest Pathology	33 years FS 13 years Forest Pathologist 20 years Research Scientist

<b>Commenters</b>			
<b>No.</b>	<b>Name</b>	<b>Organization</b>	<b>Category</b>
1	Malcolm, Chuck		Old Growth
2	Wolff, Thomas		Alternative Development
3	Gentis, Walt		
4	Dumas, Brett	Idaho Power Company	Easements
5	McFarland, Sandi	Nez Perce National Historic Trail	Recreation
6	Woodell, Brian		Old Growth
7	Sleeper, Preston	U.S. Dept. of Interior	
8	No communication		
9	Martin, Brian		Recreation
10	Shepherd, Harold	Center for Tribal Water Advocacy	Fish/Fisheries, Special Uses,

<b>Commenters</b>			
			NEPA Process, Timber Production, Treaty Rights, Water Quality, Water Rights, Wildlife Species
11	Morgan, John	Ochoco Lumber Company	
12	Lillebo, Tim	Oregon Natural Resources Council	Fish/Fisheries, Special Uses, Minerals, Old Growth
13 &14	Hanson, Randy		Alternative Development
15	Brush, David		
16	Krupp, Christopher	Western Lands Project	NEPA Process, Economic
17	Corey, Steven	Pendleton Ranches, Inc.	Alternative Development
18	Dewey, Paul (Attorney)	Hanson, Randy	Alternative Development, Fish/Fisheries, Easements, NEPA Process, Public Involvement, Recreation, Economic, Social, Vegetation, Old Growth, Wildlife Species, Wildlife Habitat
19	Horngren, Scott (Attorney)	Stout, Loren & Piper	Alternative Development, Special Uses, Miscellaneous, NEPA Process, Economic
20	Quaempts, Eric	Confederated Tribes of the Umatilla Indian Reservation	Alternative Development, Fish/Fisheries, Heritage, Miscellaneous, NEPA Process, Treaty Rights, Water Quality
21	Turo, Scott	Confederated Tribes of the Warm Springs Reservation	Old Growth
22	Reichgott, Christine	U.S. Environmental Protection	Roads/Transportation,



<b>Commenters</b>			
		Agency	Miscellaneous, Old Growth, Water Quality,
23	Lillebo, Tim	Oregon Natural Resources Council	Alternative Development
24	Bruning, Darren L.	Oregon Dept. of Fish & Wildlife	Fish/Fisheries, Heritage, Old Growth
25	Bowerman, Tracy	Oregon Natural Desert Association	Fish/Fisheries , Old Growth

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# Index

American Indian, 10, 11, 19, 30, 40, 261, 262, 263, 270, 275, 277, 313, 345  
Bald Eagle, 186, 187, 326, 339, 340, 346, 347  
Best Management Practices, 83  
Big Game, 5, 17, 19, 25  
Bull Trout, 171, 172, 173, 330  
Canada Lynx, 183, 185, 326, 340, 347  
Ceded Lands, 15, 267, 272  
Clean Water Act, 83  
Closed Road, 211, 212  
Commercial timber, 313  
Connectivity, 4  
Cost Shared Road, 4  
Cultural Resources, 31, 270, 342  
Dedicated old growth, 4, 5, 17, 100, 106, 194  
Eastside Screens, 116  
Elk, 177, 180, 324, 325  
Encroachment, 232, 233, 235, 237  
Encumbrance, 230, 231, 232, 237, 240, 247, 248, 249, 250, 251, 252, 253, 255, 257  
Facilities, 150, 202, 205, 207, 214, 227, 258, 259, 300, 304, 307, 311, 333, 345  
Fish Bearing Stream, 73  
Floodplain, 61, 66, 73, 167, 169  
Fragmentation, 9  
Fuels Management, 301, 307, 312  
HCNRA, 6, 9, 5, 13, 15, 17, 19, 24, 26, 28, 41, 58, 59, 61, 80, 121, 122, 123, 124, 125, 126, 127, 128, 129, 131, 203, 206, 207, 213, 216, 222, 223, 224, 236, 246, 247, 248, 249, 250, 251, 252, 254, 258, 266, 276, 277, 293, 294, 303, 305, 309, 316, 317, 318, 345  
Heritage, 122, 128, 216, 260, 261, 262, 339  
Indicator Species, 2, 10, 12, 15  
Intermittent Stream, 62, 73  
Irretrievable, 93  
Irreversible, 11  
Land Use, 24, 216, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257  
LOS, 7, 35, 36, 98, 99, 100, 102, 103, 104, 105, 106, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 322, 323, 324  
Management Area, 4, 5, 16, 17, 19, 25, 26, 105, 106, 190  
Mineral Rights, 13  
MIS, 190, 193  
Mitigation, 27, 112, 13  
National Forest Management Act, 9, 13, 19  
National Register of Historic Places, 228, 239, 245, 246, 255, 258, 260  
Non-game, 14  
Noxious Weeds, 129, 301, 304, 307, 311  
Patented Mining Claim, 17  
Perennial Stream, 73, 14, 17  
Prescribed Fire, 17



## Index

Prime or Unique Farmland, 18  
Public Involvement, 9, 18  
RHCA, 4, 16, 21, 25, 62, 74, 158, 168, 174, 330  
Railroad Right-of-Way, 75  
Right-of-Way, 149, 153, 154, 155, 157, 256  
Riparian Area, 4, 16, 25  
Roadless Area, 6, 9, 41, 205, 207, 218, 219, 220, 221, 222, 273  
Salmon, 6, 7, 9, 12, 13, 34, 40, 92, 123, 125, 158, 162, 168, 169, 170, 171, 174, 175, 264, 329, 330, 332, 337, 340  
Scoping, 1, 9, 10, 345  
Sensitive plants, 121  
Small Game, 21  
Special Use Permit, 230, 231, 297  
Steelhead, 23, 33, 162, 163, 164, 165, 167, 273, 328  
Summer Range, 23  
Unpatented Mining Claim, 24  
Water Quality, 5, 12, 17, 25, 32, 40, 70, 74, 75, 76, 77, 78, 80, 81, 83, 84, 85, 86, 340, 341  
Water Rights, 86, 87, 88, 158, 161, 162, 230, 231, 232, 233, 234, 235, 236, 237, 239, 240, 241, 242, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 340, 342  
Water Yield, 74, 75, 76, 77, 78, 80, 81, 341  
Wetland, 61, 73, 77, 80, 157, 158, 167, 169  
Wild and Scenic River, 6, 7, 8, 9, 7, 18, 24, 25, 29, 58, 59, 61, 80, 202, 205, 206, 214, 215, 216, 217, 236, 239, 241, 246, 248, 249, 250, 251, 252, 254, 346  
Wilderness, 6, 9, 5, 17, 19, 25, 26, 58, 59, 124, 127, 128, 196, 197, 202, 203, 205, 206, 207, 213, 217, 239, 254, 256, 272, 303, 316, 323, 336, 337  
Winter Range, 4, 5, 16, 17, 19, 25, 26

# Acronyms

<b>ACHP</b>	Advisory Council on Historic Preservation
<b>AMP</b>	Allotment Management Plan
<b>ATI</b>	Agreement to Initiate
<b>AUM</b>	Animal Unit Month
<b>BE</b>	Biological Evaluation
<b>BF</b>	Board foot
<b>BLM</b>	Bureau of Land Management
<b>BMP</b>	Best Management Practices
<b>CEQ</b>	Council on Environmental Quality
<b>CERCLA</b>	Comprehensive Environmental Response, Compensation and Liability Act
<b>CFR</b>	Code of Federal Regulations
<b>CFS</b>	Cubic Feet per Second
<b>CLEARWATER</b>	Clearwater Land Exchange - Oregon
<b>CMP</b>	Comprehensive Management Plan
<b>COE</b>	Corps of Engineers
<b>CRITFC</b>	Columbia River Inter-Tribal Fish Commission
<b>CTUIR</b>	Confederated Tribes of Umatilla Indian Reservation
<b>CWRE</b>	Certified Water Rights Examiner
<b>DBH</b>	Diameter breast height
<b>DEIS</b>	Draft Environmental Impact Statement
<b>DEQ</b>	Department of Environmental Quality
<b>DIB</b>	Diameter inside bark
<b>DOGAMI</b>	Department of Geology and Mineral Industries
<b>DPS</b>	Distinct Population Segment
<b>DSC</b>	Detrimental Soil Conditions
<b>EFH</b>	Essential fish habitat
<b>EFU</b>	Exclusive farm-use
<b>EIS</b>	Environmental Impact Statement
<b>EPA</b>	Environmental Protection Agency
<b>ESA</b>	Endangered Species Act
<b>ESU</b>	Evolutionary Significant Unit
<b>FEIS</b>	Final Environmental Impact Statement
<b>FM</b>	Parcel on the Malheur National Forest
<b>FMO</b>	Foraging/migratory/over wintering
<b>FP</b>	Forest Plan
<b>FS</b>	Forest Service
<b>FSH</b>	Forest Service Handbook
<b>FSM</b>	Forest Service Manual
<b>FTE</b>	Full-time equivalent
<b>FU</b>	Parcel on the Umatilla NF
<b>FW</b>	Parcel on the Wallowa-Whitman National Forest
<b>FY</b>	Fiscal year
<b>GIS</b>	Geographic Information System
<b>GMU</b>	Game Management Unit
<b>GTM</b>	Grass-Tree Mosaic
<b>HCNRA</b>	Hells Canyon National Recreation Area
<b>HEI</b>	Habitat effectiveness index
<b>HRV</b>	Historic Range of Variability
<b>HUC</b>	Hydrologic Unit Code
<b>ID</b>	Interdisciplinary
<b>IDT</b>	Interdisciplinary Team
<b>IRA</b>	Inventoried roadless area
<b>LAU</b>	Lynx Analysis Units
<b>LCAS</b>	Lynx Conservation Assessment and Strategy
<b>LOS</b>	Late and Old Structure
<b>LRMP</b>	Land and Resource Management Plans
<b>LTSP</b>	Land Adjustment Transaction Screening Process
<b>LWCF</b>	Land and Water Conservation Funds
<b>MA</b>	Management Area

## Acronyms

<b>MBF</b>	Thousand Board Feet
<b>MIS</b>	Management Indicator Species
<b>MMBF</b>	Million board foot
<b>MNF</b>	Malheur National Forest
<b>MS</b>	Multi-strata
<b>MSLT</b>	Multi-strata with large trees
<b>MSLTU</b>	Multi-strata with large trees upland
<b>NCHP</b>	Advisory Council on Historic Preservation
<b>NCSS</b>	National Cooperative Soil Survey
<b>NEPA</b>	National Environmental Policy Act
<b>NF</b>	National Forest
<b>NFS</b>	National Forest System
<b>NHPA</b>	National Historic Preservation Act
<b>NOAA</b>	National Oceanic and Atmospheric Administration
<b>NRA</b>	National Recreation Area
<b>NRCS</b>	Natural Resource Conservation Service
<b>OAR</b>	Oregon Administrative Rules
<b>ODEQ</b>	Oregon Department of Environmental Quality
<b>ODF</b>	Oregon Department of Forestry
<b>ODFW</b>	Oregon Department of Fish and Wildlife
<b>OFMS</b>	Old forest multi-strata
<b>OFSS</b>	Old forest single strata
<b>OHV</b>	Off-highway vehicle
<b>ORS</b>	Oregon Revised Statutes
<b>ORV</b>	Outstandingly remarkable value
<b>OWRD</b>	Oregon Water Resources Department
<b>PCH</b>	Proposed Critical habitat
<b>PILT</b>	Payments in-lieu of taxes
<b>PM</b>	Non-Federal parcel that would convey to the MNF
<b>PR</b>	Project Record
<b>PU</b>	Non-Federal parcel that would convey to the UNF
<b>PVG</b>	Potential Vegetation Groups
<b>PW</b>	Non-Federal parcel that would convey to the WWNF
<b>RHCA</b>	Riparian Habitat Conservation Areas
<b>RMA</b>	Riparian Management Areas
<b>RMO</b>	Riparian Management Objectives
<b>ROS</b>	Recreation Opportunity Spectrum
<b>S&amp;G</b>	Standards and Guidelines
<b>SC</b>	Spring Chinook
<b>SH</b>	Steelhead
<b>SHPO</b>	State Historic Preservation Office
<b>SI</b>	Stand Initiation
<b>SIPS</b>	Stratified Inventory Probability Sample
<b>SR</b>	Spawning/rearing
<b>SS</b>	Single-strata
<b>SSLT</b>	Single strata with large trees
<b>STF</b>	Small tract forest land
<b>SWS</b>	Subwatersheds
<b>T&amp;E</b>	Threatened and Endangered
<b>TMDL</b>	Total Maximum Daily Load
<b>UNF</b>	Umatilla National Forest
<b>USA</b>	United States of America
<b>USDA</b>	U.S. Department of Agriculture
<b>USDI</b>	U.S. Department of Interior
<b>USFS</b>	U.S. Forest Service
<b>USFWS</b>	U.S. Fish and Wildlife Service
<b>WAB</b>	Water Availability Basins
<b>WQMP</b>	Water Quality Management Plans
<b>WWNF</b>	Wallowa-Whitman National Forest
<b>YFMS</b>	Young forest multi-strata

# Glossary

<b>Activity Fuels</b>	Debris generated by a Forest activity that increase fire potentials such as firewood gathering, precommercial thinning, timber harvest, and road construction.
<b>Acquired Land</b>	Unreserved National Forest System (NFS) land; NFS land that has been received in exchange for unreserved land or land that has been purchased or donated. Acquired lands have Weeks Act status under the Act of September 2, 1958, and therefore are not available for mineral entry.
<b>Administrative Facilities</b>	Those facilities, such as Ranger Stations, work centers, and cabins, which are used by the Forest Service in the management of the National Forest.
<b>Ad Valorem</b>	Taxes imposed on forest lands in lieu of property taxes. These taxes are imposed at a rate separate from property taxes.
<b>Affected Environment</b>	The biological, social, economic, and physical aspects of the environment that would or may be changed by proposed actions.
<b>Aliquot Parts</b>	Legal subdivisions, except fractional lots, or further subdivision of any smaller legal subdivision, except fractional lots, by division into halves or fourths ad infinitum.
<b>Alternative</b>	In an EIS, one of a number of possible options for responding to the purpose and need for action and for addressing identified significant issues. One of several policies, plans, or projects proposed for decision making.
<b>Allotment</b>	An area designated for the use of a prescribed number and kind of livestock under one plan or management; may include one or more separate pastures.
<b>Allotment Management Plan (AMP)</b>	A document that specifies the program of action designated to reach a given set of objectives. It is prepared in consultation with the permittee(s) involved and prescribes the manner in and extent to which the permittee's livestock operations will be conducted in order to meet multiple use, sustained yield, economic, and other needs and objectives as determined for the lands involved. It describes the type, location, ownership, and specifications for the range improvements in place or to be installed and maintained on the lands to meet the livestock grazing and other objectives of land management. It contains such other provisions relating to the permittee's livestock management responsibilities and other objectives as may be prescribed by the Forest Service consistent with applicable law.
<b>Anadromous Fish</b>	Fish that are spawned and reared in freshwater, move to the ocean to grow and mature, and return to freshwater to reproduce.
<b>Analysis Area</b>	A delineated area of land subject to analysis of (1) responses to proposed management practices in the production, enhancement, or maintenance of forest and rangeland outputs and environmental quality objectives, and (2) economic and social impacts.

<b>Animal Unit</b>	Considered to be one mature (1,000 pound) cow or the equivalent based upon average daily consumption of 26 lbs of dry matter/day.
<b>Animal Unit Month (AUM)</b>	(1) The amount of feed or forage required by an animal unit for one month. (2) Tenure of one animal unit for a period of one month.
<b>Appraisal or Appraisal Report</b>	A written statement independently and impartially prepared by a qualified appraiser setting forth an unbiased opinion as to the market value of an adequately described property as of a specific date(s), supported by the presentation and analysis of relevant market information.
<b>Appurtenance</b>	Anything incidental or belonging to the land that is considered part of the real property (e.g. an improvement or easement). See real property.
<b>Bedrock</b>	Any solid rock exposed or overlain by unconsolidated material.
<b>Best Management Practices (BMP's)</b>	Practices designed to prevent or reduce water pollution, including sedimentation. Practices used for the protection of water quality.
<b>Big Game</b>	Those species of large mammals normally managed as a sport hunting resource.
<b>Big Game Winter Range</b>	The area available to and used by big game through the winter season.
<b>Biological Diversity or Biodiversity</b>	The variety of life forms and processes, including the complete natural complex of species, communities, genes, and ecological functions.
<b>Board Foot (bf)</b>	A unit of measurement represented by a board one foot square and one inch thick.
<b>Broadcast Burn</b>	Allowing a controlled fire to burn over a designated area within well-defined boundaries for reduction of fuel hazard, as a silvicultural treatment, or both.
<b>Buffer Zone</b>	An administratively defined area established along a stream, lake, wetland, or erosion hazard to provide protection for aquatic resources during land use activities.
<b>Cadastral Survey</b>	A survey that creates, marks, defines, retraces, or reestablishes the boundaries and subdivisions of the public domain lands of the United States.
<b>Canopy</b>	In a forest, the branches from the uppermost layer of trees; in a shrub or grassland, the uppermost layer of shrubs; in a riparian area, the layers of vegetation that project over the stream.
<b>Canopy Closure</b>	The amount of ground surface shaded by tree canopies as seen from above. Used to describe how open or dense a stand of trees is, often expressed in 10 percent increments.
<b>Cavity</b>	A hollow excavated in trees by birds or other natural phenomena; used for roosting and reproduction by many birds and mammals.

<b>Ceded Lands</b>	Lands that tribes ceded to the United States by treaty while reserving specific land and resource rights, annuities, and other promises in the treaties.
<b>Chain of Title</b>	A history of conveyances and encumbrances affecting a title from the time the original patent was granted or as far back as records are available.
<b>Clean Water Act of 1987</b>	Amends the Federal Water Pollution Control Act of July 9, 1956. The purpose of the 1956 act is to enhance the quality and value of the water resource, and to establish a national policy for the prevention, control, and abatement of water pollution. Among the important provisions are authority for the State and Federal Governments to establish water quality standards; provision for water pollution grants for research and development, control programs, construction of treatment works, and comprehensive programs for water pollution control; enforcement measures against pollution from Federal facilities; and provision for the control of pollution by oil, hazardous substances, or sewage from vessels. The basic act (Public Law 84-660), is amended by the Federal Water Pollution Control Act/Amendments of 1961 (Public Law 87-88); Water Quality Act of 1965 (Public Law 89-234); Clean Water Restoration Act of 1966 (Public Law 89-753Z); Title 1, Water Quality Improvement Act of 1970 (Public Law 91-224); Title 1, National Environmental Policy Act of 1969 (Public Law 91-224); Federal Water Pollution Act of 1969 (Public Law 91-224); Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500); Clean Water Act of 1977 (Public Law 95-217); Clean Water Act of 1987.
<b>Closed Road</b>	A road on which motorized traffic has been excluded by regulation, barricade, blockage or by obscuring the entrance. A closed road is still an operating facility on which motorized traffic has been removed (year-long or seasonal) and remains on the Forest Road Transportation System.
<b>Closure</b>	An administrative order restricting either location, timing, or type of use in a specific area.
<b>Code of Federal Regulations (CFR)</b>	Government publication listing all Federal regulations in existence.
<b>Community Stability</b>	The capability of a community to absorb and cope with change without major hardship to institutions or groups within the community.
<b>Compaction</b>	Making soil hard and dense; decreasing its ability to support vegetation. Compacted soil holds less water and air and roots have trouble penetrating the soil.
<b>Congressionally Classified and Designated Areas</b>	Areas established by Congressional legislation, such as National Wilderness, National Wild and Scenic Rivers, and National Recreation Areas.
<b>Connectivity</b>	The arrangement of habitats that allows organisms and ecological processes to move across the landscape; patches of similar habitats are either close together or linked by corridors of appropriate vegetation. The opposite of fragmentation.

<b>Consultation</b>	A formal interaction between the National Marine Fisheries Service or U.S. Fish and Wildlife Service and another Federal agency when it is determined that the agency's action may affect a species that has been listed as threatened or endangered or its critical habitat.
<b>Convey</b>	The act of deeding or transferring title to another.
<b>Corridor Viewsheds</b>	Mapped areas of the landscape, which can be seen from a Forest road or wild and scenic river.
<b>Cost-Efficiency</b>	The usefulness of specified inputs (costs) to produce specified outputs (benefits). In measuring cost efficiency, some outputs including environmental, economic, or social impacts, are not assigned monetary values but are achieved by specified levels in the least-cost manner. Cost efficiency is usually measured using present net value.
<b>Cost Shared Road</b>	Road on which construction and maintenance costs are shared and easements are exchanged.
<b>Cost Share and FRTA Programs</b>	National agreements under which large private landowners and the government agree to share road costs and exchange easements.
<b>Council on Environmental Quality (CEQ)</b>	Government agency with oversight on the implementation of the National Environmental Policy Act (NEPA).
<b>Cover</b>	(1) Trees, shrubs, rocks, or other landscape features that allow an animal to partly or fully conceal itself. (2) The area of ground covered by plans of one or more species.
<b>Critical Habitat</b>	Specific areas within the geographical area occupied by the species on which are found those physical and biological features (1) essential to the conservation of the species, and (2) which may require special management considerations or protection. Critical habitat shall not include the entire geographic area which can be occupied by the Threatened and Endangered Species.
<b>Cubic Foot (CF)</b>	The amount of wood volume equivalent to a cube 1 foot by 1 foot by 1 foot.
<b>Cultural Resources</b>	Fragile and nonrenewable elements of the environment including archaeological remains (evidence of prehistoric or historic human activities) and sociocultural values traditionally held by ethnic groups (including scared places, traditionally utilized raw materials, etc.).
<b>Cumulative Effects</b>	Impacts on the environmental that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. (40CFR 1508.7)
<b>Deciding Officer</b>	The Forest Service employee who has the authority to select and/or carry out a specific planning action.

<b>Density (Stand)</b>	The number of trees growing in a given area, usually expressed in terms of trees per acre.
<b>Developed Recreation</b>	Recreation that occurs where improvements enhance recreation opportunities and accommodate intensive recreation activities in a defined area.
<b>Diameter at Breast Height (DBH)</b>	The diameter of a tree 4.5 feet above the ground on the uphill side of the tree.
<b>Direct Effects (land exchange)</b>	Impacts that are caused by an action and occur at the same time and place.
<b>Dispersed Recreation</b>	That portion of outdoor recreation use which occurs outside developed sites in the unroaded and roaded forest environment: this includes activities such as hunting, fishing, berry picking, off-road vehicle use, hiking, horseback riding, picnicking, camping, viewing scenery, snowmobiling, and many others.
<b>District Ranger</b>	The official responsible for administering the National Forest System Lands on a Ranger District.
<b>Ditches and/or Canals</b>	Used to indicate a reservation to the United States of a right or an easement for the construction and maintenance of ditches or canals, as stated in a particular patent.
<b>Diversity</b>	A measure of the variety of species and habitats in an area that takes into account the relative abundance of each species or habitat.
<b>Dominant Estate or Tenement</b>	The land or person that benefits from easements on another property.
<b>Draft Environmental Impact Statement (DEIS)</b>	The statement of environmental effects required for major Federal actions under section 102 of the National Environmental Policy Act (NEPA) and released to the public and other agencies for comment and review.
<b>Easement</b>	A right given the holder to use real estate owned by another for a specified purpose. The land having the right of use as an appurtenance (e.g. road, powerline, oil and gas line, etc.) is known as the dominant estate, and the land subject to the easement is known as the servient estate.
<b>Eastside Screens</b>	(aka Regional Forester's Interim Direction Establishing Riparian, Ecosystem and Wildlife Standards for Timber Sales) Originally signed in 1994, amended in 1995. The objective of this direction was to provide an approach for maintaining future planning options concerning wildlife habitat associated with late and old structure stages, fish habitat, and old forest abundance. The direction was intentionally restrictive, reflecting a conservative interpretation of riparian, wildlife, and ecosystem needs for the short term. The direction applies to timber sales.
<b>Ecology</b>	The study of interrelationships of organisms with their environment.
<b>Economics</b>	The study of how limited resources, goods, and services are allocated among competing uses.



<b>Ecosystem</b>	A complete, interacting system of living organisms and the land and water that make up their environment; the home places of all living things, including humans.
<b>Edge Effect</b>	The increased richness of flora and fauna resulting from the mixing of two communities where they join.
<b>Effects</b>	Environmental changes resulting from a proposed action. Included are direct effects, which are caused by the action and occur at the same time and place, and indirect effects, which are caused by the action and are later in time or further removed in distance, but which are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems. Effects, impacts, and consequences, as used in this environmental statement are synonymous. Effects may be direct, indirect, or cumulative.
<b>Encroachment</b>	An obstruction that physically intrudes upon, overlaps, or trespasses upon the property of another.
<b>Encumbrance</b>	A claim, lien, charge, or liability attached to and binding real property.
<b>Endangered Species</b>	A plant or animal species listed under the Endangered Species Act that is in danger of extinction throughout all or a significant portion of its range, and published in the Federal Register.
<b>Endangered Species Act (ESA)</b>	An act, passed by Congress in 1973, that directed all Federal departments and agencies to seek to conserve Endangered and Threatened species and that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of any Threatened or Endangered species or result in the destruction or adverse modification of their critical habitat. The act also mandates conferencing with the appropriate agencies.
<b>Endemic Species</b>	Plants or animals that occur naturally in a certain region and whose distribution is relatively limited to a particular locality.
<b>Environment</b>	The combination of external physical, biological, social, and cultural conditions affecting the growth and development of organisms and the nature of an individual or community.
<b>Environmental Analysis</b>	An analysis of alternative actions and their predictable short and long-term environmental effects which include physical, biological, economic, social, and environmental design factors and their interactions.
<b>Environmental Impact Statement (EIS)</b>	A document prepared by a Federal agency on the environmental effects of its proposals for major actions used as a tool for decision making. It is a formal document that must follow the requirements of NEPA, the Council on Environmental Quality (CEQ) guidelines, and directives of the agency responsible for the project proposal. A Draft EIS is released to the public and other agencies for review and comment. A Final EIS is issued after consideration of public comments. A Record of Decision (ROD) is based on the information and analysis in the Final EIS. (40 CFR 1508.11)

<b>Erosion</b>	The group of processes whereby earthy or rocky material is worn away by natural sources such as wind, water or ice and removed from a part of the earth's surface.
<b>Ephemeral Stream</b>	A stream that flows only after rain or during snow melt.
<b>Exchange</b>	Lands or interests therein may be exchanged between the Forest Service and private landowners, states, or local governments. Exchanges can include but are not limited to land-for-land, land-for-timber, or partial interest exchanges. Exchanges must be of equal value on both sides or be equalized with cash payment not to exceed 25 percent of the total value of the lands or interests transferred out of Federal acquisitions (except in Alaska).
<b>Federal Register</b>	Daily government publication reporting all activities in the Federal government.
<b>Fee Simple Title or Estate</b>	Absolute estate where the owner is entitled to the entire property. Also called "fee title or fee"
<b>Final Environmental Impact Statement (FEIS)</b>	The final statement of environmental effects required for major Federal actions under section 102 of the National Environmental Policy Act (NEPA) and released to the public and other agencies for comment and review.
<b>Fish Bearing Stream</b>	Stream segments that support fish during all or a portion of a typical year.
<b>Flora</b>	The plant life characteristic of a region, period, or special environment.
<b>Floodplain</b>	A relatively flat area or lowlands adjoining a body of standing or flowing water that has been or might be covered by floodwater. The term "floodplain" shall mean the lowland and relatively flat areas, adjoining inland and coastal waters including flood prone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year (Executive Order 11988).
<b>Forage</b>	All browse and non-woody plants that are available to livestock or wildlife and used for grazing or harvested for feed.
<b>Forest Plan (Land and Resource Management Plan)</b>	A document that guides natural resource management and establishes standards and guidelines for a National Forest; required by the National Forest Management Act.
<b>Forest Service Handbook (FSH)</b>	For Forest Service use, directives that provide detailed instructions on how to proceed with a specialized phase of a program or activity.
<b>Forest Service Manual (FSM)</b>	A system of manuals which provides direction for Forest Service activities.
<b>Forest Supervisor</b>	The official responsible for administering National Forest System Lands in a Forest Service administrative unit, which may consist of one or more National Forests or all the Forests within a State.

<b>Forest System Road</b>	A road wholly or partly within or adjacent to and serving the National Forest System and which is necessary for the protection, administration, and utilization of the National Forest System and the use and developments of its resources.
<b>Fragmentation (Habitat)</b>	The breakup of a large land area (such as a forest) into smaller patches isolated by areas converted to a different land type. The opposite of connectivity.
<b>Fuels</b>	Includes living plants; dead, woody vegetative materials; and other vegetative materials which are capable of burning.
<b>Fuels Management</b>	Manipulation or reduction of fuels to meet Forest protection and management objectives while preserving and enhancing environmental quality.
<b>Fuel Treatment</b>	The rearrangement or disposal of natural or activity fuels (generated by management activity, such as slash left from logging) to reduce fire hazard or meet other management objectives.
<b>Game Species</b>	Any species of wildlife or fish for which seasons and bag limits have been prescribed, and which are normally harvested by hunters, trappers, and fisherman under State or Federal laws, codes, and regulations.
<b>Geographic Information System (GIS)</b>	An information processing technology to input, store, manipulate, analyze, and display data; a system of computer maps with corresponding site-specific information that can be combined electronically to provide reports and maps.
<b>Geothermal Goal</b>	Heat from within the earth. A concise statement that describes a desired condition to be achieved. It is normally expressed in broad, general terms and is timeless in that it has no specific date by which it is to be completed. Goal statements form the principal basis from which objectives are developed.
<b>Grazing Capacity</b>	The number of animal unit months of livestock grazing an area will support while meeting basic resource needs and associated resource management goals.
<b>Grazing Permit</b>	Officials, written permission to graze a specific number, kind, and class of livestock for a specific period on a defined range allotment.
<b>Habitat</b>	A place that provides seasonal or year-round food, water, shelter, and other environmental conditions for an organism, community, or population of plants or animals.
<b>HAZMAT</b>	Hazardous material. Regulations implementing Section 120(h) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of October 16, 1990, which requires Federal agencies to do a file search on all property, disposed of prior to transfer of title.
<b>Indicator Species</b>	A species that is presumed to be sensitive to habitat changes; population changes of indicator species are believed to best indicate the effects of land management activities.

<b>Indirect Effects</b>	Impacts on the environment that are caused by an action and are later in time or farther removed in distance, but are still reasonably foreseeable.
<b>INFISH</b>	Interim Inland Native Fish Strategy for the Intermountain, Northern, and Pacific Northwest Regions (Forest Service). A strategy intended to provide interim direction to protect habitat and populations of resident fish outside of anadromous fish habitat in eastern Oregon, eastern Washington, western Montana, and portions of Nevada.
<b>Instream Flows</b>	The minimum water volume (cubic feet per second) in each stream necessary to meet seasonal streamflow requirements for maintaining aquatic ecosystems, visual quality, recreational opportunities, or other uses.
<b>Interdisciplinary Team (ID Team)</b>	A group of individuals with different training assembled to solve a problem or perform a task. The team is assembled out of recognition that no one scientific discipline is sufficiently broad to adequately solve the problem. Through inter-action, participants bring different points of view to bear on the problem.
<b>Interest</b>	A right, claim, title, or legal share in something.
<b>Interior Columbia Basin Ecosystem Management Project (ICBEMP)</b>	A process developed on a multi-agency basis to coordinate management of the interior Columbia Basin ecosystem.
<b>Intermittent Stream</b>	A stream which flows only at certain times of the year when it receives water from springs or from some surface source such as melting snow.
<b>Irretrievable</b>	A category of impacts that applies to losses of production or commitment of renewable resources. For example, while a linear piece of land is being used as a road, some or all of the timber production there is “irretrievably lost”. If the road was rehabilitated after use and soil compaction was reduced, timber production could resume; therefore, the loss of timber production during the time the road was in use is irretrievable but not irreversible, because it is possible for timber production to resume if the piece of land is no longer needed as a road.
<b>Irreversible</b>	A category of impacts that applies to non-renewable resources, such as minerals and archaeological sites. Losses of these resources cannot be reversed. Irreversible effects can also refer to effects of actions on resources that can be renewed only after a very long period of time, such as the loss of soil productivity. Irreversible also includes loss of future options.
<b>Issue</b>	A matter of controversy, dispute, or general concern over resource management activities or land uses. To be considered a “significant” EIS issue, it must be well defined, relevant to the proposed action, and within the ability of the agency to address through alternative management strategies.
<b>Land Exchange Agreement</b>	A contract that identifies the estates to be exchanged, all reservations and outstanding rights, any cash equalization, and all other terms and conditions that each party is obligated to perform.

<b>Landform</b>	An area of that is defined by its particular combination of bedrock and soils, erosion processes and climatic influences.
<b>Landline Location</b>	The legal identification, accurate location, and description of property boundaries.
<b>Landownership Adjustment</b>	The process of changing ownership or jurisdiction of real property (lands and interests in land).
<b>Landownership Status</b>	The system of assembling, recording, and making landownership and related information available to field personnel. Sometimes simply called land statue, this includes ownership records of title to lands, withdrawals, rights, and/or privileges that affect or influence the use and management of National Forest System lands.
<b>Large tree</b>	Tree that measures at least 21 inches diameter at breast height (4.5 feet above ground on the uphill side of the tree).
<b>Large Woody Debris (LWD)</b>	Any large piece of relatively stable woody material having a diameter of at least 10 centimeters and a length greater than 1 meter that intrudes into a stream channel.
<b>Late and Old Structure (LOS)</b>	Forest seral stages that include mature and old growth age classes. Regional Forester's Amendment #2 describes these stages as single stratum with large trees, and multi-stratum with large trees. LOS single stratum stands are those in which large trees are present and common. In these stands, young trees are few or absent. These stands may appear "park-like". Multi-stratum stands are those containing several age classes and layers of trees in which large trees are common.
<b>Late successional</b>	Forest late seral stages wherein understory trees begin to occupy co-dominant and eventually dominant positions in the canopy, and understory species can be found in all canopy layers. Overstory tree vigor begins to decline. Most standing dead and down material is small to medium sized, but some mature and recently overmature overstory trees have recently died and are developing as snags. Specific definitions are dependent on current and potential vegetation composition and arrangements.
<b>Listed Species</b>	A wildlife or plant species listed under the authorization of the Endangered Species Act as Threatened or Endangered.
<b>Lot</b>	A subdivision of a section that is not described as an aliquot part of the section, but which is designated by number, e.g. Lot 2. A lot may be regular or irregular in shape, and its acreage varies from that of regular subdivisions.
<b>Management Area (MA)</b>	An area with similar management objectives and a common management prescription.
<b>Management Direction</b>	A statement of goals and objectives, management prescriptions, and associated standards and guidelines for attaining them.

<b>Management Indicator Species (MIS)</b>	Species identified in a planning process that are used to monitor the effects of planned management activities on viable populations of wildlife and fish, including those that are socially or economically important.
<b>Mineral Entry</b>	The filling of a mining claim on Federal land to obtain the right to mine any locatable minerals it may contain. Also, the filing for a mill site on Federal land for the purpose of processing off-site locatable minerals
<b>Minerals, Common Variety</b>	Deposits of sand, stone, gravel, etc. of widespread occurrence and not having distinct or special value. These deposits are used generally for construction and decorative purposes and are disposed of under the Minerals Act of 1947.
<b>Minerals, Leasable</b>	Those minerals which are disposed of under authority of the various mineral leasing acts. Minerals include coal, oil, gas, phosphate, sodium, potassium, oil shale, sulfur (in Louisiana and New Mexico), and geothermal steam.
<b>Minerals, Locatable</b>	Those minerals which are disposed of under the general mining laws. Included are minerals such as gold, silver, lead, zinc, and copper, which are not classed as leasable or salable.
<b>Mineral Rights</b>	An interest in the minerals in the land, with or without ownership of the surface. These rights include minerals such as gold, silver, copper, iron, etc., as well as oil, gas, and geothermal (steam). Mineral rights can be either leased or sold.
<b>Mitigation</b>	Measures designed to counteract environmental impacts or to make impacts less severe (50 CFR 1508.20).
<b>Multiple Use Management</b>	The management of public lands and their various resource values so they are used in a combination that best meets the present and future needs of the public.
<b>National Environmental Policy Act (NEPA)</b>	An act, passed by Congress in 1969, that declared a national policy to encourage productive harmony between humans and their environment to promote efforts that will prevent or eliminate damage to the environment and the biosphere and stimulate the health and welfare of humans. Also the act was intended to enrich the understanding of the ecological systems and natural resources important to the nation and to establish a Council on Environmental Quality. This act requires the preparation of environmental impact statements for Federal actions that are determined to be of major significance.
<b>National Forest</b>	Lands administered by the USDA Forest Service.
<b>National Forest Management Act (NFMA)</b>	An act, passed by Congress in 1976, that amends the Forest and Rangeland Renewable Resources Planning Act that requires the preparation of Forest plans, Regional guides, and regulations to guide that development.
<b>National Forest System (NFS) Land</b>	Federal lands that have been designated by Executive order or statute as National Forest, National Grasslands, or Purchase units, and other lands under the administration of the Forest Service, including Experimental Areas and Bankhead-Jones Title III lands.

<b>National Register of Historic Places</b>	A listing maintained by the National Park Service of areas which have been designated as being of historical significance. The Register includes places of local and State significance as well as those of value to the Nation as a whole.
<b>National Wilderness Preservation System</b>	All lands covered by the Wilderness Act and subsequent wilderness designations, irrespective of the department or agency having jurisdiction.
<b>Native Fish</b>	Fish species that are indigenous to a regions waters, as opposed to introduced or exotic fish.
<b>Net Public Benefits</b>	An expression used to signify the overall long-term value to the Nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not. Net public benefits are measured by both quantitatively and qualitative criteria rather than a single measure or index. The maximization of net public benefits to be derived from management of units of the National Forest System is consistent with the principles of multiple use and sustained yield.
<b>No Action Alternative</b>	The most likely condition expected to exist in the future if current management direction would continue unchanged.
<b>Non-consumptive Use</b>	Those uses of resources that do not reduce the supply. For example: Non-consumptive uses of water include hydroelectric power generation, boating, swimming, etc.
<b>Non-game</b>	Species of fish or animal which are not managed as a sport hunting or fishing resource; all mammals, birds, reptiles, amphibians and fish, not classified as game species by the Oregon Department of Fish and Wildlife.
<b>Non-fish Bearing Perennial Stream</b>	Stream segments that contain running water throughout a typical year, but do not support fish during any portion of a typical year.
<b>Noxious Weed</b>	Any exotic plant species established or that may be introduced in the area which may render land unfit for agriculture, forestry, livestock, wildlife or other beneficial uses.
<b>Objective</b>	A concise, time-specific statement of measurable planned results that respond to preestablished goals. An objective forms the basis for further planning, to define the precise steps to be taken and the resources to be used in achieving identified goals.
<b>Off-Highway Vehicle (OHV)</b>	Any vehicle capable of being operated off an established road or trail, e.g. motor bike, four-wheel drive, or snowmobile.

<b>Old Growth</b>	For all National Forests in the Pacific Northwest Region, an old growth stand is defined as any stand of trees 10 acres or greater generally containing the following characteristics: a) Stands contain mature and overmature trees in the overstory and are well into the mature growth stage; b) Stands will usually contain a multilayered canopy and trees of several age classes; c) Standing dead trees and down material are present; and d) Evidence of human activities may be present but may not significantly alter the other characteristics and would be a subordinate factor in a description of such a stand
<b>Old Growth Allocation</b>	Management area or allocation in the Forest Plans intended to provide habitat for old growth associated species or to provide aesthetic values for the enjoyment of human visitors.
<b>Old growth Dependant Species</b>	The group of wildlife species that is associated with old growth forest plant communities.
<b>Old growth Indicator Species</b>	Those species of wildlife that are dependent on or that find optimum habitat in old growth stands for at least part of their life cycle. It is assumed that if the requirements of these species are met, the requirements of other old growth associated species will be satisfied.
<b>Old Structure</b>	A forest stand with moderate to high canopy closure; a multilayered, multispecies canopy dominated by large overstory trees; high incidence of large trees, some with broken tops and other indications of old decaying wood (decadence), numerous large snags; and heavy accumulations of downed wood. For ponderosa pine stands, old structure may be indicated by large diameter trees, with incidences of snags and old decaying wood. Canopy densities may actually be low with less trees per acre present than other plant associations.
<b>On/Off Permit</b>	Where the Federal land portion of the permittee's total operation is relatively small compared to the private land portion and it is feasible to use the Federal and private lands in conjunction with each other, this type of permit is issued. This permit reflects the livestock numbers, pasture rotation, and grazing season agreed to by the permit administrator and the permittee for both the Federal and private land portion. Management of the private lands is otherwise the responsibility of the landowner. The private land is referred to as "non-waived" because the FS does not exercise control over the grazing management of those private lands other than the numbers, rotation, and schedule for their entire allotment. The Federal component of the allotment, however, is subject to FS standards and guidelines for grazing management.
<b>Open Road</b>	A road, or segment thereof, that is open to use.
<b>Open Road Density</b>	The miles of open road in a specific area of land. Commonly miles per section.



<b>Open and Unclaimed or Unoccupied Lands</b>	This term is also a trademark of the treaties negotiated in the 1850s. The term applied to Public Domain lands held by the U.S. that had not been fenced or claimed through a land settlement act. Today, open and unclaimed lands applies to lands remaining in the Public Domain (for the purposes of hunting, gathering foods, and grazing livestock or trapping). The courts have ruled that NFS lands reserved from the public domain are open, unclaimed or unoccupied lands, and as such the term applies to reserved treaty rights.
<b>Oregon State Historic Preservation Officer</b>	The official who is responsible for administering the National Historic Preservation Act of 1966 within the State, or a designated representative authorized to act for the State Historic Preservation Officer.
<b>Outstandingly Remarkable Value (ORV)</b>	Unusual and/or unique qualities which are associated with a stream which determine eligibility for potential designation as a wild and scenic river. These include features such as free flowing water, scenic, geologic, fisheries or wildlife values.
<b>Outstanding Rights</b>	A right or interest in property owned by a person other than the present landowner.
<b>Overstory</b>	The upper canopy layer.
<b>PACFISH</b>	An interagency ecosystem management approach for maintaining and restoring healthy, functioning watersheds, riparian areas, and aquatic habitats within the range of Pacific anadromous fish on Federal lands managed by the USDI Bureau of Land Management and the USDA Forest Service.
<b>Pacific States Bald Eagle Recovery Plan</b>	A plan prepared by the Pacific States Bald Eagle Recovery Team, appointed by the U.S. Department of the Interior under authority of the Endangered Species Act of 1973. The plan outlines the steps needed for recovery and maintenance of bald eagle populations in Idaho, Nevada, California, Oregon, Washington, Montana, and Nevada.
<b>Parcel</b>	All or a portion of a section considered for exchange.
<b>Patent</b>	The instrument by which the government grants public lands, public domain, or interests to an individual.
<b>Patented Mining Claim</b>	A patent is a document which conveys title to land. When patented, a mining claim becomes private property and land over which the United States has no property rights, except as may be reserved in the patent. After a mining claim is patented, the owner does not have to comply with requirements of the General Mining Law or implementing regulations.
<b>Payment in Lieu of Taxes</b>	Payments to local or State governments based on ownership of Federal land and not directly dependent on production of outputs or receipt sharing. Specifically, they include payments made under the Payments in Lieu Act of 1976 by U.S. Department of the Interior.
<b>Perennial Stream</b>	A stream that flows continuously throughout most of the year.

<b>Permittee</b>	One who holds a permit to graze livestock on State, Federal or certain privately owned lands.
<b>Permitted Grazing</b>	Use of a National Forest range allotment under the terms of a grazing permit.
<b>Preferred Alternative</b>	The alternative identified in a draft environmental impact statement which has been initially selected by the agency as the most acceptable resolution to the problems identified in the purpose and need.
<b>Prescribed Fire</b>	A fire burning under specified conditions which will accomplish planned objectives in strict compliance with an approved plan and the conditions under which the burning takes place, and the expected results are specific, predictable, and measurable.
<b>Prescriptive Right-of-Way</b>	A right-of-way based upon its adverse use extending to the limits of tradition and memory. In contrast, a right-of-way by dedication exists by the consent, either expressed or implied, of the owner of the land crossed. If a claim to a right-of-way is based upon the fact that the owners of a certain ranch have “always” driven across a portion of another ranch, that situation may be the basis for a “prescriptive” right-of-way.
<b>Prime or Unique Farmland</b>	<i>Prime farmland</i> is land best suited for production of food, feed, forage, fiber, and oilseed crops; its soil properties, growing season, and moisture supply can generally support soils capable of producing sustained high yields economically. <i>Unique farmland</i> is land other than prime farmland that is used for the production of specific high value food and fiber crops, such as tree nuts, fruits, and vegetables. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality and/or high yields of a specific crop when treated and managed according to acceptable farming methods.
<b>Property Corner</b>	A geographic point on the surface of the earth that is on, is part of, and controls a property line.
<b>Proposed Action</b>	In terms of National Environmental Policy Act, the project, activity, or action that a Federal agency intends to undertake or implement and which is the subject of an environmental analysis.
<b>Public Domain Lands</b>	The term applies to any and all areas of land ceded to the Federal government by the colonial states, and to lands acquired by the Federal government later by purchase from or treaty with the native Indians, or with the foreign powers that have previously exercised their sovereignty. These areas are subject to administration, survey, and transfer of title under the Public Land Survey System laws of the United States. The Public Land Survey System laws are not applicable within the colonial states or any of the Atlantic Coast states except Florida, nor within the states of West Virginia, Kentucky, Tennessee, and Texas.

<b>Public Involvement</b>	A Forest Service process designed to broaden the information base upon which agency decisions are made by (1) informing the public about Forest Service activities, plans, and decisions, and (2) encouraging public understanding about and participation in the planning processes which lead to final decision making.
<b>Range Allotment</b>	A designated area of land available for livestock grazing upon which a specified number and kind of livestock may be grazed under a range AMP. It is the basic land unit used to facilitate management of the range resource on National Forest System and associated lands administered by the Forest Service.
<b>Range Condition</b>	The current productivity of a range relative to what that range is naturally capable of producing. Condition is expressed in terms of satisfactory and unsatisfactory.
<b>Range Improvements, Structure Ranger District</b>	Any structure or excavation to facilitate management of range or livestock.  An administrative subdivision of the Forest supervised by a District Ranger.
<b>Real Property</b>	Land and generally whatever is erected, growing or affixed to the land.
<b>Record of Decision (ROD)</b>	A document, based on information disclosed in a final environmental impact statement, that identifies the alternative chosen, mitigation and monitoring measures to be implemented, and other information relative to the decision (40 CFR) 1505.2).
<b>Recreation Opportunities</b>	The combination of recreation settings, activities, and experiences provided by the Forest.
<b>Recreation Visitor Day (RVD)</b>	One visitor day equals 12 hours (one person for 12 hours, or 12 people for 1 hour, or any combination thereof).
<b>Regional Forester</b>	The official responsible for administering a single Region of the Forest Service.
<b>Regulations</b>	Refers to the CFR for implementing the National Forest Management Act, 36 CFR, Part 219.
<b>Replacement Old growth Stands</b>	Stands which will replace old growth stands when old growth stands no longer meet old growth requirements.
<b>Reserved Land</b>	Lands reserved from the public domain for National Forest purposes.
<b>Research Natural Area</b>	An area which is as near a natural condition as possible, which exemplifies typical or unique vegetation and associated biotic, soil, geologic, and aquatic features. The area is set aside to preserve a representative sample of an ecological community primarily for scientific and educational purposes.
<b>Reservation</b>	A clause in a deed or other instrument of conveyance that reserves some right, interest, or profit in the transferred estate.

<b>Resident Fish</b>	Species of fish which spend their entire life cycle within a lake or river system. These may be native, or introduced species (compare anadromous fish).
<b>Responsible Officials</b>	The Forest Service employee who has the authority to select and/or carry out a specific planning action.
<b>Right-of-Way</b>	A permit or easement that authorizes the use of public lands for specified purposes, such as pipelines, roads, telephone lines, electric lines, and reservoirs.
<b>Riparian Area</b>	An area with distinctive soil and vegetation between a stream or other body of water and the adjacent upland; includes wetlands and those portions of floodplains and valley bottoms that support riparian vegetation.
<b>Riparian Habitat Conservation Areas (RHCA's)</b>	Portions of watersheds where riparian dependent resources receive primary emphasis and management activities are subject to specific standards and guidelines. RHCA's include traditional riparian corridors, wetlands, intermittent headwater streams, and other areas where proper ecological functioning is crucial to maintenance of the stream's water, sediment, woody debris and nutrient delivery systems.
<b>Road Density</b>	The measure of the degree to which the length of road miles occupies a given land area, i.e. 1 mile/sq mile is 1 mile of road within a given square mile.
<b>Road Maintenance Levels</b>	Level 1: Basic custodial care as required to protect the road investment and to see that damage to adjacent land and resources is held to a minimum. The road is not open to traffic. Level 2: Same basic maintenance as level 1 plus logging out, brushing out, and restoring the road prism as necessary to provide passage for high clearance vehicles. Route markers and regulation signs are in place and usable. Road is open for limited passage of traffic, which is usually administrative use, permitted use, and/or specialized traffic. Level 3: Road is maintained for safe and moderately convenient travel suitable for passenger cars. Road is open for public travel, but has low traffic volumes except during short periods of time (e.g. hunting season). Level 4: At this level, more consideration is given to the comfort of the user. Road is usually surfaced with aggregate or is paved and is open for public travel. Level 5: Safety and comfort are important considerations for these roads which are open to public traffic and generally received fairly heavy use (100 average Daily Traffic or more). Roads have an aggregate surface or are paved.
<b>Roadless Area</b>	A National Forest area which (1) is larger than 5,000 acres or, if smaller than 5,000 acres, contiguous to a designated wilderness or primitive area; (2) contains no roads; and (3) has been inventoried by the Forest Service for possible inclusion in the Wilderness Preservation System.
<b>Scenic Area</b>	An area which has been designated by the Forest Service as containing outstanding natural beauty that requires special management to preserve this beauty.

<b>Scoping process</b>	The early stages of preparation of an environmental assessment or environmental impact statement use to solicit public opinion, receive comments and suggestions, and determine the issues to be considered in the development and analysis of a range of alternatives. Scoping may involve public meetings, telephone conversations, mailings, letters, and other contacts. Identifying the significant environmental issues deserving of study and de-emphasizing insignificant issues, narrowing the scope of the environmental impact statement accordingly (CEQ regulations, 40 CFR 1501.7).
<b>Sediment</b>	Solid material, both mineral and organic, that is in suspension, being transported, or has been moved from its site of origin by air, water, gravity, or ice.
<b>Seen Area</b>	Total area observed. May be measured in terms of foreground, middle ground, and background.
<b>Sensitive Species</b>	Those species which (1) have appeared in the Federal Register as proposals for classification and are under consideration for official listing as Endangered or Threatened Species: (2) are on an official State list: or (3) are recognized by the Regional Forester to need special management in order to prevent the need for their placement on Federal or State lists.
<b>Seral Stage</b>	A stage in the progression of an ecosystem from initial development to maturity; an age, structure, and development classification for a biological community.
<b>Silviculture</b>	The practice of manipulating the establishment, composition, structure, growth, and rate of succession of forests to accomplish specific objectives.
<b>Site Productivity</b>	Production capability of specific areas of land.
<b>Slash</b>	The residue left on the ground after timber harvest and other silvicultural operations and/or accumulating there as a result of storm, fire, girdling, or poisoning of trees.
<b>Small Game</b>	Birds and small mammals normally hunted or trapped.
<b>Snag</b>	A standing dead tree usually greater than 6 feet in height and 4 inches in diameter at breast height.
<b>Social Analysis</b>	A phase in the planning process which (1) identifies groups (whether formally organized or not) who may be affected by or have an interest in planning decisions, (2) gathers and quantifies (objectively when possible) both the preferences of these groups and possible consequences of proposed alternatives on these groups, (3) evaluates the role of social group preferences and consequences in resource allocations decisions, and (4) determines how a given plan should be formulated (or adjusted) so as to respond to these evaluations and generally define social equity criteria.

<b>Special Status Species</b>	Refers to Federally listed Threatened or Endangered species, Federal candidate species, species recognized as requiring special protection by state agencies and species managed as sensitive species by the Forest Service.
<b>Special Use Permit</b>	A permit issued under established laws and regulations to an individual, organization, or company for occupancy or use of National Forest land for some special purpose.
<b>Species</b>	A population or series of populations of organisms that can interbreed and reproduce freely with each other but not with members of other species.
<b>Stand</b>	A group of trees in a specific area that are sufficiently alike in composition, age, arrangement, and condition to be distinguishable from the forest in adjoining areas.
<b>Standards and Guidelines</b>	An indication or outline of policy or conduct dealing with the basic management of the forest. Forest wide management standards and guidelines apply to all areas of the forest regardless of the other management prescriptions applied.
<b>Stream Categories</b>	A classification system which groups streams or water bodies into four types: Category 1: Fish-bearing streams; Category 2: Permanently flowing non-fish bearing streams; Category 3: Ponds, lakes, reservoirs, and wetlands greater than 1 acre and; Category 4: Seasonally flowing or intermittent streams, wetlands less than 1 acre, landslides, and landslide-prone areas.
<b>Stream Reach</b>	A stream segment of varying length with similar characteristics.
<b>Subwatershed</b>	An area mostly bounded by ridges or other similar topographic features contributing water, organic matter, dissolved nutrients, and sediments to a lake or stream.
<b>Succession</b>	A series of dynamic changes by which one group of organisms succeeds another through stages leading to potential natural community or climax. An example is the development of series of plant communities (called seral stages) following a major disturbance.
<b>Summer Range</b>	Land used by wildlife species (specifically big game) during the summer months.
<b>Suppression (Fire Suppression)</b>	Any act taken to slow, stop, or extinguish a fire. Examples of suppression activities include fireline construction, backfiring, and application of water or chemical fire retardants.
<b>Surface Rights</b>	The rights of the operator or responsible agency to use or manage renewable surface resources. On National Forest System lands the Forest Service manages surface resources without having jurisdiction over subsurface development.
<b>Term License or Permit</b>	A document which authorizes grazing on public lands for a stated number of years as contrasted with an annual or temporary license or permit.
<b>Thermal Cover</b>	Cover used by animals to protect them against the weather.

<b>Threatened and Endangered Species (T&amp;E)</b>	A species or subspecies of animal or plant whose prospects of survival and reproduction are in immediate jeopardy or likely to become so within the foreseeable future. Threatened species are identified by the Secretary of Interior in accordance with the 1973 Endangered Species Act.
<b>Threatened Species</b>	Species listed under the Endangered Species Act that are likely to become Endangered within the foreseeable future throughout all or a significant portion of their range.
<b>Tiering</b>	Refers to the elimination of repetitive discussions of the same issue by incorporating by reference the general discussion in an environmental impact statement of broader scope. For example, a project environmental assessment could be tiered to the Forest Plan EIS.
<b>Title</b>	The right of ownership of property.
<b>Total Resource Information System</b>	Integrated resource data base management system used in the Pacific Northwest.
<b>Trailhead</b>	The parking, signing, and other facilities available at the terminus of a trail.
<b>Tribe</b>	Term used to designate a Federally recognized group of American Indians and their governing body. Tribes may be comprised of more than one band.
<b>Understory</b>	The trees and other woody species which grow under a more or less continuous cover of branches and foliage formed collectively by the upper portion of adjacent trees and other woody growth.
<b>Ungulate</b>	Hoofed, herbivorous mammals.
<b>Unpatented Mining Claim</b>	A claim made by a qualified person for possession of locatable minerals on public domain land (e.g. National Forests); a properly recorded claim allows an exclusive right to extract and sell valuable minerals from the claim. Unpatented mining claims may be occupied and used solely for mining and related activity.
<b>Viable Population</b>	A viable population is one which has such numbers and distribution of reproductive individuals as to provide a high likelihood that species will continue to exist and be well distributed throughout its range.
<b>Visual Quality Objective (VQO)</b>	A desired level of scenic quality and diversity of natural features based on physical and sociological characteristics of an area. Refers to the degree of acceptable alterations of the characteristic landscape.
<b>Visual Resource</b>	The composite of terrain, geologic features, water features, vegetative patterns, and land use effects that typify a land unit and influence the visual appeal the unit may have for visitors.
<b>Water Rights</b>	A legal right to use the water of a natural stream or water furnished through a ditch or canal for general or specific purposes.
<b>Water Yield</b>	A term loosely used to identify the increase in runoff of stream flow that results from management activities.

<b>Watershed</b>	The drainage basin contributing water, organic matter, dissolved nutrients, and sediments to a stream or lake.
<b>Watershed Analysis</b>	A systematic procedure for characterizing watershed and ecological processes to meet specific management and social objectives.
<b>Weeks Act Status Lands</b>	Lands acquired under the Act of March 1, 1911 (Weeks Act) as well as lands that have been granted Weeks Act status by virtue of the Act of September 2 1958; such lands are not subject to the U.S. Mining Laws Act of 1872.
<b>Wetlands</b>	Those areas that are inundated by surface or ground water with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds (Executive Order 11990).
<b>Wildfire</b>	Any wildland fire not designated and managed as a prescribed fire within an approved prescription.
<b>Wild and Scenic River</b>	Rivers or sections of rivers designated by congressional action under the 1968 Wild and Scenic Rivers Act or by act of Legislature of the state or states through which they flow.
<b>Wilderness</b>	Areas designated by congressional action under the 1964 Wilderness Act; undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation.
<b>Winter Range</b>	The area, usually at lower elevations, occupied by migratory deer and elk during the winter months.
<b>Woodland Forests (Upland Woodland)</b>	In central Oregon, these forests generally occur below the ponderosa pine zone, at elevations ranging from 3,000 to 5,800 feet. These sites are found on shallow soils adjacent to sagebrush zones, and generally occur on ridgetops and south facing mountain slopes. The most common plant associations are western juniper/mountain big sagebrush and western juniper/Idaho fescue-bluebunch wheatgrass. Active fire suppression and reduction of understory fuels by domestic livestock grazing have contributed to reduced occurrence of wildfires. As a result of fewer periodic fires maintaining herbaceous dominance, understory coverage of perennial grasses and shrubs have decreased, and western juniper density has increased.
<b>Year around Closure</b>	Gate, earthen barrier or sign closing a road or area all year long. These areas are sometimes open to the public during harvest or other land management activities.



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# Appendix A

## Legal Descriptions

### Parcels Descriptions for Alternatives 1, 3, 4, and for Most Parcels for Alternative 5

#### Private and State of Oregon Lands To Be Acquired

Acres

Baker County			
<b>T. 7 S., R. 44 E., WM</b>			
PW38	Sec. 7	E½NW¼, N½SE¼, SW¼NE¼, SE¼SE¼	240.00
	Sec. 8	SW¼SW¼	40.00
	Sec. 17	NW¼NW¼	40.00
<b>Baker County Total</b>			<b>320.00</b>
Grant County			
<b>T. 7 S., R. 26 E., WM</b>			
PU22A	Sec. 3	lots 1, 2, 3 & 4, S½NE¼, S½NW¼, S½	642.32
	Sec. 4	lots 1 & 2, S½NE¼, S½	481.07
PU22B	Sec. 5	lots 3 & 4, S½NW¼, S½	481.10
	Sec. 8	N½N½	160.00
PU22C	Sec. 9	N½N½	160.00
PU23	Sec. 36	E½, E½W½	480.00
<b>2404.49</b>			
<b>T. 8 S., R. 26 E., WM</b>			
PU24	Sec. 25	SW¼NW¼, S½NW¼NW¼, N½SW¼SW¼, NW¼SW¼, SE¼SW¼SW¼	130.00
	Sec. 26	SE¼SE¼NE¼, E½NE¼SE¼	30.00
PU26A	Sec. 25	NE¼SE¼	40.00
<b>200.00</b>			
<b>T. 8 S., R. 27 E., WM</b>			
PU26B	Sec. 30	lots 3 & 4	81.25
	Sec. 31	lot 1	40.60
<b>121.85</b>			
<b>T. 14 S., R. 27 E., WM</b>			
PM28	Sec. 1	W½SW¼	80.00
	Sec. 2	SE¼SE¼	40.00
	Sec. 11	NE¼NE¼	40.00
PM29	Sec. 2	lot 2	43.23
<b>203.23</b>			
<b>T. 15 S., R. 27 E., WM</b>			
PM30	Sec. 36	All	640.00
<b>T. 16 S., R. 27 E., WM</b>			
PM31	Sec. 1	S½SW¼	80.00
	Sec. 12	N½NW¼	80.00
<b>160.00</b>			
<b>T. 10S., R. 28 E., WM</b>			
PM23	Sec. 23	E½SE¼	80.00
	Sec. 24	SW¼	160.00
PM24	Sec. 25	NW¼NE¼, N½NW¼	120.00
	Sec. 26	NE¼NE¼	40.00
<b>400.00</b>			
<b>T. 15 S., R. 28 E., WM</b>			
PM25	Sec. 21	N½NE¼	80.00
	Sec. 22	N½NW¼	80.00
PM26	Sec. 26	SE¼NW¼, NE¼SW¼, W½SE¼	160.00
PM27	Sec. 36	W½SW¼, NE¼SW¼, NW¼SE¼	160.00
<b>480.00</b>			
<b>T. 12S., R. 29 E., WM</b>			
PM20	Sec. 23	S½N½, S½	480.00
<b>T. 15 S., R. 29 E., WM</b>			
PM21	Sec. 18	lots 2 & 3, E½SW¼	146.85

## Private and State of Oregon Lands To Be Acquired

Acres

<b>T. 17 S., R. 29 E., WM</b>			
PM22	Sec. 8	SW $\frac{1}{4}$ SE $\frac{1}{4}$	<b>40.00</b>
<b>T. 12S., R. 30 E., WM</b>			
PM11	Sec. 3	S $\frac{1}{2}$ S $\frac{1}{2}$	160.00
	Sec. 10	N $\frac{1}{2}$ N $\frac{1}{2}$	160.00
PM12	Sec. 15	NW $\frac{1}{4}$	160.00
PM13	Sec. 21	NE $\frac{1}{4}$	160.00
PM14	Sec. 19	lots 3 & 4, E $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$	321.51
PM15	Sec. 21	S $\frac{1}{2}$ SW $\frac{1}{4}$	80.00
PM16	Sec. 26	E $\frac{1}{2}$ NE $\frac{1}{4}$ , NE $\frac{1}{4}$ SE $\frac{1}{4}$	120.00
PM17	Sec. 26	SW $\frac{1}{4}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$	160.00
PM18	Sec. 27	S $\frac{1}{2}$ , S $\frac{1}{2}$ N $\frac{1}{2}$	480.00
PM19	Sec. 29	All	640.00
			<b>2441.51</b>
<b>T. 11S., R. 31 E., WM</b>			
PM7	Sec. 21	S $\frac{1}{2}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$	160.00
PM8A	Sec. 32	SW $\frac{1}{4}$ SE $\frac{1}{4}$	40.00
			<b>200.00</b>
<b>T. 12S., R. 31 E., WM</b>			
PM8B	Sec. 4	lot 4	37.33
	Sec. 5	lots 1 & 2	74.17
PM9	Sec. 5	N $\frac{1}{2}$ SW $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$	160.00
			<b>271.50</b>
<b>T. 8 S., R. 32 E., WM</b>			
PU20	Sec. 19	lots 3 & 4, E $\frac{1}{2}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SE $\frac{1}{4}$	202.19
	Sec. 30	lot 1, E $\frac{1}{2}$ W $\frac{1}{2}$	201.02
			<b>403.21</b>
<b>T. 12S., R. 32 E., WM</b>			
PM6	Sec. 11	N $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NE $\frac{1}{4}$	<b>120.00</b>
<b>T. 7 S., R. 33 E., WM</b>			
PU16C	Sec. 6	lots 1, 2, 3 & 4, SE $\frac{1}{4}$ NW $\frac{1}{4}$ , S $\frac{1}{2}$ NE $\frac{1}{4}$	<b>273.21</b>
<b>T. 9 S., R. 33 E., WM</b>			
PM5	Sec. 31	N $\frac{1}{2}$ lot 4, N $\frac{1}{2}$ N $\frac{1}{2}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ , N $\frac{1}{2}$ N $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ , E $\frac{1}{2}$ E $\frac{1}{2}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$	<b>50.32</b>
<b>T. 12 S., R. 34 E., WM</b>			
PM4	Sec. 2	NW $\frac{1}{4}$ SE $\frac{1}{4}$	<b>40.00</b>
<b>T. 7 S., R. 35 E., WM</b>			
PU13	Sec. 24	lots 1 & 2, SW $\frac{1}{4}$ NE $\frac{1}{4}$	<b>112.59</b>
<b>T. 11S., R. 35 E., WM</b>			
PM2	Sec. 25	S $\frac{1}{2}$ N $\frac{1}{2}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$ , N $\frac{1}{2}$ SE $\frac{1}{4}$	<b>278.74</b>
<b>T. 12 S., R. 35 E., WM</b>			
PM3	Sec. 16	SW $\frac{1}{4}$ NE $\frac{1}{4}$ , S $\frac{1}{2}$ NW $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$	<b>160.00</b>
<b>T. 7 S., R. 35<math>\frac{1}{2}</math> E, WM</b>			
PW45	Sec. 21	lot 1	<b>47.88</b>
<b>T. 11 S., R. 36 E., WM</b>			
PM1	Sec. 30	lot 3	<b>33.24</b>
			<b>Grant County Total</b>
			<b>9708.62</b>
<b>Morrow County</b>			
<b>T. 6 S., R. 29 E., WM</b>			
PU21	Sec. 13	SE $\frac{1}{4}$	<b>160.00</b>
			<b>Morrow County Total</b>
			<b>160.00</b>
<b>Umatilla County</b>			
<b>T. 1 N., R. 36 E., WM</b>			

Private and State of Oregon Lands To Be Acquired			Acres
PU5	Sec. 18	Those portions of lots 3 & 4 lying NW of Forest Road #3030 and those portions of E $\frac{1}{4}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SE $\frac{1}{4}$ lying north of Forest Road #330	
	Sec. 19	That portion of lot 1 lying north of Forest Road #3030	
		Sec. 18 & 19	161.00 <sup>1</sup>
PU6	Sec. 32	Those portions of NW $\frac{1}{4}$ NW $\frac{1}{4}$ lying east of Meacham Creek	14.00 <sup>1</sup>
			<b>216.00<sup>1</sup></b>
<b>T. 4 S., R. 32 E., WM</b>			
PU19	Sec. 14	S $\frac{1}{2}$ S $\frac{1}{2}$	<b>160.00</b>
<b>T. 6 S., R. 32 E., WM</b>			
PU16D	Sec. 25	All	640.00
PU16E	Sec. 26	E $\frac{1}{2}$ NE $\frac{1}{4}$ , NW $\frac{1}{4}$ NE $\frac{1}{4}$ , N $\frac{1}{2}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$	480.00
PU16F	Sec. 27	S $\frac{1}{2}$ NE $\frac{1}{4}$ , NW $\frac{1}{4}$ NW $\frac{1}{4}$ , S $\frac{1}{2}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ SE $\frac{1}{4}$ , those portions of the SE $\frac{1}{4}$ SW $\frac{1}{4}$ and the S $\frac{1}{2}$ SE $\frac{1}{4}$ lying north & east of NFJD River excepting Umatilla County Tax Lot 2602	*344.00
PU16G	Sec. 34	That portion of the N $\frac{1}{2}$ NE $\frac{1}{4}$ lying north of NFJD River	30.00 <sup>1</sup>
PU16H	Sec. 35	N $\frac{1}{2}$ NE $\frac{1}{4}$	80.00
	Sec. 36	N $\frac{1}{2}$	320.00
			<b>1894.00<sup>1</sup></b>
<b>T. 4 S., R. 33 E., WM</b>			
PU15	Sec. 16	S $\frac{1}{2}$	<b>320.00</b>
<b>T. 6 S., R. 33 E., WM</b>			
PU16A	Sec. 29	S $\frac{1}{2}$	320.00
	Sec. 30	lots 3 & 4, E $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$	306.61
PU16B	Sec. 31	lots 1 - 4, E $\frac{1}{2}$ W $\frac{1}{2}$ , E $\frac{1}{2}$ (All)	611.37
	Sec. 32	All	640.00
			<b>1877.98</b>
<b>T. 4 S., R. 33<math>\frac{1}{2}</math> E., WM</b>			
PU14	Sec. 36	All	<b>617.97</b>
<b>T. 1 S., R. 36 E., WM</b>			
PU10A	Sec. 9	N $\frac{1}{2}$ NE $\frac{1}{4}$ , SW $\frac{1}{4}$ NE $\frac{1}{4}$ , N $\frac{1}{2}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$	240.00
PU10B	Sec. 10	SW $\frac{1}{4}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SE $\frac{1}{4}$	240.00
PU11	Sec. 16	NE $\frac{1}{4}$ , NE $\frac{1}{4}$ NW $\frac{1}{4}$ , that portion of the NW $\frac{1}{4}$ NW $\frac{1}{4}$ lying NW of Butcher Cr. and SW of Meacham Cr., S $\frac{1}{2}$ NW $\frac{1}{4}$ , S $\frac{1}{2}$	
	Sec. 17	That portion of the S $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ lying east of Butcher Cr	
		Sec. 16 & 17	745.00 <sup>1</sup>
PU11A	Sec. 20	SE $\frac{1}{4}$ NE $\frac{1}{4}$ , N $\frac{1}{2}$ SE $\frac{1}{4}$	
	Sec. 20	Those portions of the W $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$ lying east of Butcher Cr.	192.00
PU11B	Sec. 29	NE $\frac{1}{4}$ , S $\frac{1}{2}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$	400.00
PU12	Sec. 20	SW $\frac{1}{4}$ SW $\frac{1}{4}$	40.00
	Sec. 29	NW $\frac{1}{4}$ NW $\frac{1}{4}$	40.00
PU7A	Sec. 3	lots 2,3 & 4	89.34
PU7B	Sec. 4	lots 1, 2, 3 & 4, S $\frac{1}{2}$ NW $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$	361.92
PU7C	Sec. 5	SE $\frac{1}{4}$ NE $\frac{1}{4}$	40.00
PU8A	Sec. 5	SE $\frac{1}{4}$ SE $\frac{1}{4}$	40.00
PU8B	Sec. 8	NE $\frac{1}{4}$ NE $\frac{1}{4}$	40.00
PU8C	Sec. 9	W $\frac{1}{2}$ NW $\frac{1}{4}$	80.00
PU9A	Sec. 8	That part of the SE $\frac{1}{4}$ lying NE of Meacham Cr.	63.00 <sup>1</sup>
PU9B	Sec. 9	That part of the SW $\frac{1}{4}$ SW $\frac{1}{4}$ lying E of Meacham Cr.	32.00 <sup>1</sup>
			<b>2643.46<sup>1</sup></b>
		<b>Umatilla County Total</b>	<b>7729.21</b>

**Union County**  
**T. 3 S., R. 34 E., WM**

Private and State of Oregon Lands To Be Acquired				Acres
	PW46	Sec. 12	NE $\frac{1}{4}$ NE $\frac{1}{4}$ , S $\frac{1}{2}$ NE $\frac{1}{4}$ , NE $\frac{1}{4}$ SE $\frac{1}{4}$	<b>160.00</b>
<b>T. 4 S., R. 35 E., WM</b>				
	PW44A	Sec. 5	SW $\frac{1}{4}$ SW $\frac{1}{4}$	40.00
		Sec. 8	NW $\frac{1}{4}$ NW $\frac{1}{4}$	40.00
	PW44B	Sec. 18	That part of the SE $\frac{1}{4}$ NW $\frac{1}{4}$ lying SE of Hwy 244	12.00 <sup>1</sup>
				<b>92.00<sup>1</sup></b>
<b>T. 2 S., R. 36 E., WM</b>				
	PW42	Sec. 15	S $\frac{1}{2}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$	<b>20.00</b>
<b>T. 5 S., R. 44 E., WM</b>				
	PW47B	Sec. 12	MS 783	<b>46.11</b>
<b>Union County Total</b>				<b>318.11</b>
<b>Wallowa County</b>				
<b>T. 5 N., R. 42 E., WM</b>				
	PU2	Sec. 8	S $\frac{1}{2}$ NE $\frac{1}{4}$	80.00
	PU3	Sec. 9	S $\frac{1}{2}$ N $\frac{1}{2}$ NE $\frac{1}{4}$ , S $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$	240.00
	PU4	Sec. 10	S $\frac{1}{2}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ , SW $\frac{1}{4}$ SE $\frac{1}{4}$	60.00
				<b>380.00</b>
<b>T. 6 N., R. 42 E., WM</b>				
	PU1A	Sec. 25	W $\frac{1}{2}$ SW $\frac{1}{4}$	80.00
		Sec. 27	E $\frac{1}{2}$ SE $\frac{1}{4}$ , SW $\frac{1}{4}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$	160.00
	PU1B	Sec. 34	E $\frac{1}{2}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NE $\frac{1}{4}$	200.00
		Sec. 35	NW $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$ ; lots 1 & 2	319.21
				<b>759.21</b>
<b>T. 4 N., R. 43 E., WM</b>				
	PW39A	Sec. 14	SW $\frac{1}{4}$ SW $\frac{1}{4}$	40.00
		Sec. 15	SE $\frac{1}{4}$ SE $\frac{1}{4}$	40.00
	PW39B	Sec. 22	E $\frac{1}{2}$ E $\frac{1}{2}$	160.00
		Sec. 23	SW $\frac{1}{4}$ NE $\frac{1}{4}$ , NW $\frac{1}{4}$ NW $\frac{1}{4}$ , S $\frac{1}{2}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$	400.00
	PW39C	Sec. 24	E $\frac{1}{2}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$	60.00
		Sec. 25	W $\frac{1}{2}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ , NE $\frac{1}{4}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$	80.00
	PW39D	Sec. 26	N $\frac{1}{2}$ NE $\frac{1}{4}$	80.00
	PW40	Sec. 36	SW $\frac{1}{4}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$	160.00
				<b>1020.00</b>
<b>T. 3 N., R. 45 E., WM</b>				
	PW34A	Sec. 10	E $\frac{1}{2}$ E $\frac{1}{2}$	160.00
		Sec. 11	SW $\frac{1}{4}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ W $\frac{1}{2}$ SW $\frac{1}{4}$	80.00
	PW34B	Sec. 14	W $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$	150.00
		Sec. 15	E $\frac{1}{2}$ NE $\frac{1}{4}$ , N $\frac{1}{2}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ , E $\frac{1}{2}$ SE $\frac{1}{2}$ SE $\frac{1}{4}$	130.00
	PW34C	Sec. 22	E $\frac{1}{2}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$	20.00
		Sec. 23	W $\frac{1}{2}$ NW $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ less Tax lot 301	119.00
				<b>659.00</b>
<b>T. 3 N., R. 46 E., WM</b>				
	PW33	Sec. 2	lots 3 & 4, S $\frac{1}{2}$ NW $\frac{1}{4}$	<b>161.92</b>
<b>T. 3 N., R. 47 E., WM</b>				
	PW30	Sec. 15	S $\frac{1}{2}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$	160.00
	PW50	Sec. 36	W $\frac{1}{2}$ , SE $\frac{1}{4}$	480.00
	PW51A	Sec. 28	SW $\frac{1}{4}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$	240.00
	PW51C	Sec. 27	S $\frac{1}{2}$ SW $\frac{1}{4}$	80.00
	PW51D	Sec. 34	N $\frac{1}{2}$ NW $\frac{1}{4}$	80.00
	PW52	Sec. 32	NE $\frac{1}{4}$	160.00
		Sec. 33	SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ SW $\frac{1}{4}$	90.00
				<b>1290.00</b>
<b>T. 1 N., R. 48 E., WM</b>				
	PW24A	Sec. 20	SW $\frac{1}{4}$ SE $\frac{1}{4}$ , excepting those portions lying southwest of Co. Rd. 676 and also those portions lying northwest of St. Hwy. 350	

Private and State of Oregon Lands To Be Acquired			Acres
PW24B	Sec. 29	That part of the W½NW¼ lying east of State Hwy 350	
PW24C	Sec. 30	Those parts of the SE¼NE¼, & E½SE¼ lying east of State Hwy 350	
PW24D	Sec. 31	That part of the E½NE¼ lying east of State Hwy 350	
PW24E	Sec. 31	That part of the E½NE¼ lying west of State Hwy 350	
PW24F	Sec. 30	Those parts of the SE¼NE¼ & E½SE¼ lying west of State Hwy 350	
PW24G	Sec. 29	That part of the W½NW¼ lying west of State Hwy 350	
PW24H	Sec. 20	That part of the N½SW¼ lying south of Co. Rd. 676, and that part of the S½SW¼ lying SW of Co. Rd. 676 & NE of State Hwy 350	
		PW24A-H	399.65
PW25A	Sec. 33	E½SE¼, NW¼NE¼, that part of the E½NE¼ lying west of Co. Rd. 727	
PW25B	Sec. 34	That part of the SW¼NW¼ lying west of Co. Rd. 727, excepting Wallowa County Tax lot 2902, and that part of the SW¼ lying west of Co. Rd. 727	
PW25C	Sec. 28	NE¼SW¼, that part of the NW¼NE¼ lying west of Co. Rd. 727, that part of the S½NE¼ lying west of Co. Rd. 727, that part of the SE¼ lying west of Co. Rd. 727	
PW25D	Sec. 21	That part of the W½NW¼ lying west of the Imnaha River, that part of the SW¼ lying west of Co. Rd. 727	
	Sec. 28	NW¼NW¼, that part of the NE¼NW¼ lying west of Co. Rd. 727	
PW25E	Sec. 34	That part of the W½ lying south of described line and east of Co. Rd. 727	
		PW25A-E	665.18
PW26A	Sec. 36	N½	320.00
PW26B	Sec. 36	SW¼	160.00
PW26C	Sec. 36	SE¼	160.00
			<b>1704.83</b>
<b>T. 2 N., R. 48 E., WM</b>			
PW19A	Sec. 1	E½SW¼SE¼	20.00
PW19B	Sec. 12	W½NE¼, SE¼NE¼, E½SE¼	200.00
PW19C	Sec. 13	E½E½	160.00
PW20A	Sec. 3	NE¼SW¼, N½SE¼, SE¼SE¼	160.00
PW20B	Sec. 3	lots 5, 6 & 7	108.12
	Sec. 4	SE¼NE¼, E½SE¼	120.00
PW20C	Sec. 9	E½NE¼	80.00
	Sec.10	Those portions of lots 1 & 2, that part of the NE¼NW¼ lying west of Imnaha River	76.55
PW21A	Sec. 5	E½SE¼	80.00
PW21B	Sec. 8	E½NE¼	80.00
PW21C	Sec. 9	W½SW¼	80.00
PW21D	Sec. 6	lots 1, 2, 3 & 4	148.58
PW22	Sec. 12	NW¼NW¼	40.00
PW23A	Sec. 17	NW¼NW¼	40.00
PW23B	Sec. 17	E½NE¼	80.00
			<b>1473.25</b>
<b>T. 3 N., R. 48 E., WM</b>			
PW10A	Sec. 13	That part of the N½NE¼ lying east of Imnaha River and that part of the E½NW¼ lying east of Imnaha River	90.00
PW10B	Sec. 13	That part of the N½NE¼ lying west of Imnaha River and that part of the E½NW¼ lying west of Imnaha River	70.00
PW11	Sec. 13	SW¼SE¼	40.00
PW12	Sec. 14	NW¼NE¼, NW¼, NE¼SW¼	240.00
PW13A	Sec. 13	SW¼SW¼ That part lying N & W of the Imnaha R.	
	Sec. 14	SE¼SE¼ That part lying N & W of the Imnaha R.	
PW13B	Sec. 13	S½SW¼ That part lying E of the Imnaha River	
	Sec. 14	SE¼SE¼ That part lying E of the Imnaha River	

Private and State of Oregon Lands To Be Acquired			Acres
		PW13 A & B	120.00
PW13C	Sec. 23	That part of the NE $\frac{1}{4}$ NE $\frac{1}{4}$ lying east of Imnaha River	
	Sec. 24	NW $\frac{1}{4}$ NW $\frac{1}{4}$	
PW13D	Sec. 23	That part of the NE $\frac{1}{4}$ NE $\frac{1}{4}$ lying west of Imnaha River	
		PW13C & D	80.00
PW14	Sec. 16	All	640.00
PW15A	Sec. 22	NE $\frac{1}{4}$ SW $\frac{1}{4}$ , that part of the SE $\frac{1}{4}$ lying north of Corral Creek	
	Sec. 23	That part of the SW $\frac{1}{4}$ SW $\frac{1}{4}$ lying north of Corral Creek	
PW15B	Sec. 27	NW $\frac{1}{4}$ NE $\frac{1}{4}$	
	Sec. 22	That part of the S $\frac{1}{2}$ SE $\frac{1}{4}$ lying south of Corral Creek	
	Sec. 23	That part of the SW $\frac{1}{4}$ SW $\frac{1}{4}$ lying south of Corral Creek	
		PW15A & B	280.00
PW16A	Sec. 23	SE $\frac{1}{4}$ SE $\frac{1}{4}$	40.00
PW16B	Sec. 24	W $\frac{1}{2}$ SW $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$	120.00
PW16C	Sec. 26	N $\frac{1}{2}$ NE $\frac{1}{4}$ , SW $\frac{1}{4}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$	280.00
PW16D	Sec. 35	N $\frac{1}{2}$ NW $\frac{1}{4}$	80.00
PW16E	Sec. 26	SE $\frac{1}{4}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ SE $\frac{1}{4}$	120.00
	Sec. 35	NE $\frac{1}{4}$ NE $\frac{1}{4}$	40.00
PW17A	Sec. 25	NE $\frac{1}{4}$ SE $\frac{1}{4}$ , S $\frac{1}{2}$ SE $\frac{1}{4}$	120.00
PW17B	Sec. 36	NW $\frac{1}{4}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ W $\frac{1}{2}$ , NW $\frac{1}{4}$ NW $\frac{1}{4}$ , SE $\frac{1}{4}$	400.00
PW18	Sec. 32	SE $\frac{1}{4}$ NW $\frac{1}{4}$	40.00
PW2C	Sec. 1	MS 750 (Acreage shown with PW2B & A in T. 4N., R. 49 E.)	
PW7B	Sec.2	lots 3 & 4, SW $\frac{1}{4}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$	240.96
PW7C	Sec.11	NW $\frac{1}{4}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ NW $\frac{1}{4}$ ,	120.00
PW8B	Sec.1	lots 2 & 3, SW $\frac{1}{4}$ NE $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$ , S $\frac{1}{2}$ SW $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$	280.61
PW8C	Sec.12	NW $\frac{1}{4}$ NW $\frac{1}{4}$	40.00
			<b>3481.57</b>
<b>T. 4 N., R. 48 E., WM</b>			
PW6	Sec. 25	MS 806	6.47
PW7A	Sec. 35	W $\frac{1}{2}$ SW $\frac{1}{4}$	80.00
PW8A	Sec. 36	E $\frac{1}{2}$ , N $\frac{1}{2}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ NW $\frac{1}{4}$	440.00
			<b>526.47</b>
<b>T. 3 N., R. 49 E., WM</b>			
PW2B	Sec. 6	MS 750 (Acreage shown with PW2A in T.4N., R. 49 E.)	
PW3	Sec. 16	SW $\frac{1}{4}$ NE $\frac{1}{4}$ , S $\frac{1}{2}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$	360.00
	Sec. 21	SW $\frac{1}{4}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ NW $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$	200.00
PW4	Sec. 21	SE $\frac{1}{4}$ SE $\frac{1}{4}$	40.00
PW48	Sec. 28	E $\frac{1}{2}$ NE $\frac{1}{4}$	80.00
	Sec. 27	SW $\frac{1}{4}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$	160.00
PW5	Sec. 34	NE $\frac{1}{4}$ NW $\frac{1}{4}$	40.00
			<b>880.00</b>
<b>T. 4 N., R. 49 E., WM</b>			
PW1	Sec. 30	MS 807	11.76
PW2A	Sec. 31	MS 750 (including PW2B & C)	61.98
			<b>73.74</b>
<b>T. 3 S., R. 43 E., WM</b>			
PW37	Sec. 23	That portion of MS 774 lying west of Lostine River	
	Sec. 24	That portion of MS 774 lying west of Lostine River	
	Sec. 25	That portion of MS 774 lying west of Lostine River	
		Sec. 23-25	<b>4.00<sup>1</sup></b>
<b>T. 3 S., R. 44 E., WM</b>			
PW35A	Sec. 3	lots 7, 10, 11 & 12, NW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ , W $\frac{1}{2}$ SW $\frac{1}{4}$	230.80
PW35B	Sec. 9	E $\frac{1}{2}$ E $\frac{1}{2}$ SE $\frac{1}{4}$ , E $\frac{1}{2}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$	60.00
	Sec. 10	W $\frac{1}{2}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ , lot 5, NW $\frac{1}{4}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$	99.99
PW35C	Sec. 15	W $\frac{1}{2}$ W $\frac{1}{2}$ NW $\frac{1}{4}$	40.00
	Sec. 16	E $\frac{1}{2}$ E $\frac{1}{2}$ NE $\frac{1}{4}$	40.00
			<b>470.79</b>
<b>T. 5 S., R. 45 E., WM</b>			

<b>Private and State of Oregon Lands To Be Acquired</b>				<b>Acres</b>
PW47A	Sec. 7	MS 783		<b>10.72</b>
<b>T. 2 S., R. 47 E., WM</b>				
PW31	Sec. 23	E $\frac{1}{2}$ NE $\frac{1}{4}$ , SW $\frac{1}{4}$ NE $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$ , E $\frac{1}{2}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$		180.00
PW32	Sec. 26	SW $\frac{1}{4}$ NW $\frac{1}{4}$ , NW $\frac{1}{4}$ SW $\frac{1}{4}$		80.00
				<b>260.00</b>
<b>T. 1 S., R. 48 E., WM</b>				
PW27A	Sec. 3	lots 15 & 16		80.00
PW27C	Sec. 3	lots 2, 3, 6 & 11		123.41
				<b>203.41</b>
<b>T. 3 S., R. 48 E., WM</b>				
PW28	Sec. 1	SW $\frac{1}{4}$ SE $\frac{1}{4}$		40.00
	Sec. 12	NW $\frac{1}{4}$ NE $\frac{1}{4}$ , NE $\frac{1}{4}$ NW $\frac{1}{4}$		80.00
				<b>120.00</b>
<b>T. 5 S., R. 48 E., WM</b>				
PW29	Sec. 13	That part of H.E.S. 222 contained in said section		
	Sec. 24	That part of H.E.S. 222 contained in said section		
			Sec. 13 & 24	<b>137.90</b>
<b>Wallowa County Total</b>				<b>13616.81</b>

<b>Federal Lands To Be Conveyed</b>				<b>Acres</b>
<b>Baker County</b>				
<b>T. 13 S., R. 36 E., WM</b>				
FW19	Sec. 34	SW $\frac{1}{4}$ NW $\frac{1}{4}$		<b>40.00</b>
<b>Baker County Total</b>				<b>40.00</b>
<b>Grant County</b>				
<b>T. 8 S., R. 26 E., WM</b>				
FU28	Sec. 25	SE $\frac{1}{4}$ SE $\frac{1}{4}$		<b>40.00</b>
<b>T. 8 S., R. 27 E., WM</b>				
FU27	Sec. 31	lots 2, 3 & N $\frac{1}{2}$ of 4, NW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$		<b>105.72</b>
<b>T. 10 S., R. 28 E., WM</b>				
FM15	Sec. 12	S $\frac{1}{2}$		320.00
FM16A	Sec. 10	SE $\frac{1}{4}$		160.00
	Sec. 11	W $\frac{1}{2}$ SW $\frac{1}{4}$		80.00
FM16B	Sec. 11	E $\frac{1}{2}$ SE $\frac{1}{4}$		80.00
FM17	Sec. 13	N $\frac{1}{2}$ , NW $\frac{1}{4}$ SW $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$		600.00
FM18	Sec. 14	E $\frac{1}{2}$ NE $\frac{1}{4}$ , NW $\frac{1}{4}$ NE $\frac{1}{4}$ , W $\frac{1}{2}$ , NE $\frac{1}{4}$ SE $\frac{1}{4}$		480.00
FM19	Sec. 15	E $\frac{1}{2}$		320.00
FM20	Sec. 23	SW $\frac{1}{4}$ NE $\frac{1}{4}$		40.00
FM21	Sec. 24	NE $\frac{1}{4}$ , E $\frac{1}{2}$ NW $\frac{1}{4}$		240.00
				<b>2320.00</b>
<b>T. 10 S., R. 29 E., WM</b>				
FM14	Sec. 20	SE $\frac{1}{4}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SE $\frac{1}{4}$		<b>80.00</b>
<b>T. 12 S., R. 30 E., WM</b>				
FM12	Sec. 12	S $\frac{1}{2}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$		240.00
FM13	Sec. 13	N $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$		280.00
	Sec. 14	NE $\frac{1}{4}$ SE $\frac{1}{4}$		40.00
				<b>560.00</b>
<b>T. 7 S., R. 31 E., WM</b>				
FU18	Sec. 35	E $\frac{1}{2}$ E $\frac{1}{2}$		<b>160.00</b>
<b>T. 12 S., R. 31 E., WM</b>				
FM11	Sec. 7	That part of lot 4 lying west of the centerline of State Hwy. 395		
	Sec. 18	Those parts of lots 1 – 4 lying west of the centerline of State Hwy 395		
			Sec 7 & 18	<b>68.00<sup>1</sup></b>
<b>T. 12 S., R. 33 E., WM</b>				
FM10	Sec. 30	lots 1 & 2, NE $\frac{1}{4}$ , E $\frac{1}{2}$ NW $\frac{1}{4}$		320.27



Federal Lands To Be Conveyed				Acres
FM4	Sec. 4	lots 1 – 4, SE¼NW¼, N½SW¼, SW¼SW¼, NW¼SE¼		362.46
FM5	Sec. 8	S½		320.00
FM6	Sec. 9	NW¼NW¼, S½NW¼, SW¼		280.00
FM7	Sec. 17	W½		320.00
FM8	Sec. 18	lots 1 – 4, NE¼, E½NW¼, E½SW¼, N½SE¼, SW¼SE¼		601.40
FM9	Sec. 19	lots 3 & 4, W½NE¼, E½SW¼, SE¼		400.67
				<b>2604.80</b>
<b>T. 12 S., R. 34 E., WM</b>				
FM3	Sec. 16	E½SE¼		80.00
	Sec. 21	NE¼NE¼		40.00
				<b>120.00</b>
<b>T. 14 S., R. 35 E., WM</b>				
FM2	Sec. 6	lot 4		16.31
				<b>16.31</b>
<b>Grant County Total</b>				<b>6074.83</b>
<b>Morrow County</b>				
<b>T. 4 S., R. 28 E., WM</b>				
FU25	Sec. 21	NE¼SE¼		40.00
FU26	Sec. 33	SE¼NW¼, NE¼SW¼, E½NW¼SW¼, S½SW¼		180.00
				<b>220.00</b>
<b>T. 4 S., R. 29 E., WM</b>				
FU24	Sec. 13	SE¼		160.00
				<b>160.00</b>
<b>Morrow County Total</b>				<b>380.00</b>
<b>Umatilla County</b>				
<b>T. 1 N., R. 35 E., WM</b>				
FU2	Sec. 35	S½S½		160.00
<b>T. 1 N., R. 36 E., WM</b>				
FU1	Sec. 5	E½SE¼SE¼SE¼		4.96
FU3A	Sec. 31	lots 2 – 4, S½NE¼, SE¼NW¼, E½SW¼, SE¼		
	Sec. 32	Those portions of the NE¼NW¼, S½NW¼ and SW¼ lying west of Meacham Creek		
				Sec. 32 & 32
				669.68
				<b>674.64</b>
<b>T. 4 S., R. 30 E., WM</b>				
FU19A	Sec. 12	S½SW¼, SW¼SE¼		120.00
	Sec. 13	NW¼NE¼		40.00
FU19B	Sec. 13	SW¼NE¼, SE¼NE¼, E½SE¼		160.00
FU20A	Sec. 14	NE¼NE¼, S½NE¼, SE¼NW¼, N½SW¼, SW¼SW¼, N½SE¼, SE¼SE¼		400.00
FU20B	Sec. 23	NE¼NE¼, S½NE¼, N½NW¼, SE¼NW¼, E½SE¼		320.00
	Sec. 24	W½SW¼		80.00
FU20C	Sec. 23	SW¼NW¼		40.00
FU20D	Sec. 23	NW¼SE¼		40.00
FU21	Sec. 17	S½		320.00
FU22	Sec. 24	NE¼SE¼		40.00
FU23	Sec. 25	S½NE¼, NE¼SW¼, NW¼SE¼, S½SE¼		240.00
				<b>1800.00</b>
<b>T. 3 S., R. 31 E., WM</b>				
FU10A	Sec. 34	SW¼NE¼, S½SW¼, W½SE¼		200.00
FU11	Sec. 35	NW¼NE¼		40.00
FU8	Sec. 27	NW¼NE¼		40.00
FU9	Sec. 33	NW¼NW¼		40.00
				<b>320.00</b>
<b>T. 4 S., R. 31 E., WM</b>				
FU10B	Sec. 2	lot 1		11.26
FU12	Sec. 5	lot 1		11.80
FU13	Sec. 5	SW¼NE¼		40.00
FU14	Sec. 5	SE¼SE¼		40.00
FU30	Sec. 3	lot 2, SW¼NE¼		50.37

Federal Lands To Be Conveyed				Acres
				<b>153.43</b>
<b>T. 5 S., R. 31 E., WM</b>				
FU15	Sec. 20	NW¼NW¼		40.00
FU16	Sec. 20	N½SW¼, SE¼SW¼, SW¼SE¼		160.00
				<b>200.00</b>
<b>T. 6 S., R. 31 E., WM</b>				
FU17	Sec. 20	S½NE¼		<b>80.00</b>
<b>T. 2 S., R. 32 E., WM</b>				
FU7	Sec. 35	SW¼NW¼		<b>40.00</b>
<b>T. 2 S., R. 33 E., WM</b>				
FU6A	Sec. 31	lots 6 & 17		56.22
FU6B	Sec. 31	lots 13 & 14		53.00
				<b>109.22</b>
<b>T. 1 S., R. 35 E., WM</b>				
FU4	Sec. 24	lots 1, 3, 4, 5, 6, 8 & 11		312.60
FU5	Sec. 25	lot 7		57.51
				<b>370.11</b>
<b>T. 1 S., R. 36 E., WM</b>				
FU3B	Sec. 5	Those portions of lot 4, SW¼NW¼ and W½SW¼ lying west of Meacham Creek		
	Sec. 6	lots 1, 2, 5, 6 & 7, S½NE¼, SE¼NW¼, E½SW¼, SE¼		
			Sec. 5 & 6	617.68
FU3C	Sec. 7	lot 1, N½NE¼, E½NW¼, NE¼SW¼, W½SE¼, SE¼SE¼		
	Sec. 8	Those portions of the N½NW¼, SE¼NW¼ and Those portions of the N½NW¼, SE¼NW¼		
			Sec. 7 & 8	558.77
FU3D	Sec. 17	That part of the NE¼NE¼ lying west of Meacham Creek, NW¼NE¼, W½		
	Sec. 18	E½, E½W½		
			Sec. 17 & 18	880.00
FU3E	Sec. 19	lot 1, NE¼, E½NW¼, E½SW¼, SE¼		
	Sec. 20	W½NW¼, NW¼SW¼		
			Sec. 19 & 20	643.00
				<b>2699.45</b>
<b>Umatilla County Total</b>				<b>6606.85</b>
<b>Union County</b>				
<b>T. 4 S., R. 35 E., WM</b>				
FW18	Sec. 7	lots 1-3, S½NE¼, SE¼NW¼, That part of the SE¼ lying NW of Hwy 244		
	Sec. 18	That part of the NE¼ lying NW of Hwy 244		
			Sec. 7 & 18	<b>388.00</b>
				<b>388.00</b>
<b>Union County Total</b>				
<b>388.00</b>				
<b>Wallowa County</b>				
<b>T. 1 N., R. 42 E., WM</b>				
FW15	Sec. 6	lot 7		27.90
FW16	Sec. 19	SE¼NW¼		40.00
				<b>67.90</b>
<b>T. 3 N., R. 43 E., WM</b>				
FW30	Sec. 4	Prt SW¼SE¼ (H.E.S. 109, tract 37)		<b>0.50</b>
<b>T. 4 N., R. 43 E., WM</b>				
FW20	Sec. 18	E½NE¼		80.00
FW21	Sec. 18	SE¼SE¼		40.00
	Sec. 19	NE¼NE¼		40.00
FW22	Sec. 16	NW¼NW¼		40.00
FW23	Sec. 17	NE¼SE¼		40.00

<b>Federal Lands To Be Conveyed</b>				<b>Acres</b>
FW24	Sec. 20	E $\frac{1}{2}$ SW $\frac{1}{4}$		80.00
	Sec. 29	E $\frac{1}{2}$ W $\frac{1}{2}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$		280.00
	Sec. 32	NE $\frac{1}{4}$ , E $\frac{1}{2}$ W $\frac{1}{2}$		320.00
FW25A	Sec. 21	W $\frac{1}{2}$ E $\frac{1}{2}$ , NE $\frac{1}{4}$ NW $\frac{1}{4}$ , E $\frac{1}{2}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ , E $\frac{1}{2}$ E $\frac{1}{2}$ SW $\frac{1}{4}$		260.00
	Sec. 28	NE $\frac{1}{4}$ , E $\frac{1}{2}$ E $\frac{1}{2}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ SE $\frac{1}{4}$		280.00
FW25B	Sec. 21	W $\frac{1}{2}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$		20.00
	Sec. 28	W $\frac{1}{2}$ E $\frac{1}{2}$ NW $\frac{1}{4}$		40.00
FW26	Sec. 34	W $\frac{1}{2}$ NE $\frac{1}{4}$ , NW $\frac{1}{4}$		240.00
				<b>1760.00</b>
<b>T. 1 N., R. 48 E., WM</b>				
FW2	Sec. 19	N $\frac{1}{2}$ NE $\frac{1}{4}$		80.00
FW5	Sec. 21	NW $\frac{1}{4}$ NE $\frac{1}{4}$		40.00
				<b>120.00</b>
<b>T. 2 N., R. 48 E., WM</b>				
FW1D	Sec. 7	lots 2 – 4, SW $\frac{1}{4}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$		338.04
FW1E	Sec. 18	lots 1 & 2, NW $\frac{1}{4}$ NE $\frac{1}{4}$ , NE $\frac{1}{4}$ NW $\frac{1}{4}$		146.35
				<b>484.39</b>
<b>T. 1 S., R. 42 E., WM</b>				
FW14A	Sec. 13	SE $\frac{1}{4}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ SE $\frac{1}{4}$		<b>120.00</b>
<b>T. 1 S., R. 43 E., WM</b>				
FW14B	Sec. 18	lot 4, SE $\frac{1}{4}$ SW $\frac{1}{4}$		<b>83.72</b>
<b>T. 3 S., R. 43 E., WM</b>				
FW17A	Sec. 24	Part of lots 1 & 3		10.00
FW17C	Sec. 25	Part of lot 6		2.00
				<b>12.00</b>
<b>T. 2 S., R. 44 E., WM</b>				
FW13	Sec. 28	NW $\frac{1}{4}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$		<b>120.00</b>
<b>T. 3 S., R. 45 E., WM</b>				
FW12	Sec. 22	SW $\frac{1}{4}$ NE $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$		160.00
	Sec. 23	NE $\frac{1}{4}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SE $\frac{1}{4}$		120.00
				<b>280.00</b>
<b>T. 3 S., R. 46 E., WM</b>				
FW10	Sec. 24	All		640.00
FW11	Sec. 23	SW $\frac{1}{4}$ SW $\frac{1}{4}$		40.00
				<b>680.00</b>
<b>T. 3 S., R. 47 E., WM</b>				
FW9	Sec. 7	lot 4, SE $\frac{1}{4}$ SW $\frac{1}{4}$		84.90
	Sec. 18	lots 1 – 4, E $\frac{1}{2}$ W $\frac{1}{2}$		338.24
				<b>423.14</b>
<b>T. 1 S., R. 48 E., WM</b>				
FW6A	Sec. 16	SE $\frac{1}{4}$ NW $\frac{1}{4}$		40.00
FW6B	Sec. 16	SW $\frac{1}{4}$ SW $\frac{1}{4}$		40.00
FW6C	Sec. 21	NW $\frac{1}{4}$ NE $\frac{1}{4}$		40.00
FW6D	Sec. 21	NE $\frac{1}{4}$ SW $\frac{1}{4}$		40.00
FW6E	Sec. 33	SW $\frac{1}{4}$ NW $\frac{1}{4}$		40.00
				<b>200.00</b>
<b>T. 2 S., R. 48 E., WM</b>				
FW6F	Sec. 5	lot 1		<b>40.00</b>
<b>T. 3 S., R. 48 E., WM</b>				
FW7	Sec. 23	SE $\frac{1}{4}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ SE $\frac{1}{4}$		120.00
FW8	Sec. 26	SW $\frac{1}{4}$ NW $\frac{1}{4}$		40.00
	Sec. 27	SE $\frac{1}{4}$ NE $\frac{1}{4}$		40.00
				<b>200.00</b>
<b>Wallowa County Total</b>				<b>4591.65</b>

1) GIS acres are displayed, pending completion of survey

The parcel descriptions in the following table are specific to Alternative 5. These descriptions vary from those provided for Alternatives 1, 3, and 4 in the previous table due to agreements made with the Confederated Tribes of the Umatilla Indian Reservation regarding the configuration of lands acquired and conveyed in the vicinity of Meacham Creek.

### Parcels Descriptions Specific to Alternative 5

#### Private and State of Oregon Lands To Be Acquired

Acres

#### Umatilla County

##### T. 1 N., R. 36 E., WM

PU6	Sec. 32	Those portions of NW $\frac{1}{4}$ NW $\frac{1}{4}$ lying east of the westerly right-of-way of the U.P. Railroad	17.30
-----	---------	--	-------

##### T. 1 S., R. 36 E., WM

PU11	Sec. 16	NE $\frac{1}{4}$ , NE $\frac{1}{4}$ NW $\frac{1}{4}$ , that portion of the NW $\frac{1}{4}$ NW $\frac{1}{4}$ lying NW of Butcher Cr. and SW of the easterly right-of-way of the U.P. Railroad, S $\frac{1}{2}$ NW $\frac{1}{4}$ , S $\frac{1}{2}$	
	Sec. 17	That portion of the S $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ lying east of Butcher Cr	
		Sec. 16 & 17	725.00
PU9A	Sec. 8	That part of the SE $\frac{1}{4}$ lying NE of the northeasterly right-of-way of the U.P. Railroad	69.20
PU9B	Sec. 9	That part of the SW $\frac{1}{4}$ SW $\frac{1}{4}$ lying NE of the northeasterly right-of-way of the U.P. Railroad	31.00

#### Federal Lands To Be Conveyed

Acres

#### Umatilla County

##### T. 1 N., R. 36 E., WM

FU3A	Sec. 31	lots 2 – 4, S $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$	
	Sec. 32	Those portions of the NE $\frac{1}{4}$ NW $\frac{1}{4}$ , S $\frac{1}{2}$ NW $\frac{1}{4}$ and SW $\frac{1}{4}$ lying west of the westerly right-of-way of the U.P. Railroad	
		Sec. 31 & 32	669.68

##### T. 1 S., R. 36 E., WM

FU3B	Sec. 5	Those portions of lot 4, SW $\frac{1}{4}$ NW $\frac{1}{4}$ and W $\frac{1}{2}$ SW $\frac{1}{4}$ lying west of the westerly right-of-way of the U.P. Railroad	
	Sec. 6	lots 1, 2, 5, 6 & 7, S $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$	
		Sec. 5 & 6	617.71
FU3C	Sec. 7	lot 1, N $\frac{1}{2}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ NW $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$	
	Sec. 8	Those portions of the N $\frac{1}{2}$ NW $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ and SW $\frac{1}{4}$ lying west of the westerly right-of-way of the U.P. Railroad	
		Sec. 7 & 8	558.85



## Appendix B – Maps

Parcel Map Index							
Parcel	Map	Parcel	Map	Parcel	Map	Parcel	Map
FM2	22	PM22	25, 26	FU23	13	PU22A	15
FM3	21	PM23	17	FU24	14	PU22B	15
FM4	23	PM24	17	FU25	14	PU22C	15
FM5	23	PM25	26	FU26	14	PU23	15
FM6	23	PM26	26	FU27	15	PU24	15
FM7	23	PM27	26	FU28	15	PU26A	15
FM8	23	PM28	25	FU30	13	PU26B	15
FM9	23	PM29	25	PU1A	1	FW1D	8
FM10	23	PM30	26	PU1B	1	FW1E	8
FM11	24	PM31	26	PU2	1	FW2	6
FM12	24	FU1	10	PU3	1	FW5	6
FM13	24	FU2	10	PU4	1	FW6A	6
FM14	17	FU3A	10	PU5	10	FW6B	6
FM15	17	FU3B	10	PU6	10	FW6C	6
FM16A	17	FU3C	10	PU7A	10	FW6D	6
FM16B	17	FU3D	10	PU7B	10	FW6E	6
FM17	17	FU3E	10	PU7C	10	FW6F	6
FM18	17	FU4	10	PU8A	10	FW7	5
FM19	17	FU5	10	PU8B	10	FW8	5
FM20	17	FU6A	12	PU8C	10	FW9	5
FM21	17	FU6B	12	PU9A	10	FW10	5
PM1	21	FU7	12	PU9B	10	FW11	5
PM2	21	FU8	13	PU10A	10	FW12	3
PM3	21	FU9	13	PU10B	10	FW13	3
PM4	21	FU10A	13	PU11	10	FW14A	2
PM5	18	FU10B	13	PU11A	10	FW14B	2
PM6	23	FU11	13	PU11B	10	FW15	2
PM7	24	FU12	13	PU12	10	FW16	2
PM8A	24	FU13	13	PU13	20	FW17A	3
PM8B	24	FU14	13	PU14	12	FW17C	3
PM9	24	FU15	19	PU15	12	FW18	11
PM11	24	FU16	19	PU16A	19	FW19	22
PM12	24	FU17	19	PU16B	19	FW20	1
PM13	24	FU18	19	PU16C	19	FW21	1
PM14	24	FU19A	13	PU16D	19	FW22	1
PM15	24	FU19B	13	PU16E	19	FW23	1
PM16	24	FU20A	13	PU16F	19	FW24	1
PM17	24	FU20B	13	PU16G	19	FW25A	1
PM18	24	FU20C	13	PU16H	19	FW25B	1
PM19	24	FU20D	13	PU19	12	FW26	1
PM20	24	FU21	13	PU20	18	FW30	1
PM21	26	FU22	13	PU21	14	PW1	8

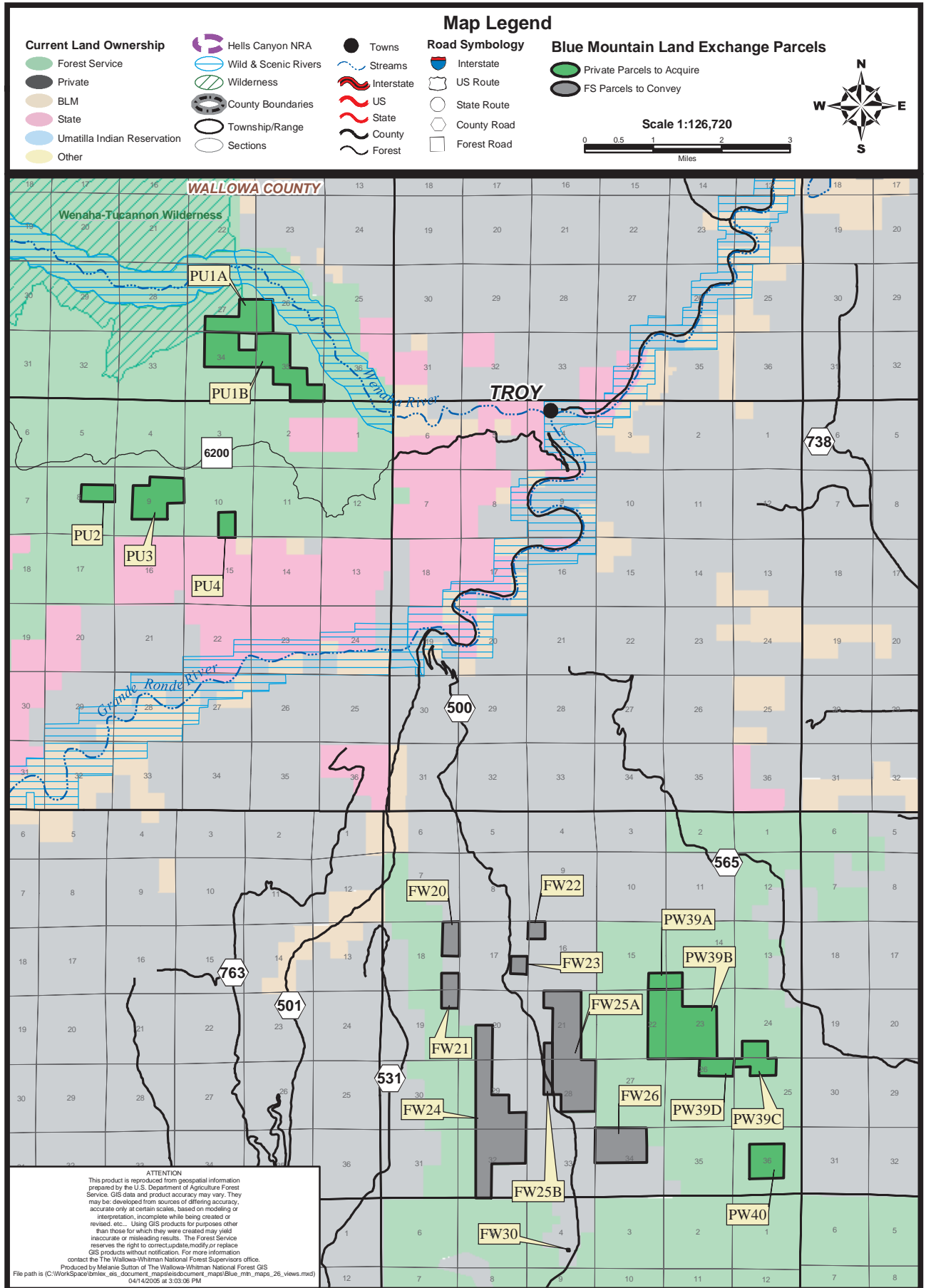
Parcel Map Index (continued)					
Parcel	Map	Parcel	Map	Parcel	Map
PW2A	8	PW23B	8	PW48	8
PW2B	8	PW24A	6	PW47B	4
PW2C	8	PW24B	6	PW50	8
PW3	8	PW24C	6	PW51A	7
PW4	8	PW24D	6	PW51C	7
PW5	8	PW24E	6	PW51D	7
PW6	8	PW24F	6	PW52	7
PW7A	8	PW24G	6		
PW7B	8	PW24H	6		
PW7C	8	PW25A	6		
PW8A	8	PW25B	6		
PW8B	8	PW25C	6		
PW8C	8	PW25D	6		
PW10A	8	PW25E	6		
PW10B	8	PW26A	6		
PW11	8	PW26B	6		
PW12	8	PW26C	6		
PW13A	8	PW27A	6		
PW13B	8	PW27C	6		
PW13C	8	PW28	5		
PW13D	8	PW29	5		
PW14	8	PW30	7		
PW15A	8	PW31	6		
PW15B	8	PW32	6		
PW16A	8	PW33	7		
PW16B	8	PW34A	7		
PW16C	8	PW34B	7		
PW16D	8	PW34C	7		
PW16E	8	PW35A	3		
PW17A	8	PW35B	3		
PW17B	8	PW35C	3		
PW18	8	PW37	3		
PW19A	8	PW38	4		
PW19B	8	PW39A	1		
PW19C	8	PW39B	1		
PW20A	8	PW39C	1		
PW20B	8	PW39D	1		
PW20C	8	PW40	1		
PW21A	8	PW42	11		
PW21B	8	PW44A	11		
PW21C	8	PW44B	11		
PW21D	8	PW45	20		
PW22	8	PW46	11		
PW23A	8	PW47A	4		

Note: Maps 9 and 16 have been omitted



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# Blue Mountain Land Exchange Map 1



- Current Land Ownership**
- Forest Service
  - Private
  - BLM
  - State
  - Umatilla Indian Reservation
  - Other

- Hells Canyon NRA
- Wild & Scenic Rivers
- Wilderness
- County Boundaries
- Township/Range
- Sections
- Towns
- Streams
- Interstate
- US
- State
- County
- Forest

- Road Symbology**
- Interstate
  - US Route
  - State Route
  - County Road
  - Forest Road

- Blue Mountain Land Exchange Parcels**
- Private Parcels to Acquire
  - FS Parcels to Convey



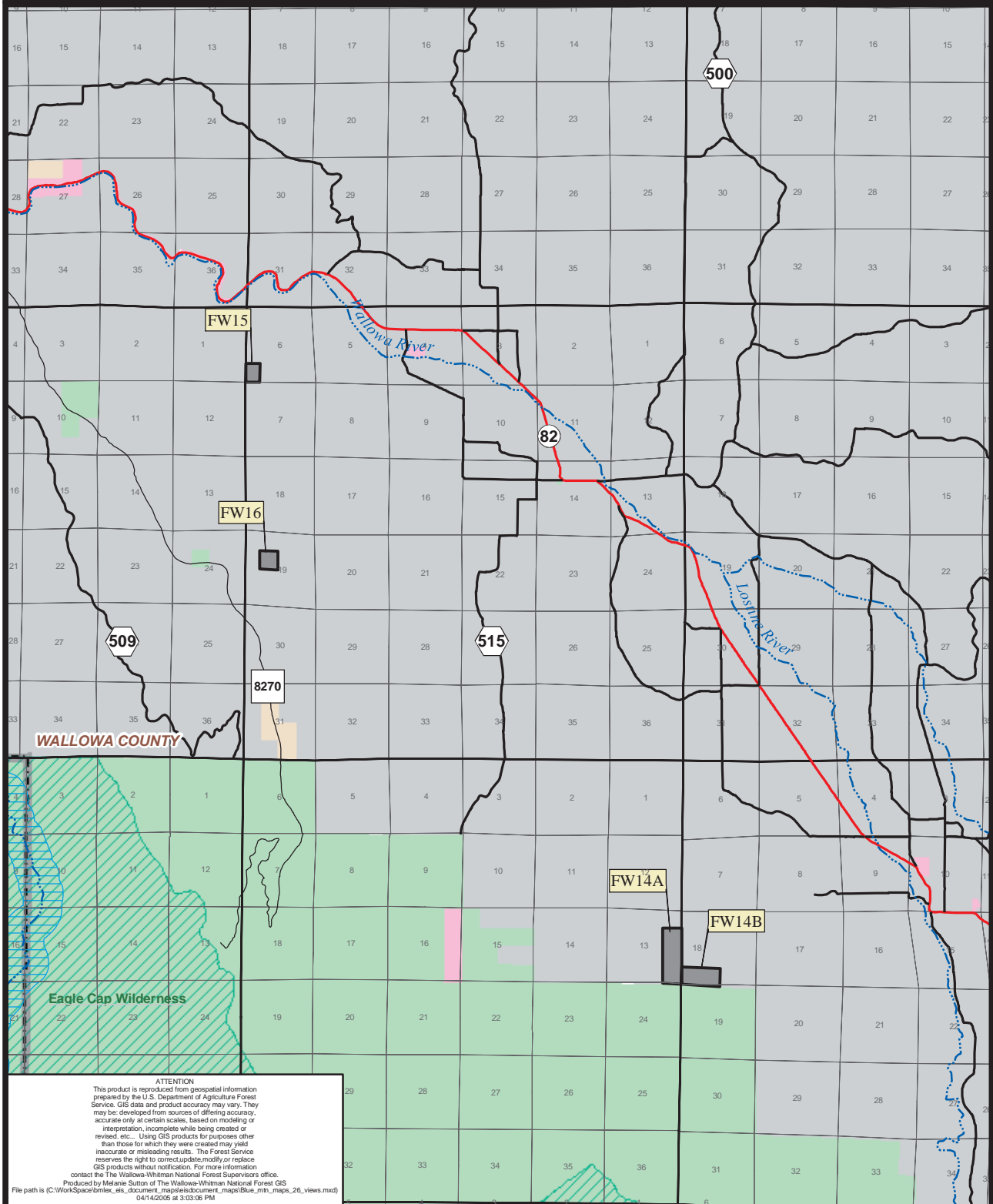
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# Blue Mountain Land Exchange Map 2

**Map Legend**

<b>Current Land Ownership</b>	Hells Canyon NRA	Towns	<b>Road Symbology</b>	<b>Blue Mountain Land Exchange Parcels</b>
Forest Service	Wild & Scenic Rivers	Streams	Interstate	Private Parcels to Acquire
Private	Wilderness	Interstate	US Route	FS Parcels to Convey
BLM	County Boundaries	State	State Route	
State	Township/Range	County	County Road	
Umatilla Indian Reservation	Sections	Forest	Forest Road	
Other				

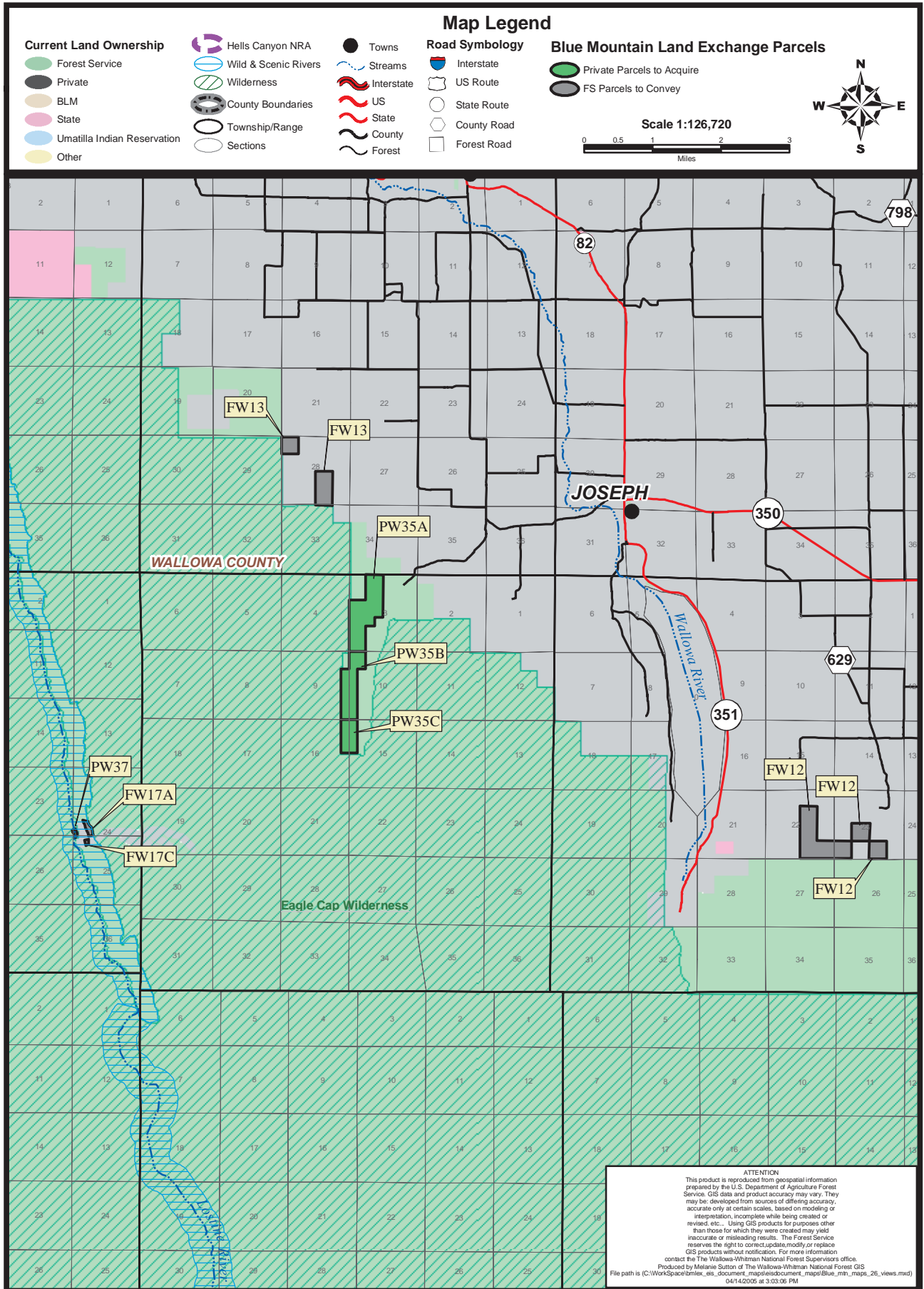
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0 0.5 1 2 3 Miles



R41E R41E R42E B-6 R42E R43E R43E R43E R43E

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# Blue Mountain Land Exchange Map 3



R43E

R43E R44E

B-7

R44E R45E

R45E

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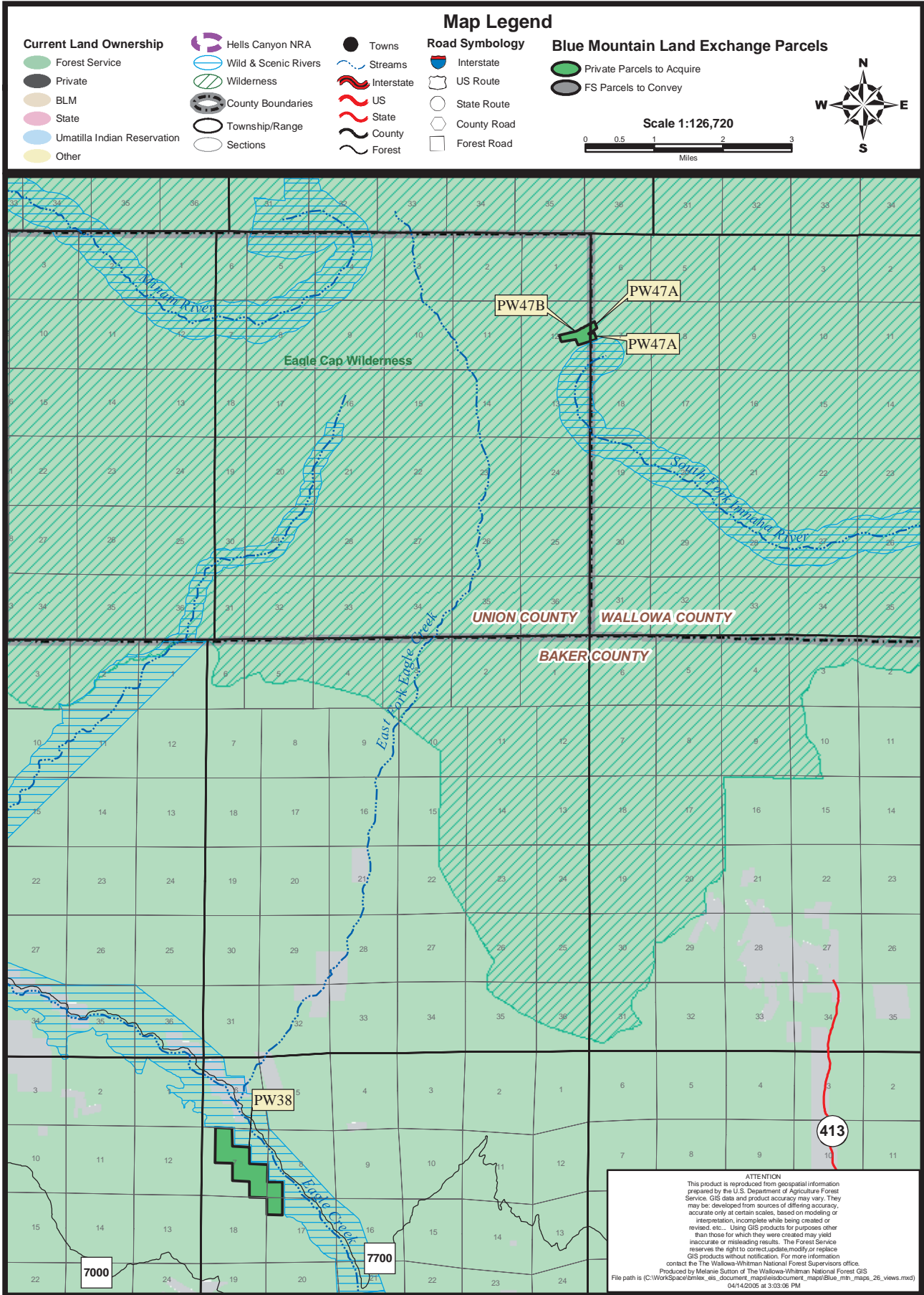
T02S

T02S  
T03S

T03S  
T04S

T04S

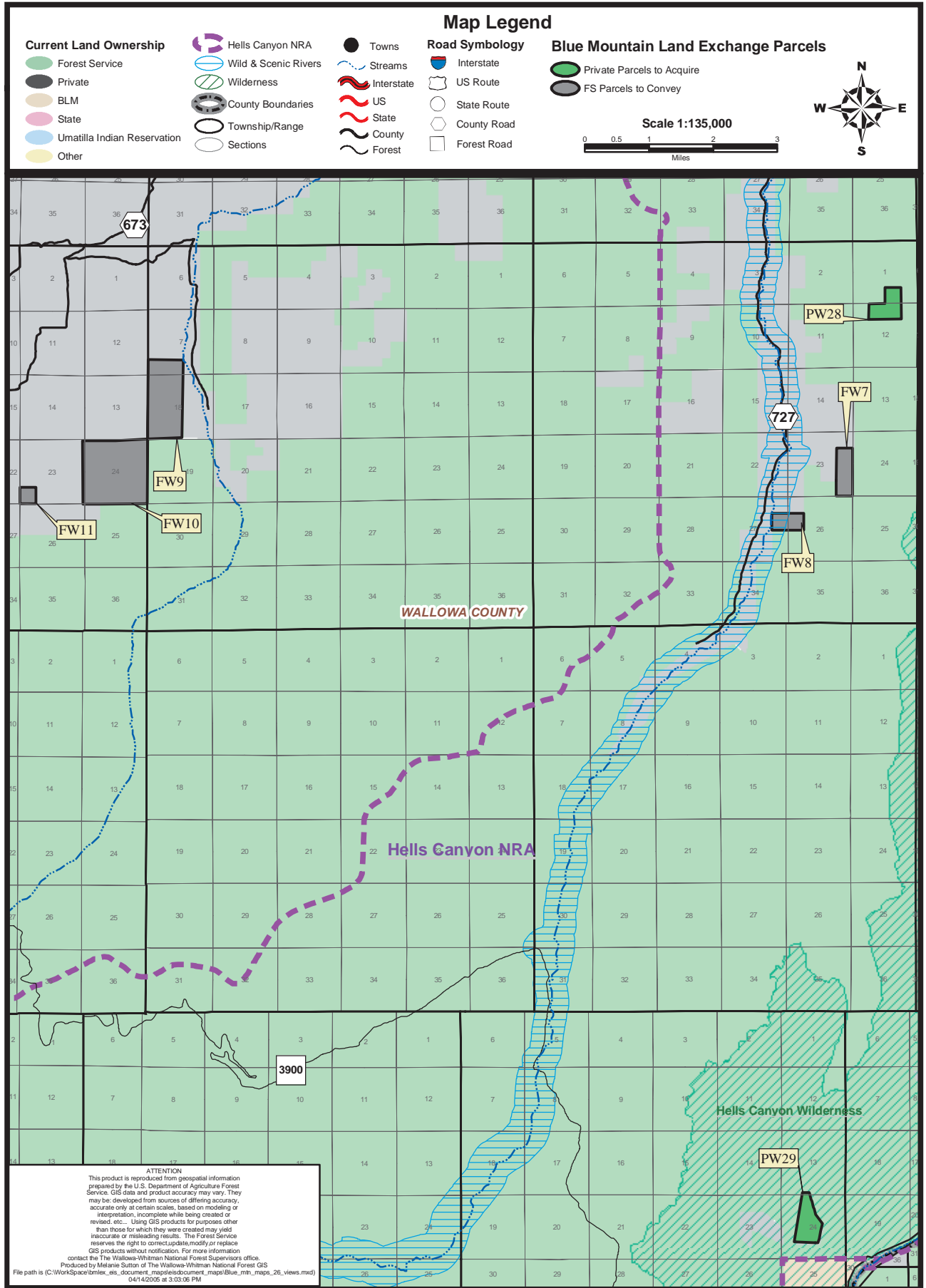
# Blue Mountain Land Exchange Map 4



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# Blue Mountain Land Exchange

## Map 5

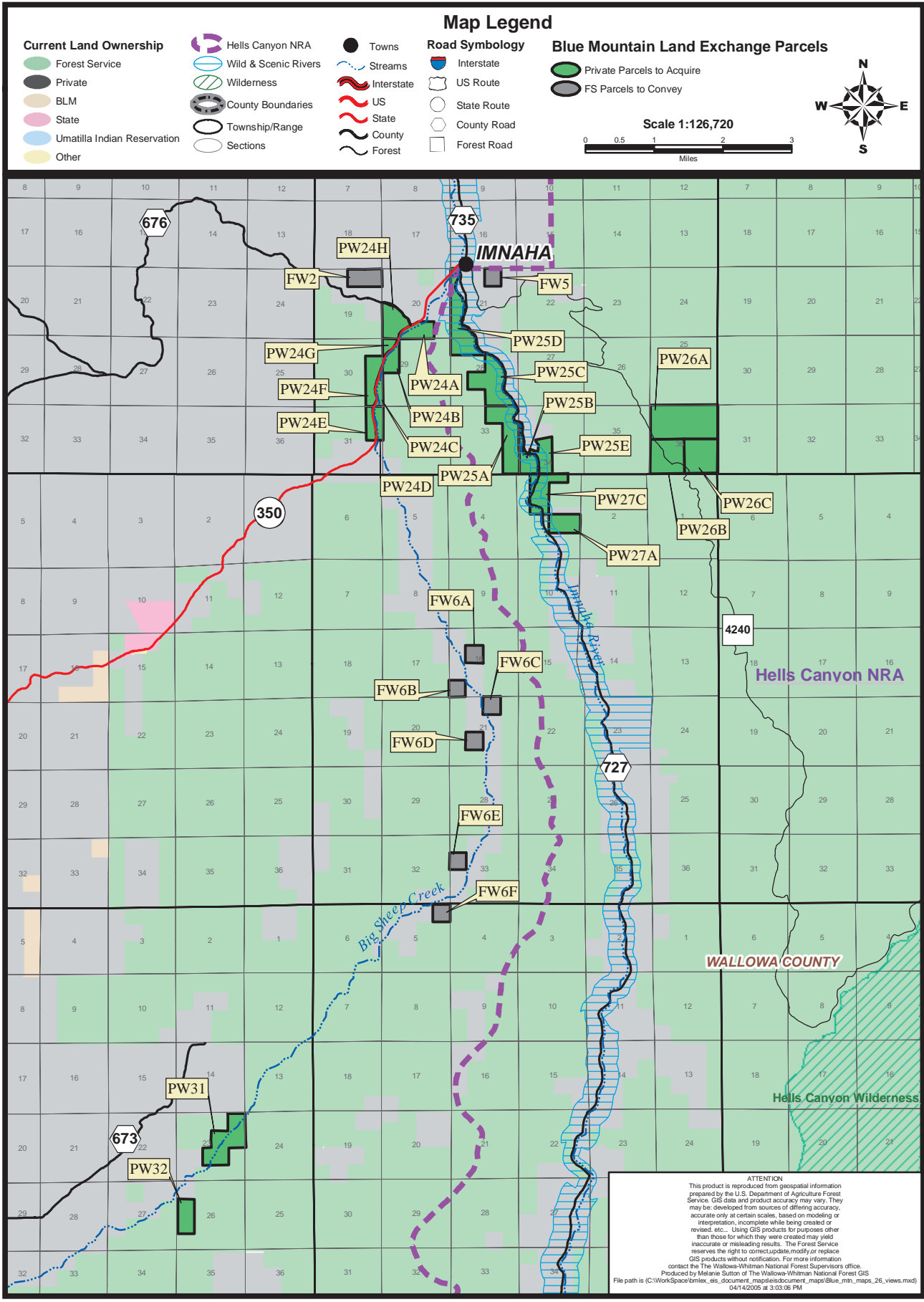


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# Blue Mountain Land Exchange

## Map 6



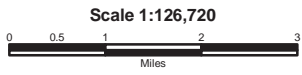
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- Forest Service
  - Private
  - BLM
  - State
  - Umatilla Indian Reservation
  - Other

- Hells Canyon NRA
- Wild & Scenic Rivers
- Wilderness
- County Boundaries
- Township/Range
- Sections

- Towns**
- Imnaha

- Road Symbology**
- Interstate
  - US Route
  - State Route
  - County Road
  - Forest Road

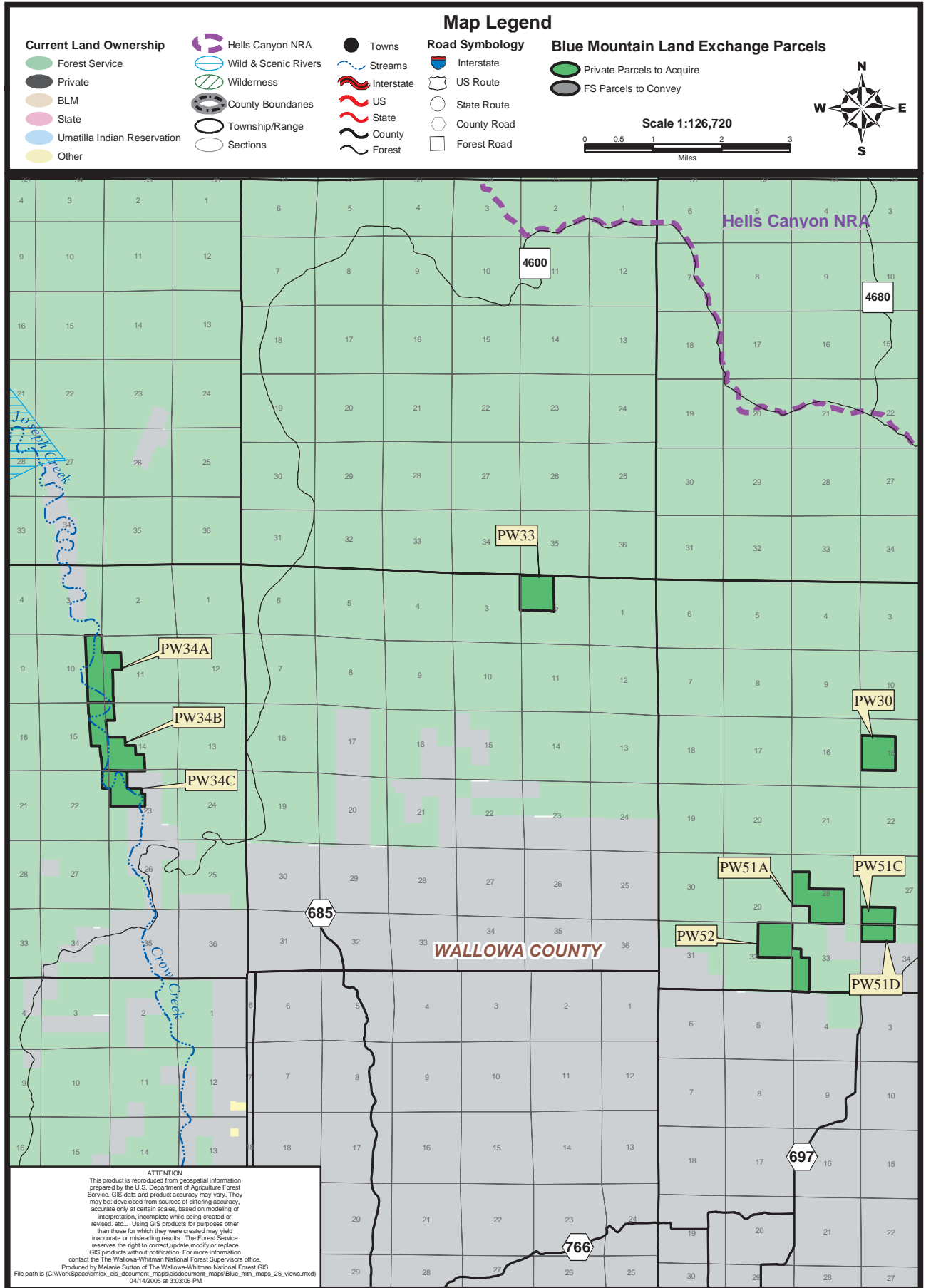
- Blue Mountain Land Exchange Parcels**
- Private Parcels to Acquire
  - FS Parcels to Convey



R47E R47E R48E R48E R49E R49E

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# Blue Mountain Land Exchange Map 7



T05N  
T04N

T04N  
T03N

T03N  
T02N

T02N

R45E

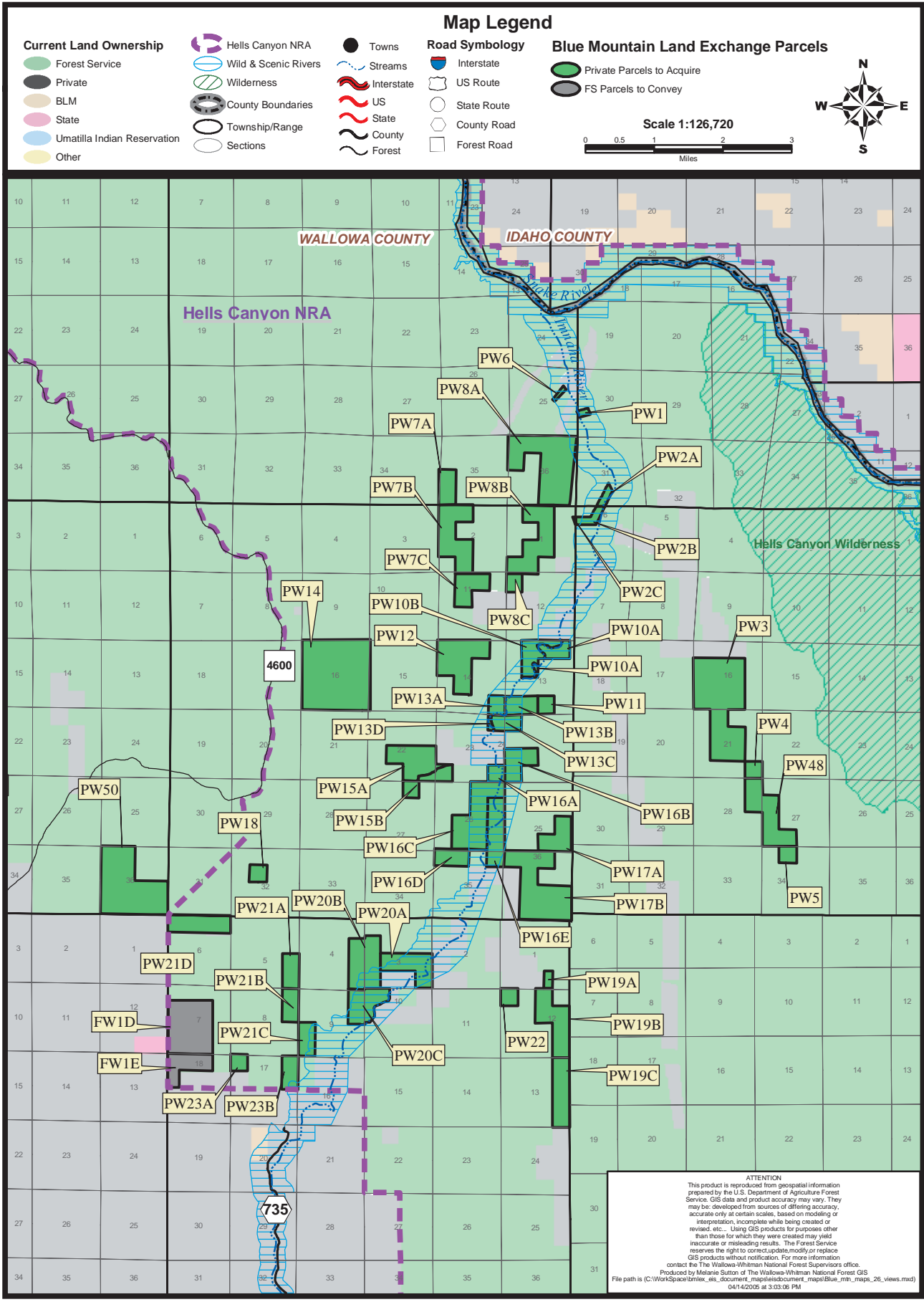
R45E R45E

R46E R47E

R47E



# Blue Mountain Land Exchange Map 8



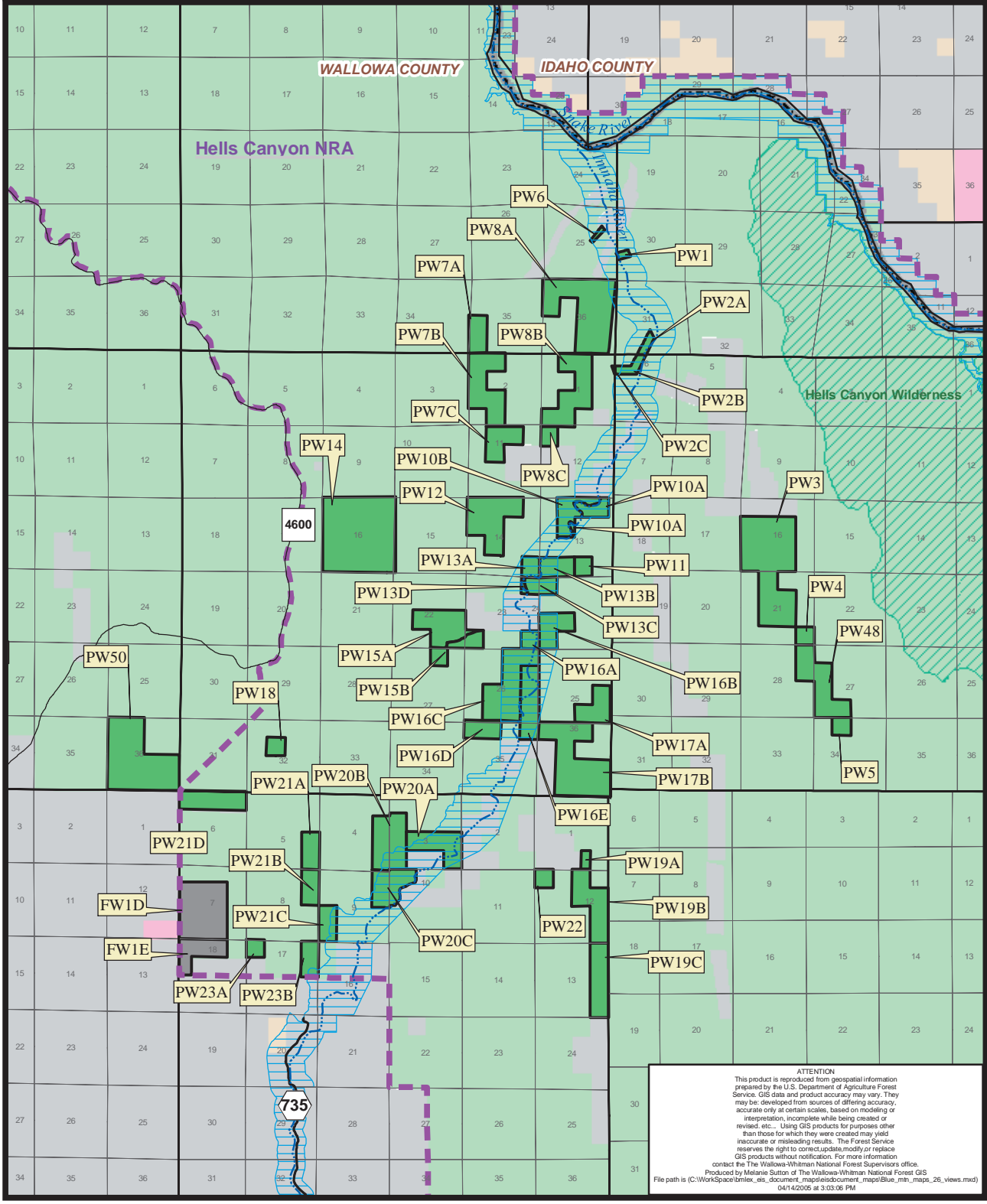
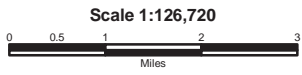
- Current Land Ownership**
- Forest Service
  - Private
  - BLM
  - State
  - Umatilla Indian Reservation
  - Other

- Hells Canyon NRA
- Wild & Scenic Rivers
- Wilderness
- County Boundaries
- Township/Range
- Sections

- Towns**
- Streams
  - Interstate
  - US
  - State
  - County
  - Forest

- Road Symbology**
- Interstate
  - US Route
  - State Route
  - County Road
  - Forest Road

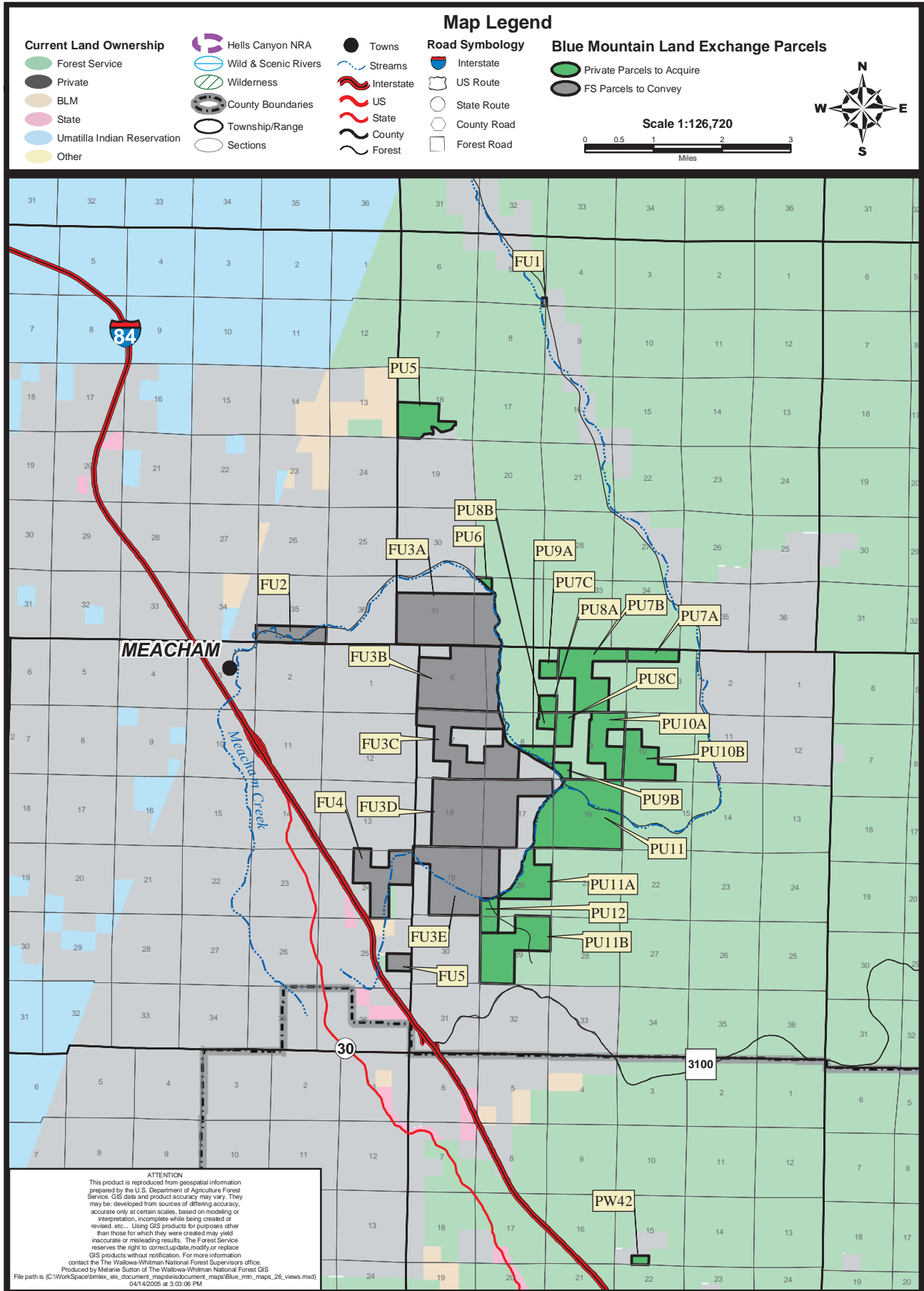
- Blue Mountain Land Exchange Parcels**
- Private Parcels to Acquire
  - FS Parcels to Convey



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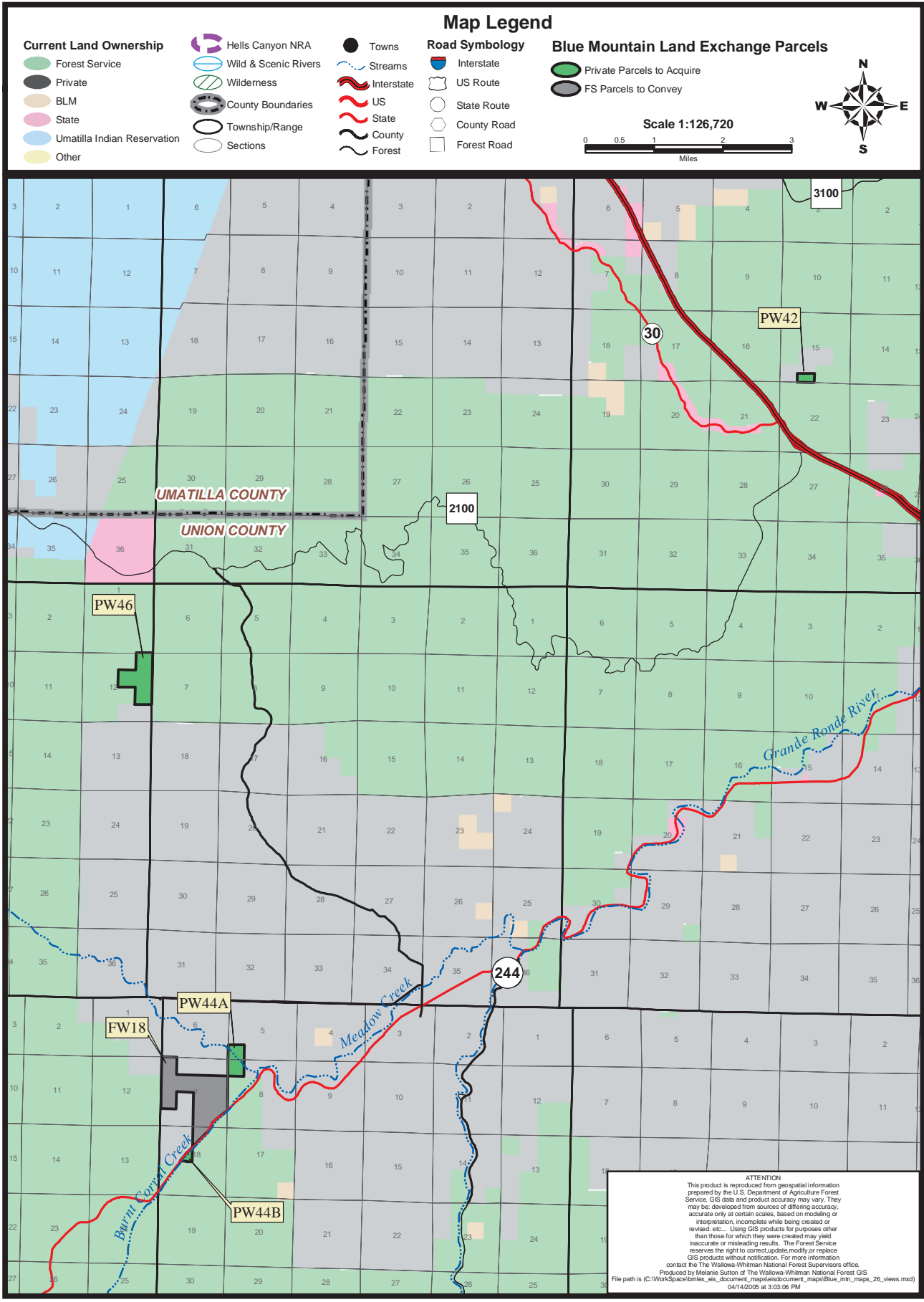
# Blue Mountain Land Exchange

## Map 10



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# Blue Mountain Land Exchange Map 11



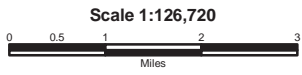
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- Forest Service
  - Private
  - BLM
  - State
  - Umatilla Indian Reservation
  - Other

- Hells Canyon NRA
- Wild & Scenic Rivers
- Wilderness
- County Boundaries
- Township/Range
- Sections

- Towns**
- Streams
  - Interstate
  - US
  - State
  - County
  - Forest

- Map Legend**
- Road Symbology**
- Interstate
  - US Route
  - State Route
  - County Road
  - Forest Road

- Blue Mountain Land Exchange Parcels**
- Private Parcels to Acquire
  - FS Parcels to Convey



R34E R34E R35E R35E R36E R36E

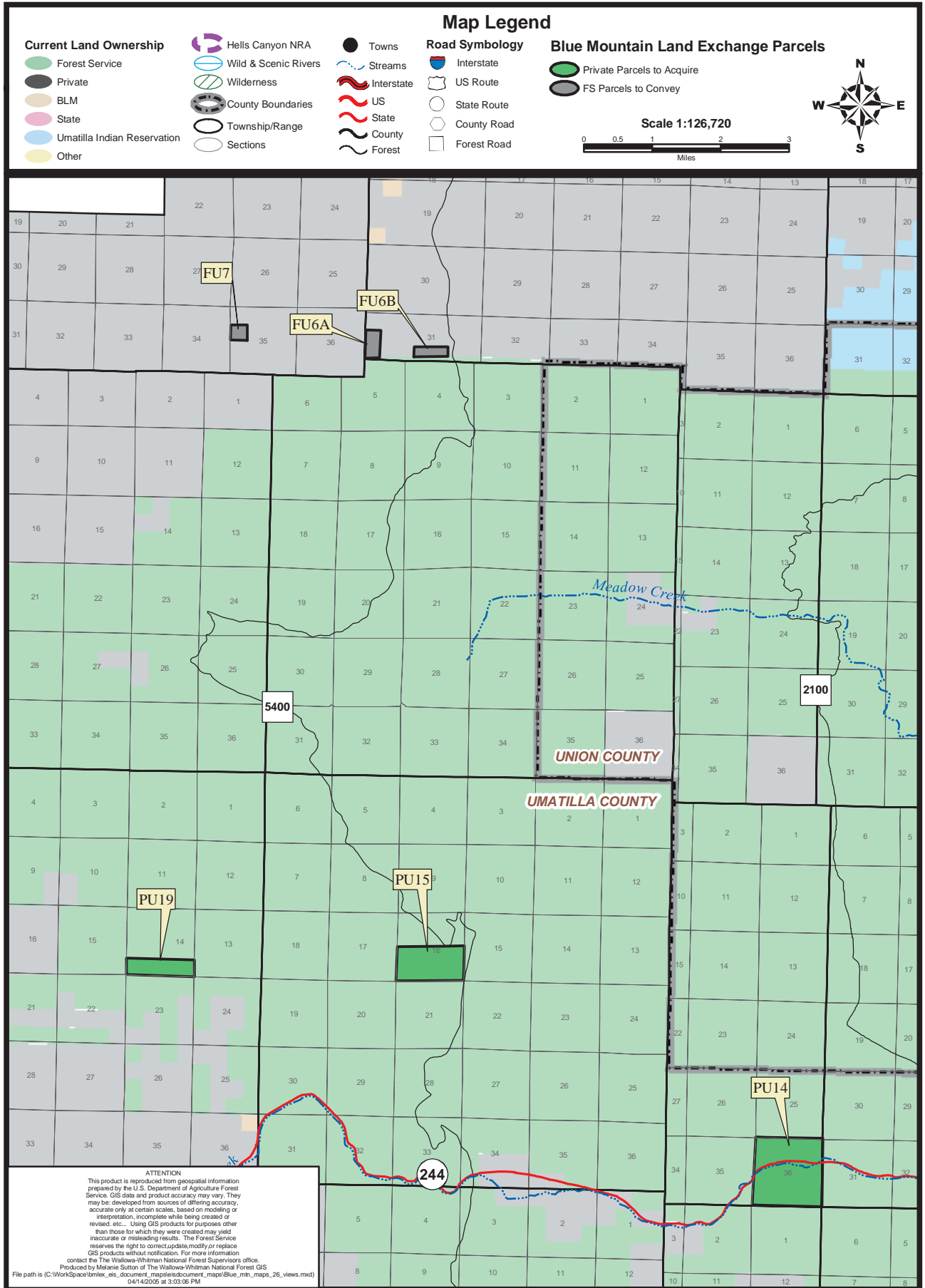
T02S T02S T03S T03S T04S T04S

B-14

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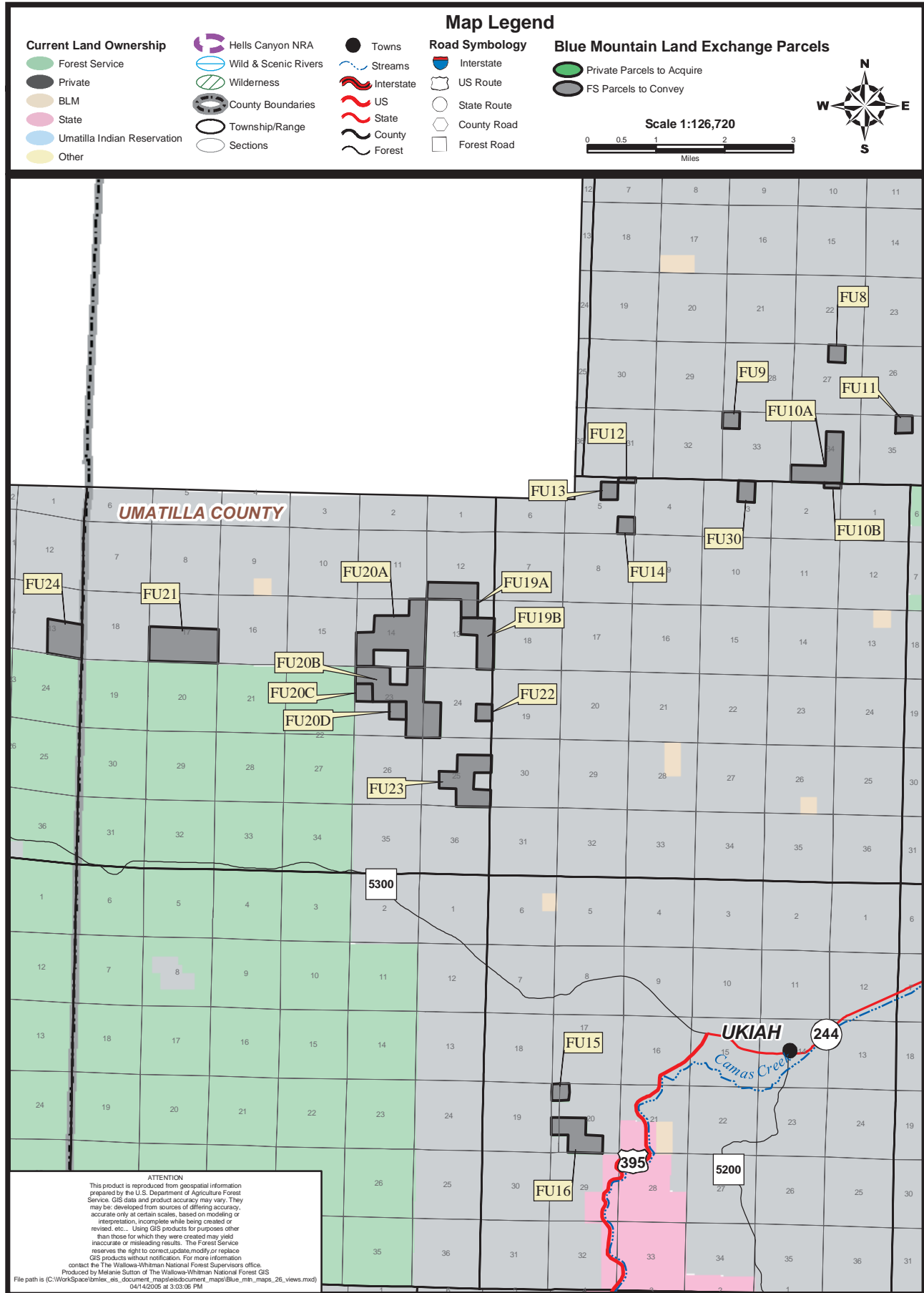
# Blue Mountain Land Exchange

## Map 12



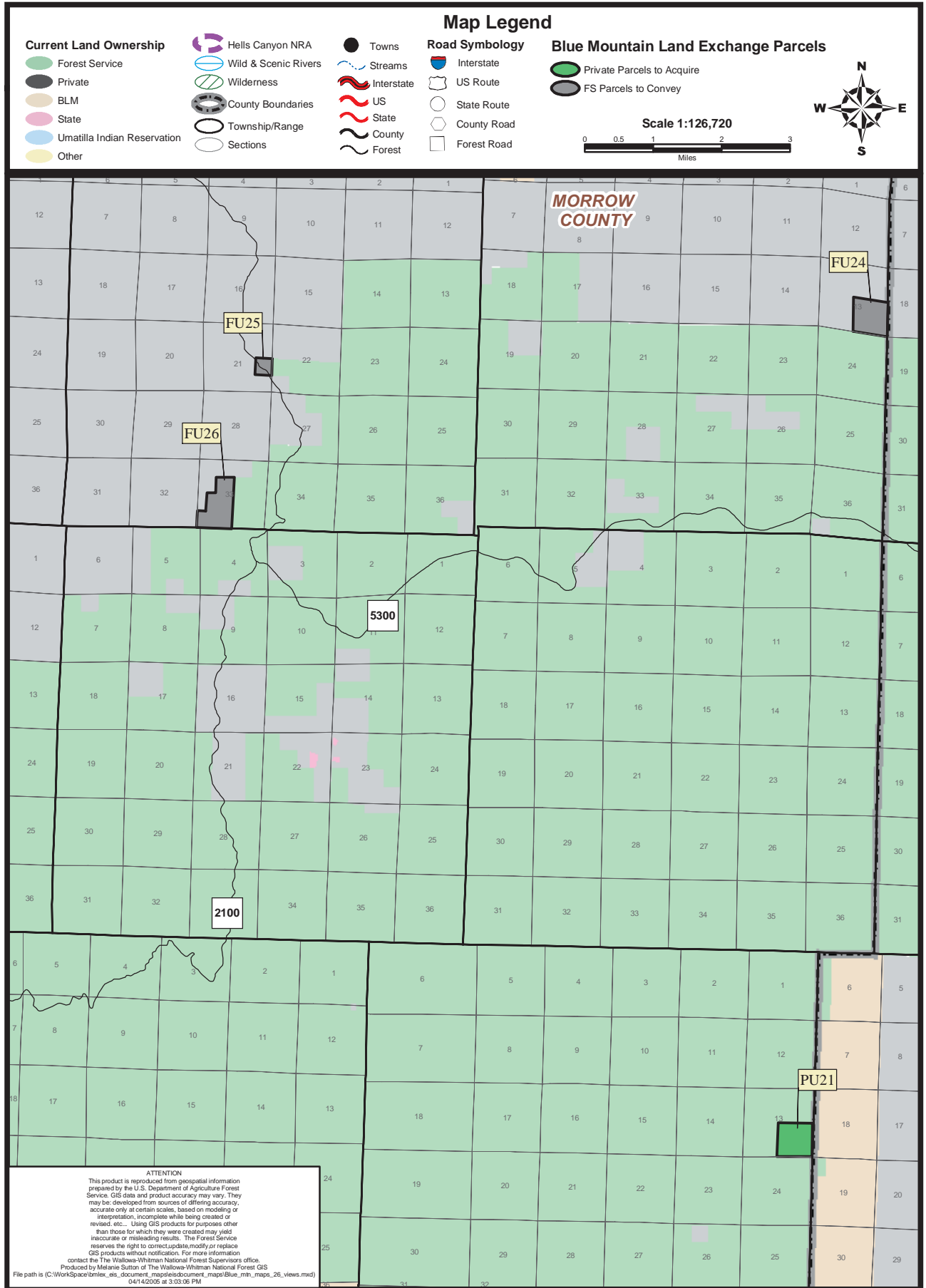
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# Blue Mountain Land Exchange Map 13



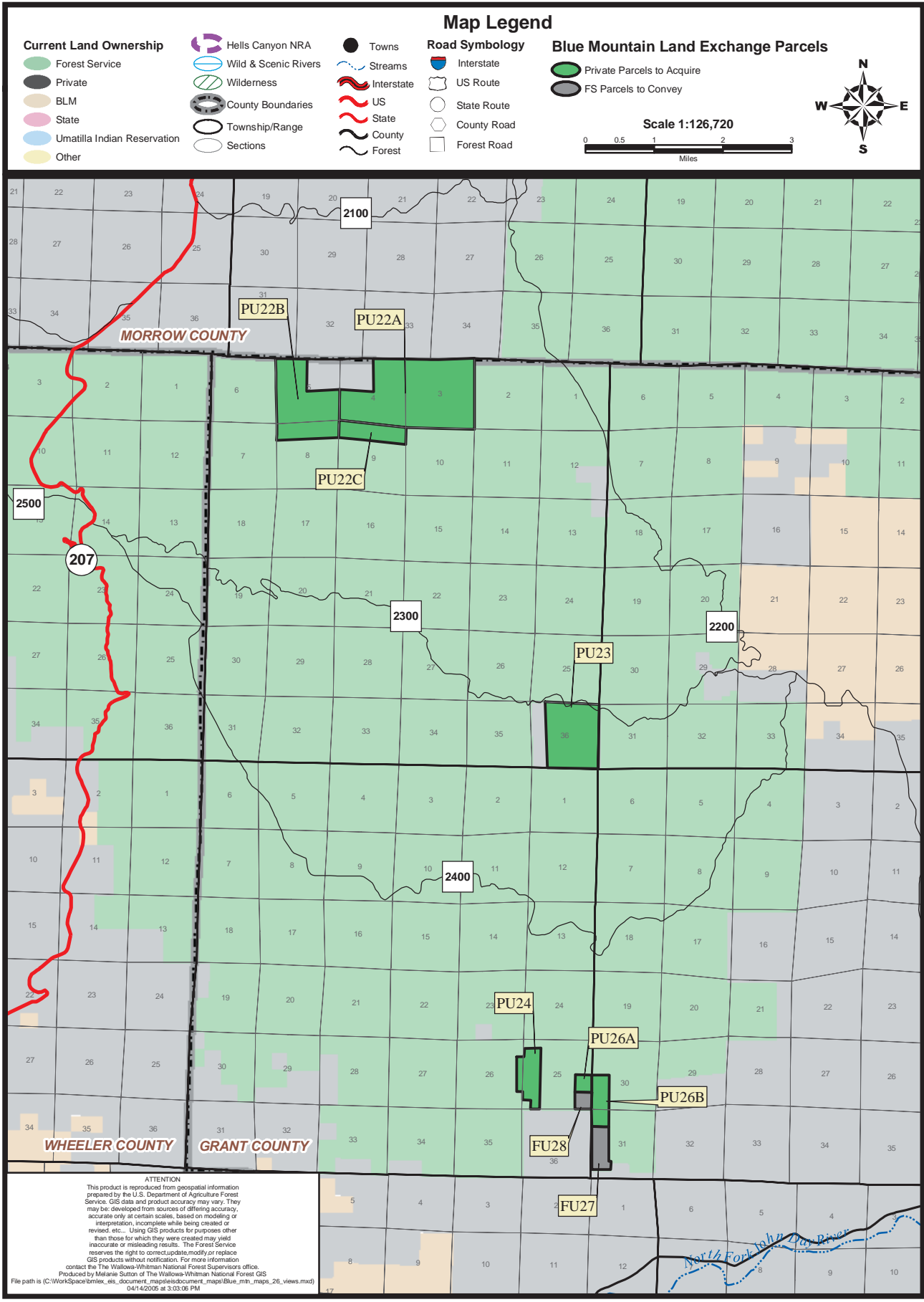
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# Blue Mountain Land Exchange Map 14



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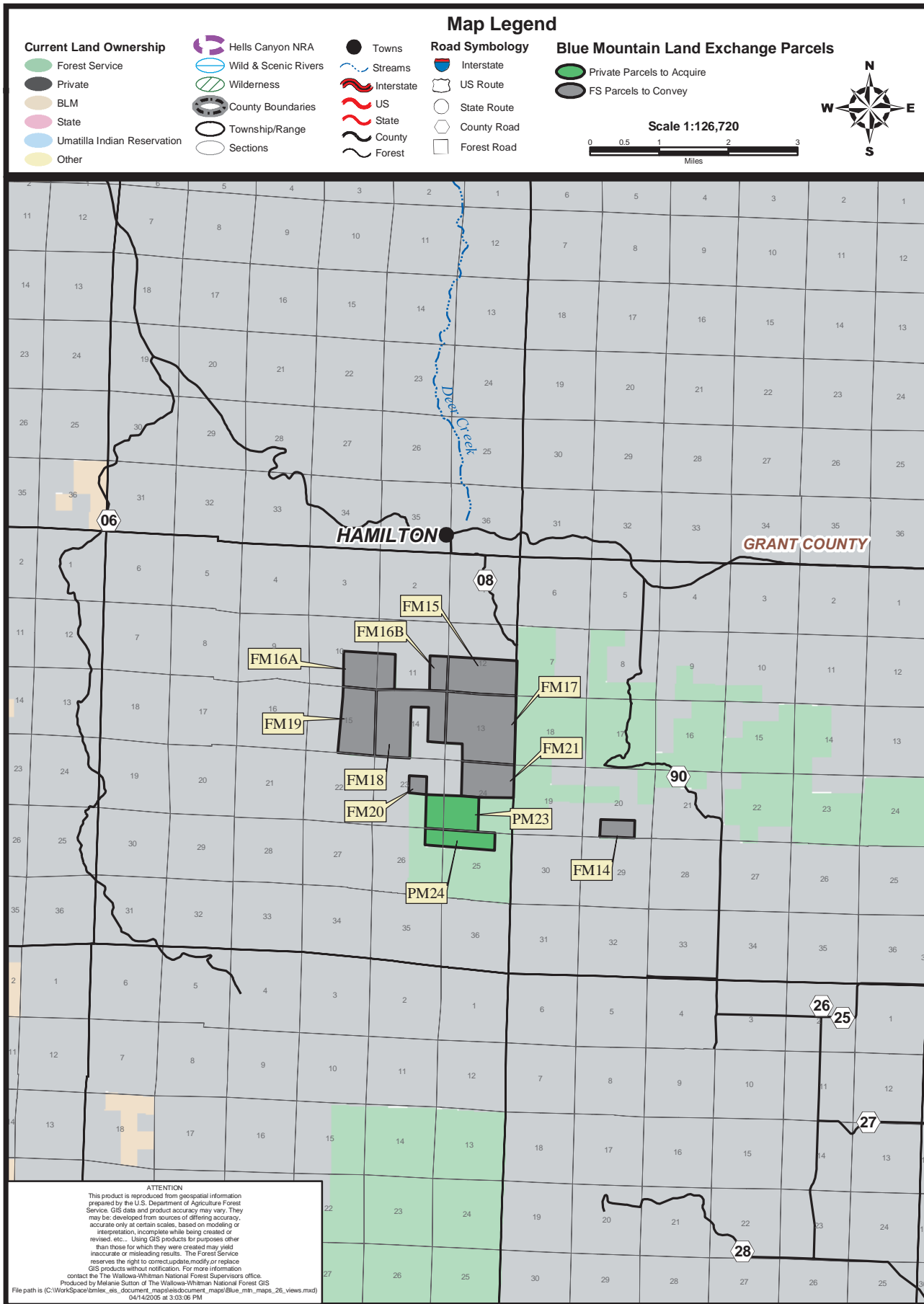
# Blue Mountain Land Exchange Map 15



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# Blue Mountain Land Exchange Map 17



T09S

T09S  
T10S

T10S  
T11S

T11S

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R27E R28E

R28E R29E  
B-19

R29E R30E

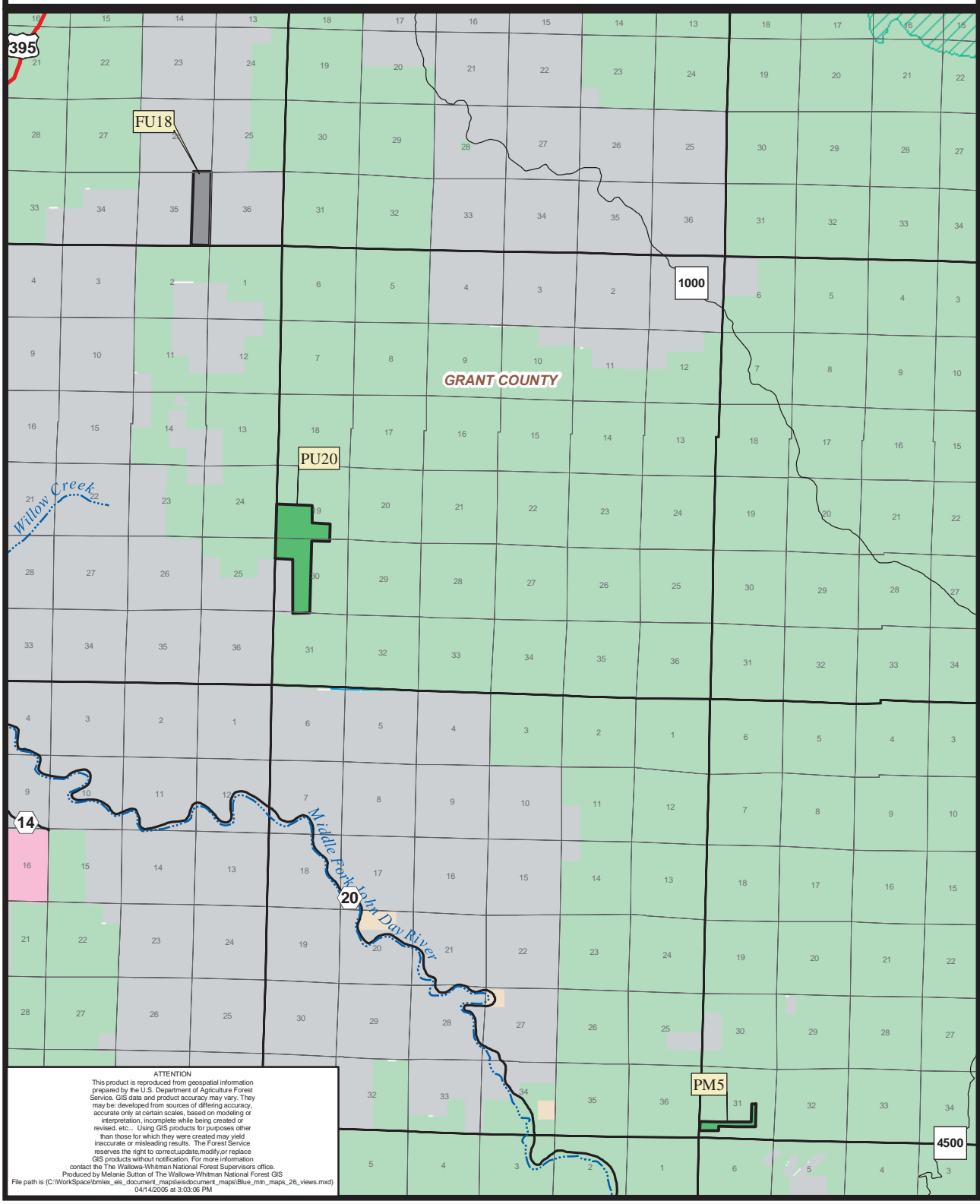


# Blue Mountain Land Exchange Map 18

**Map Legend**

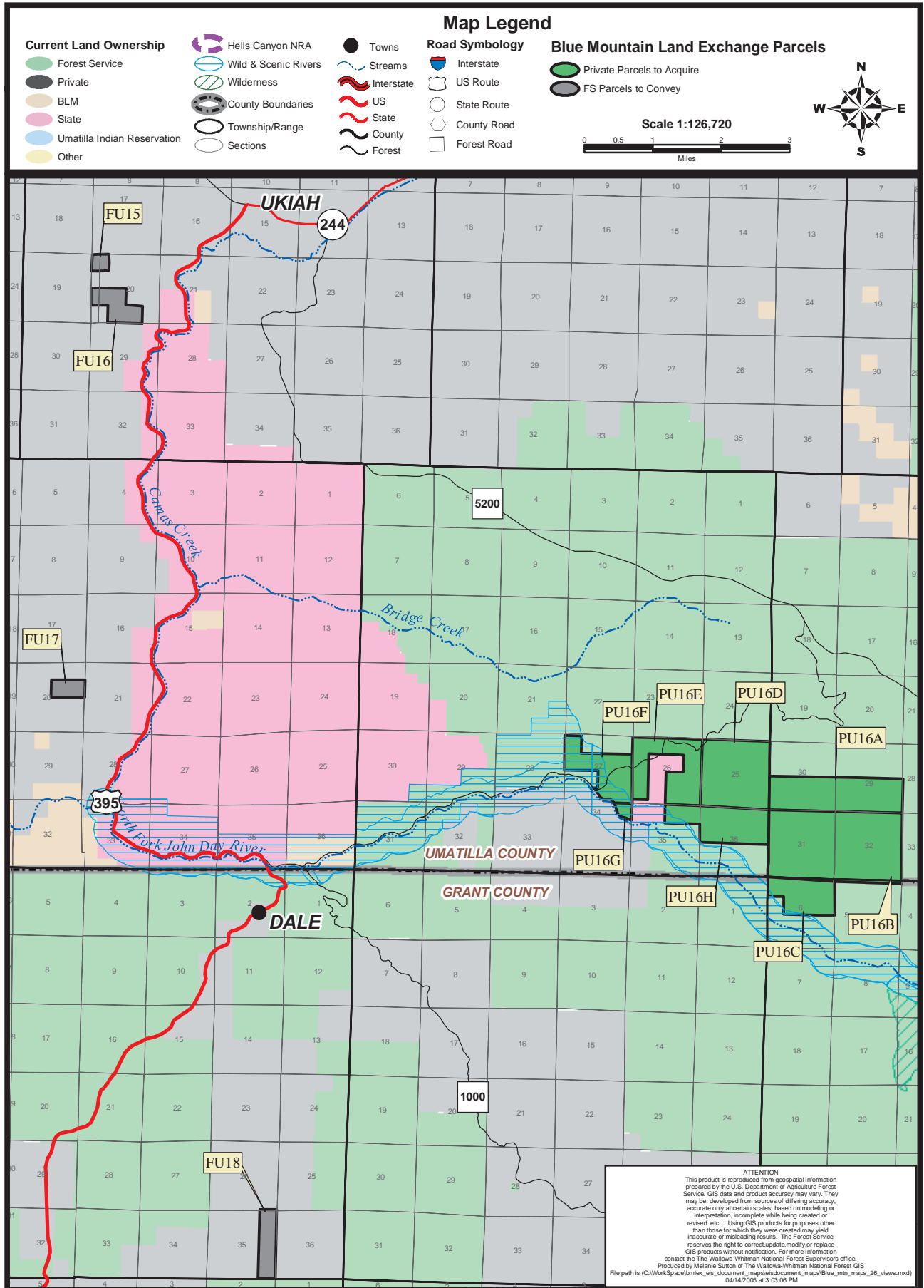
<b>Current Land Ownership</b>	Hells Canyon NRA	Towns	<b>Road Symbology</b>	<b>Blue Mountain Land Exchange Parcels</b>
Forest Service	Wild & Scenic Rivers	Streams	Interstate	Private Parcels to Acquire
Private	Wilderness	Interstate	US Route	FS Parcels to Convey
BLM	County Boundaries	US	State Route	
State	Township/Range	State	County Road	
Umatilla Indian Reservation	Sections	County	Forest Road	
Other		Forest		

Scale 1:126,720  
0 0.5 1 2 3 Miles



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# Blue Mountain Land Exchange Map 19

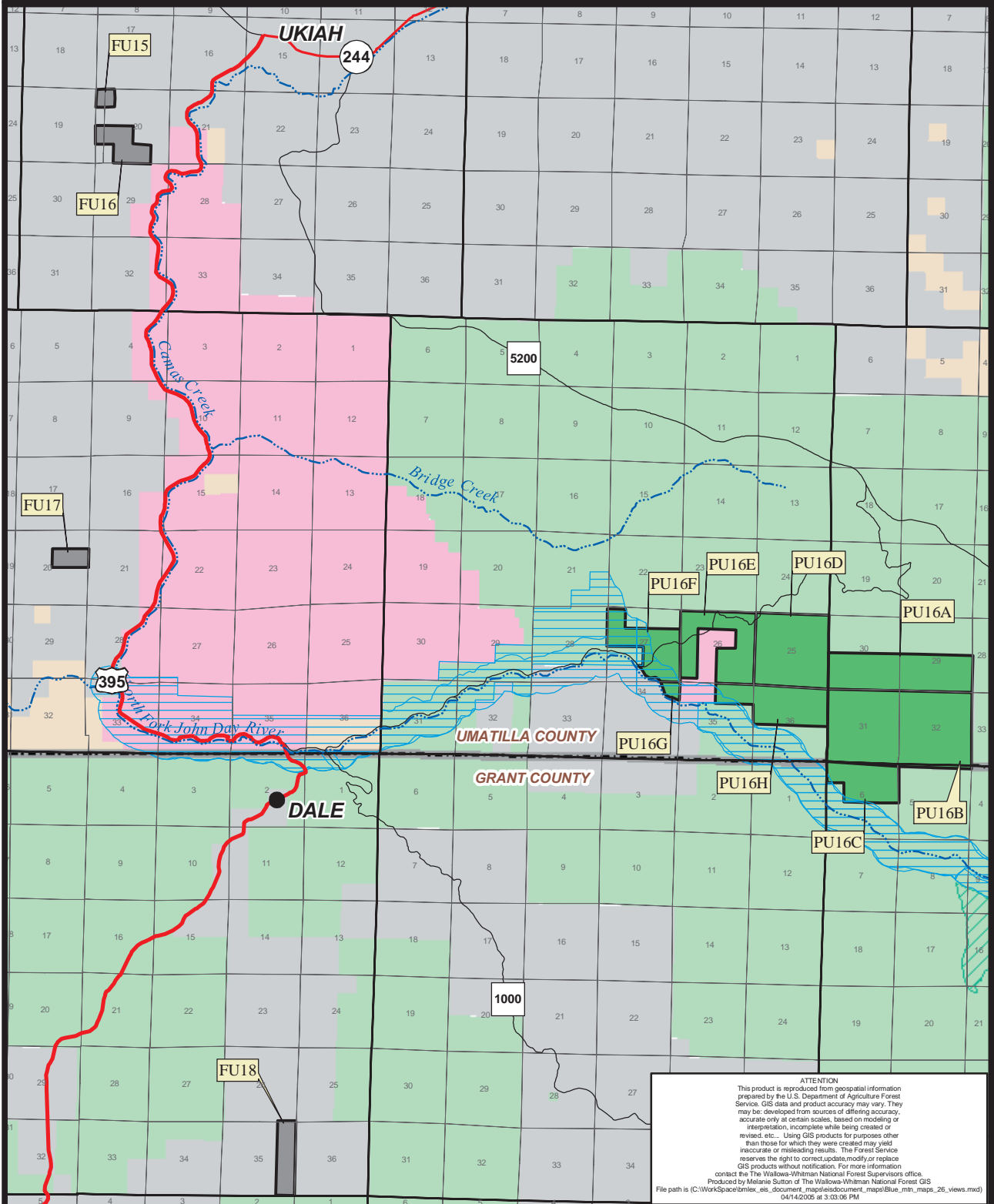


- Current Land Ownership**
- Forest Service
  - Private
  - BLM
  - State
  - Umatilla Indian Reservation
  - Other

- Hells Canyon NRA
- Wild & Scenic Rivers
- Wilderness
- County Boundaries
- Township/Range
- Sections

- Map Legend**
- Road Symbology**
- Interstate
  - US Route
  - State Route
  - County Road
  - Forest Road

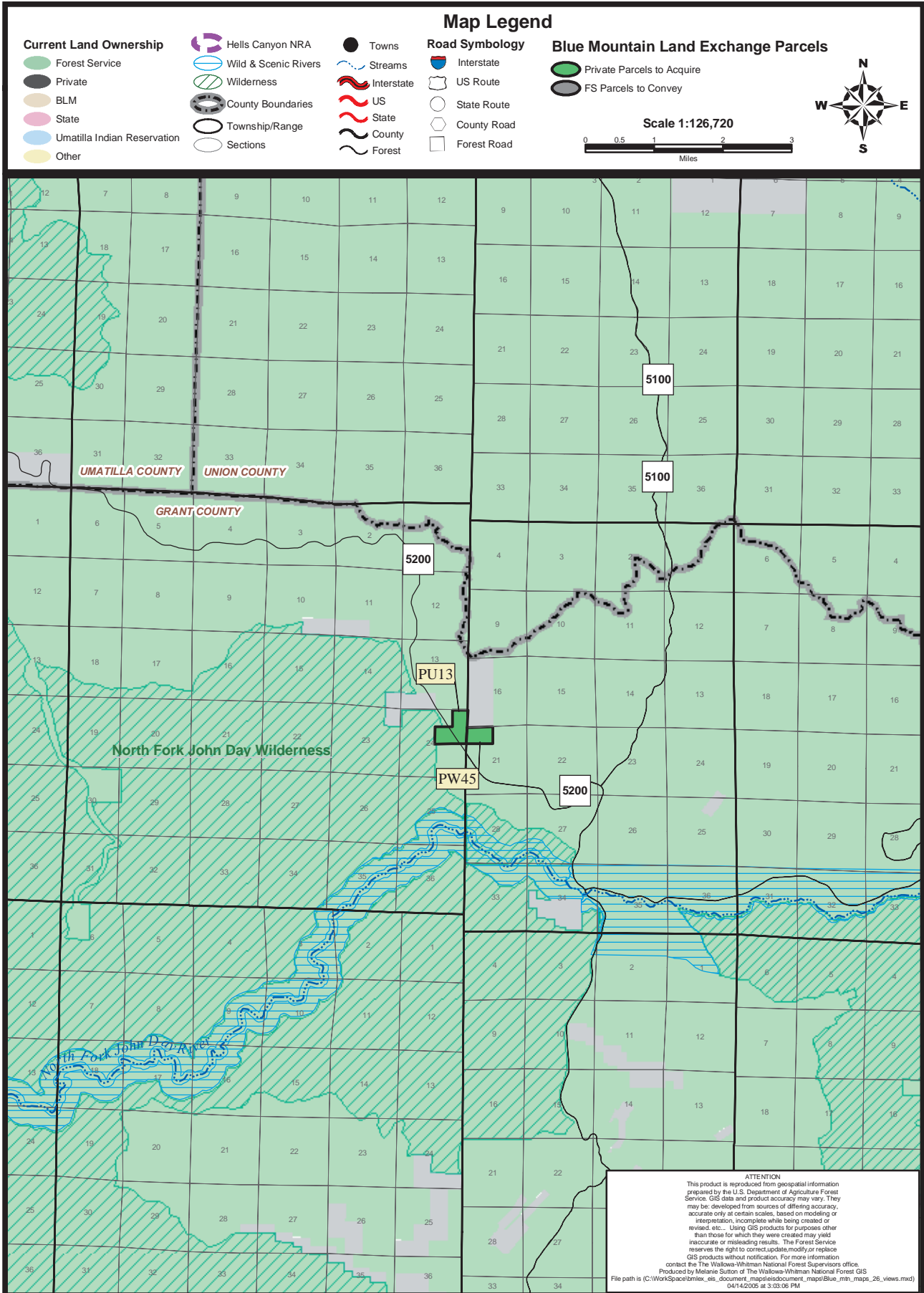
- Blue Mountain Land Exchange Parcels**
- Private Parcels to Acquire
  - FS Parcels to Convey



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# Blue Mountain Land Exchange

## Map 20



T06S

T06S  
T07S

T07S  
T08S

T08S

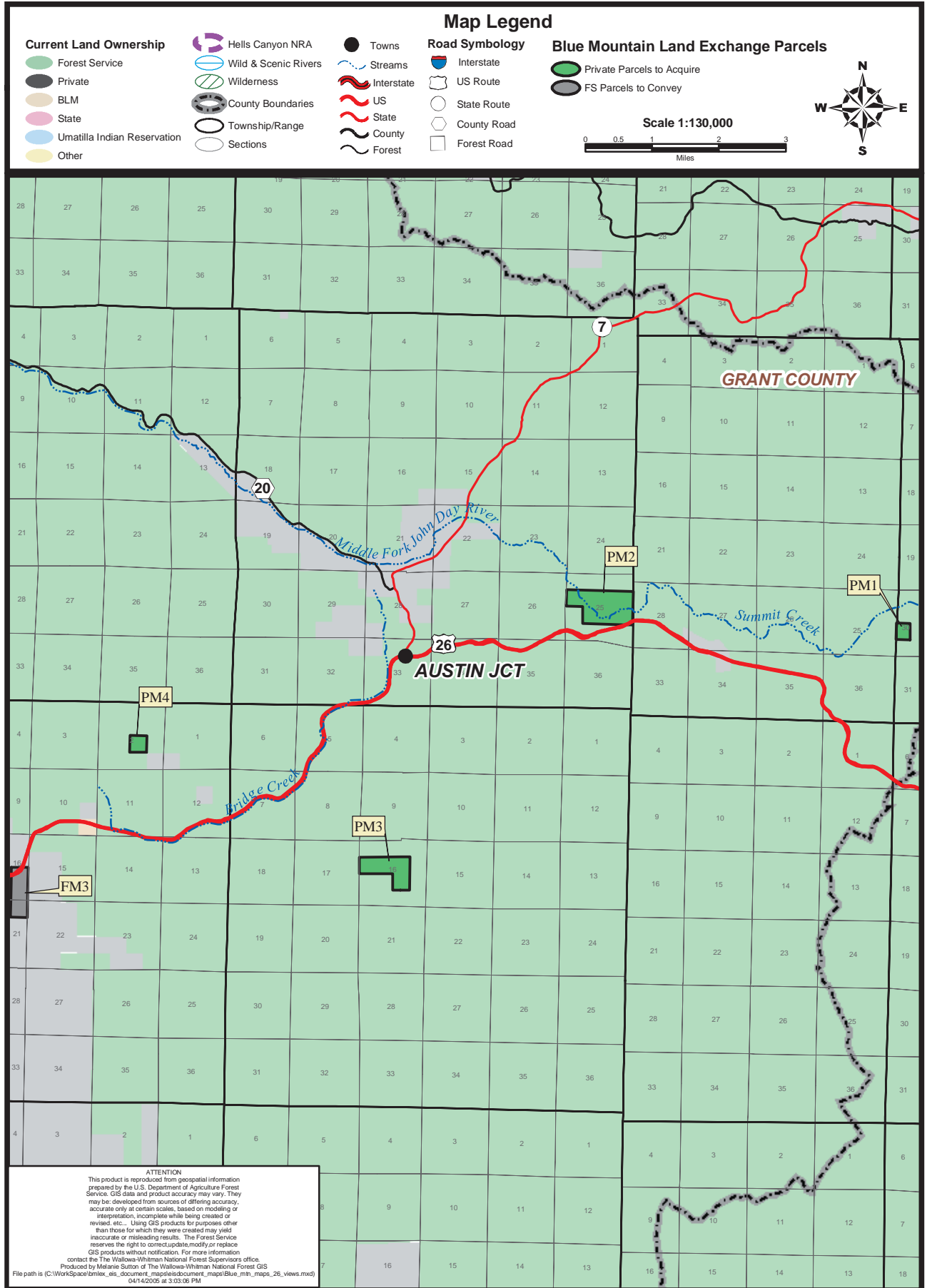
R34E R35E

R35E R35 1/2E  
B-22

R35 1/2E R36E

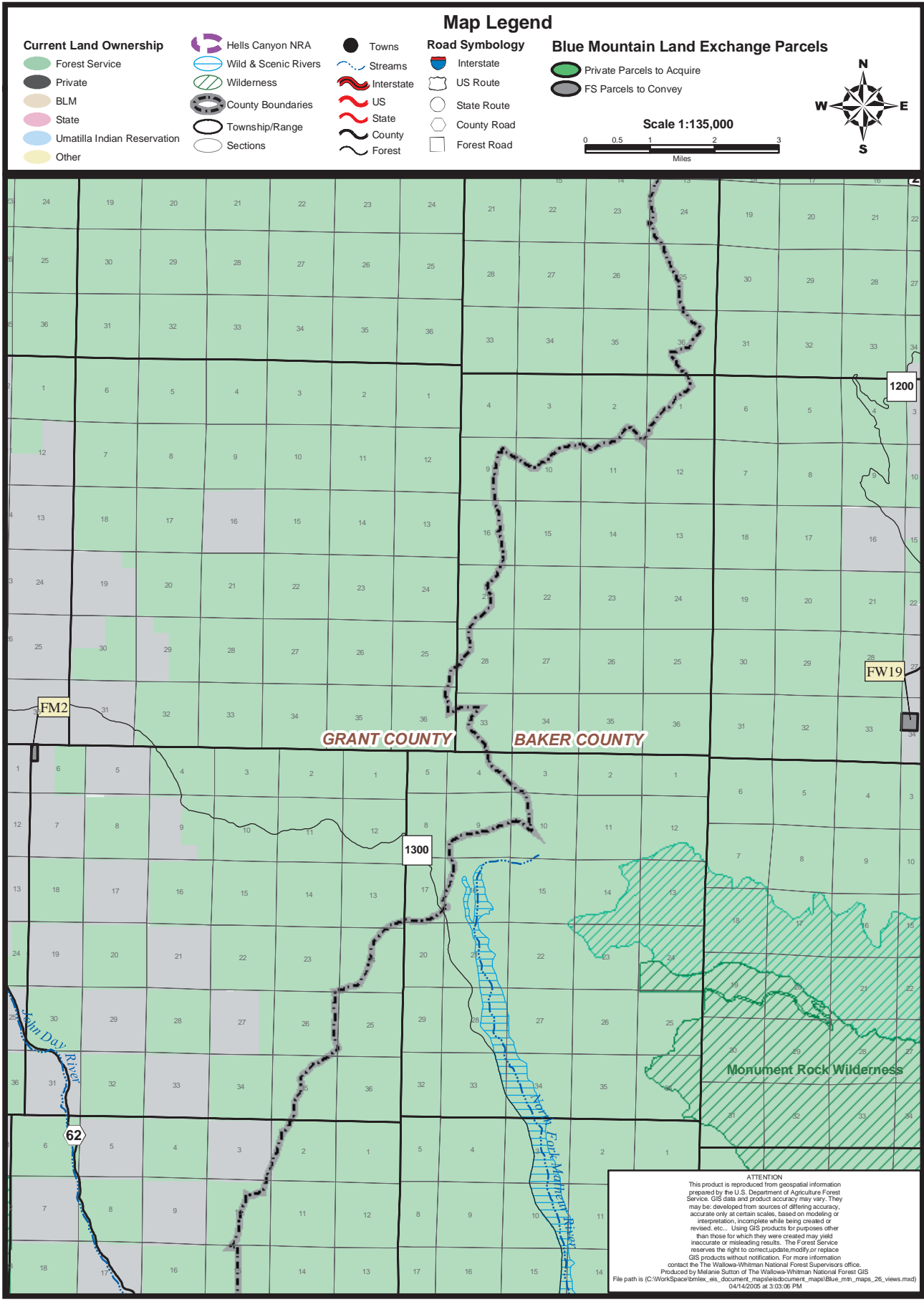
R36E

# Blue Mountain Land Exchange Map 21



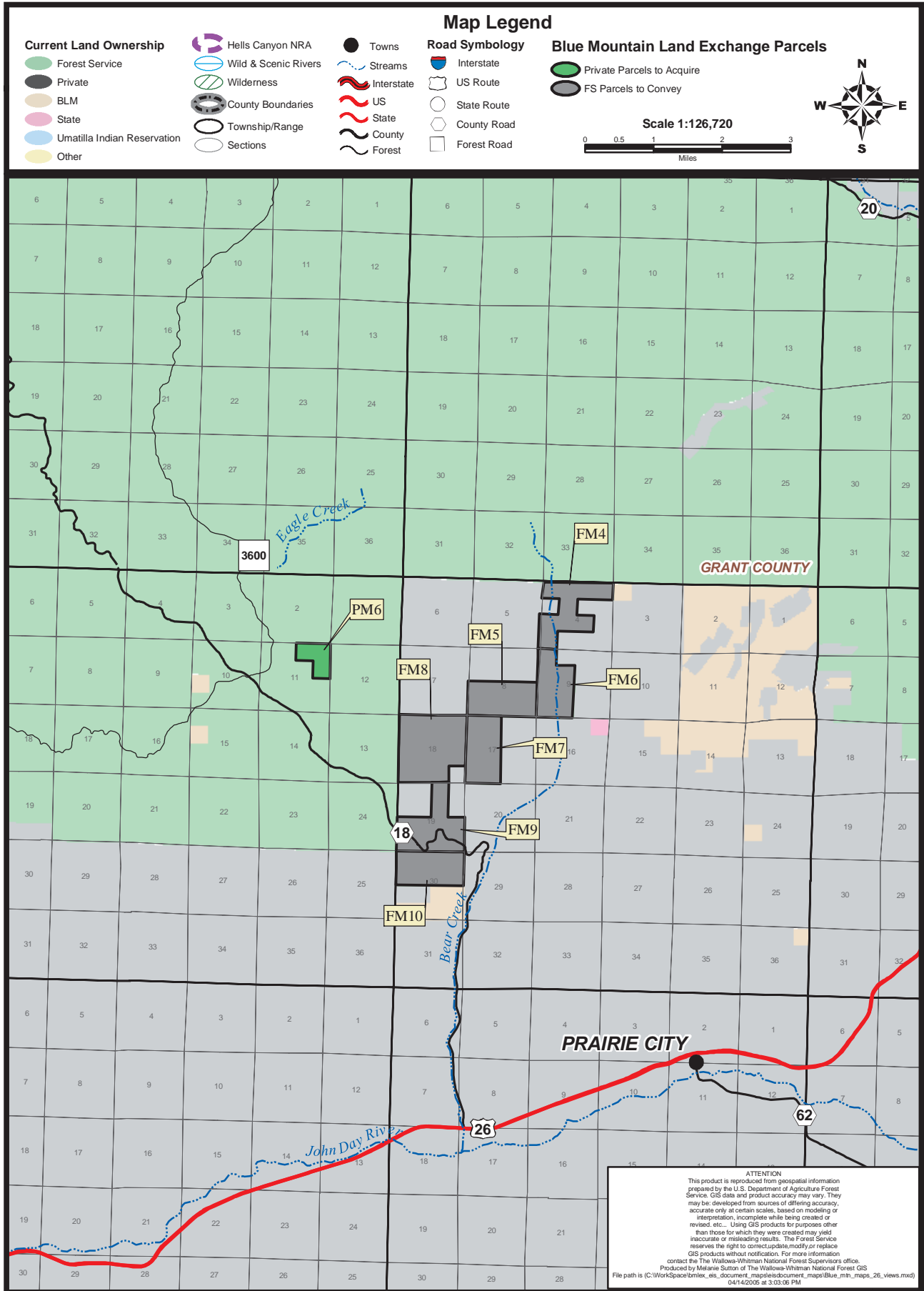
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# Blue Mountain Land Exchange Map 22



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# Blue Mountain Land Exchange Map 23



- Current Land Ownership**
- Forest Service
  - Private
  - BLM
  - State
  - Umatilla Indian Reservation
  - Other

- Hells Canyon NRA
- Wild & Scenic Rivers
- Wilderness
- County Boundaries
- Township/Range
- Sections

- Towns**
- Towns
  - Streams
  - Interstate
  - US
  - State
  - County
  - Forest

- Map Legend**
- Road Symbology**
- Interstate
  - US Route
  - State Route
  - County Road
  - Forest Road

- Blue Mountain Land Exchange Parcels**
- Private Parcels to Acquire
  - FS Parcels to Convey

Scale 1:126,720

0 0.5 1 2 3 Miles



T10S  
T11S

T11S  
T12S

T12S  
T13S

T13S

R32E

R32E R33E

B-25

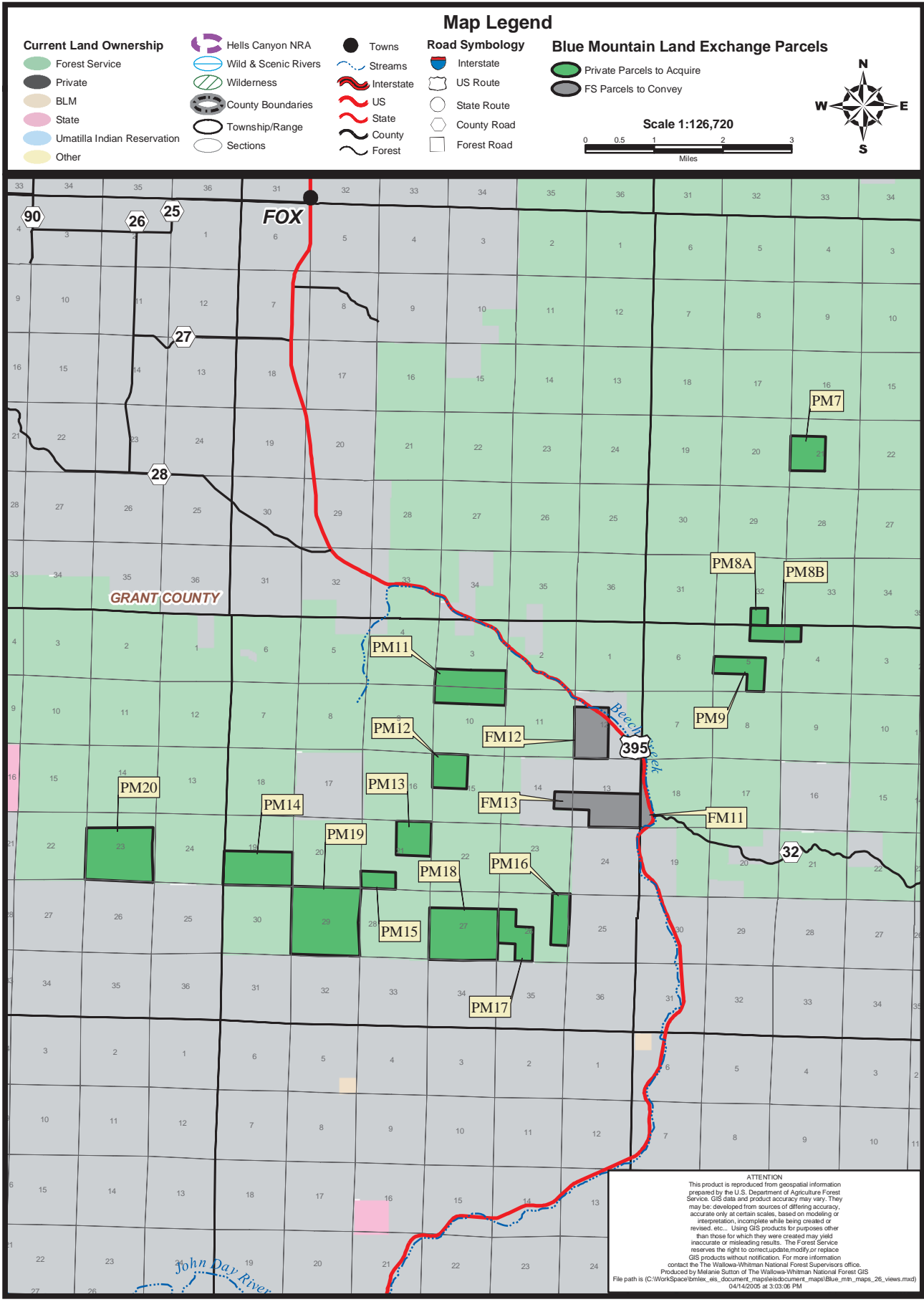
R33E R34E

R34E

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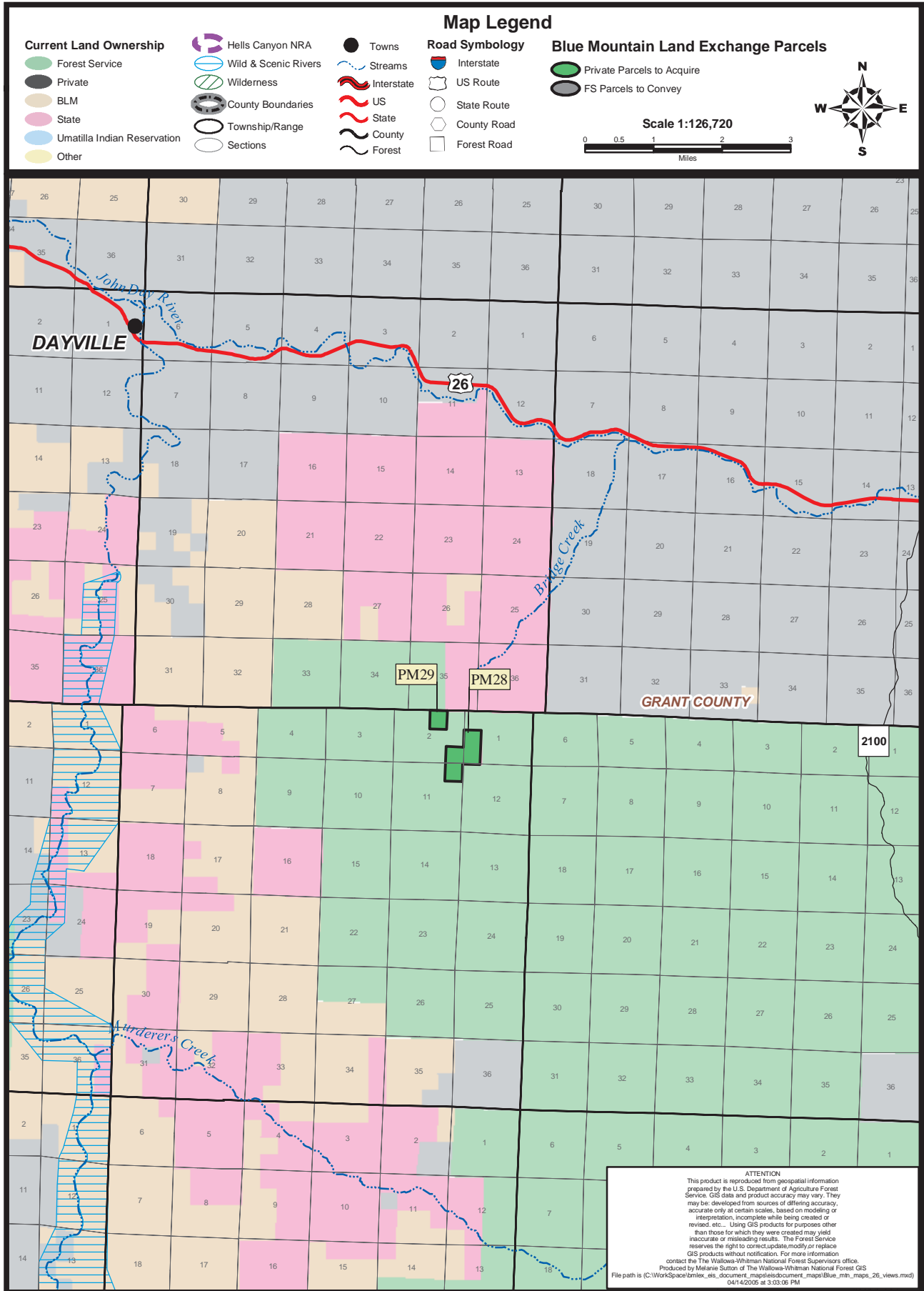


# Blue Mountain Land Exchange Map 24



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# Blue Mountain Land Exchange Map 25



R26E R26E R27E

R27E R28E  
B-27

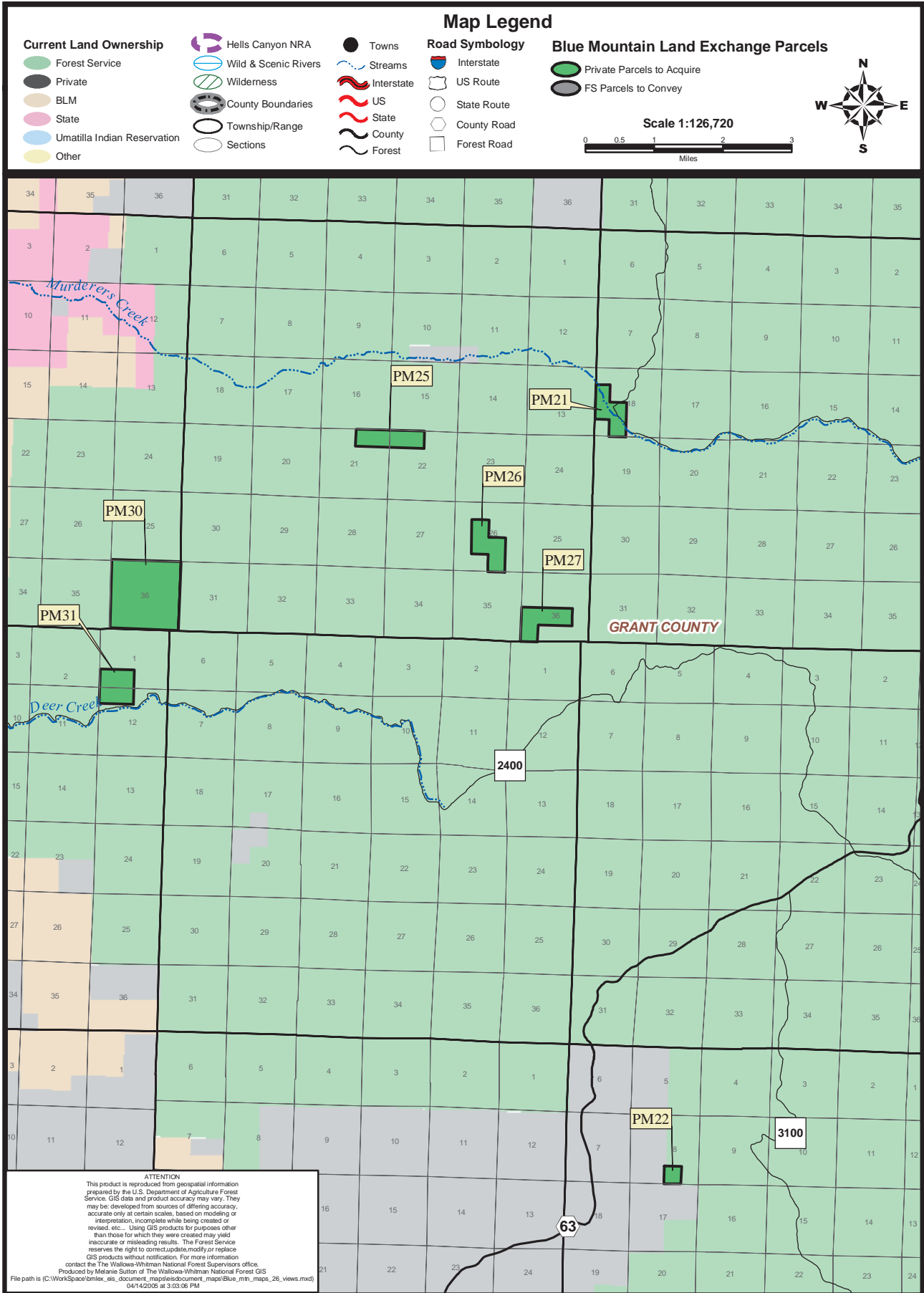
R28E

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T12S  
T12S  
T13S  
T13S  
T14S  
T14S  
T15S  
T15S



# Blue Mountain Land Exchange Map 26



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# Appendix C

## Land Exchange Process

Land exchanges involve three phases that may overlap slightly in time: 1) the Land Exchange Proposal Phase, 2) the NEPA/Appraisal Phase, and 3) the Land Title Transfer and Closing Phase. The first phase involves initial discussions and a non-binding agreement to exchange lands, along with the completion of various technical studies. The second phase involves the completion of the environmental analysis, documented in either an EA or an Environmental Impact Statement (EIS), if the proposed action is not categorically excluded from such documentation, as per FS Manual 1909.15, Chapter 30. This phase also involves the final appraisal and decision to complete the exchange. The third phase involves executing the binding exchange agreement and the actual exchange of title to the lands and closing the transaction. These three phases are discussed in more detail below.

The land exchange process includes some procedures that are open for public review and others that are confidential. The NEPA process and the associated FS implementing regulations provide for an open public review process. The process of developing a land exchange proposal, however, is essentially a business negotiation between the non-Federal and Federal landowners. In this process, non-Federal landowners share confidential or proprietary information with the Federal landowner. Additionally, prior to signing the exchange agreement, either party to a land exchange may withdraw from the proposal. Because of the confidential business information shared between the two parties as well as the possibility of withdrawal from the Proposed Exchange, the appraisal and associated records are exempt from public disclosure until the exchange agreement is executed. Requests for appraisal information must be made under the Freedom of Information Act (FOIA). Certain appraisal information is exempt from disclosure under the FOIA procedures and may not be released.

## Land Exchange Proposal Phase

The first phase of the land exchange process leads to an Agreement to Initiate (ATI) an exchange. The first step involves the negotiations that take place between the FS and the non-Federal landowner. Land exchanges are voluntary agreements and must be advantageous to both parties in order to take place. Based on these negotiations, the parties develop a mutually agreeable exchange proposal.

A Feasibility Analysis is done to insure that the proposal is consistent with the Forest Resource Management Plans and with the requirements of applicable laws and regulations. A review is also made of the public interest benefits of the exchange pursuant to 36 CFR 254.3(b). Certain exchange proposals, usually those with the value of the Federal land expected to be over \$500,000, are reviewed by the FS National Landownership Adjustment Team to insure that the proposal is consistent with FS authorities, regulations, policies and procedures. If it is determined that the proposal is feasible, the ATI for the exchange can be executed. The ATI is a non-binding agreement between the FS and exchange proponent setting out the terms and conditions for completing the exchange. The ATI also includes a tentative time schedule and assignment of responsibilities for completion of the exchange. Upon signing the ATI, a Notice of Exchange Proposal (NOEP) is prepared to give public notice that the proposal is being considered and

comments are requested. The NOEP is sent to interested parties and is published in local newspapers once a week for four consecutive weeks.

After an ATI has been signed, environmental responses are prepared concerning pertinent issues such as minerals, cultural resources, threatened and endangered species, and timber resources. During this time, discussions may also occur with interested parties, such as local communities, environmental groups, and other governmental agencies. Toward the end of the first phase, the NEPA and appraisal processes are initiated.

### **NEPA/Appraisal Phase**

The second phase begins when the draft exchange proposal and the environmental responses are completed or nearing completion and the potential for the land exchange to actually occur becomes apparent. With the initiation of the NEPA process, public and agency scoping and public involvement continues. Issues are identified, alternatives are developed, and the environmental analysis is conducted and documented. In this instance, the analysis is documented in an EIS. The final decision will be documented in a Record of Decision.

In this phase the appraisal of both the Federal and non-Federal lands is prepared. The appraisal is prepared in accordance with the Uniform Standards of Professional Appraisal Practice and the Uniform Appraisal Standards for Federal Land Acquisition. These documents require that the land and interests associated with the land be appraised to the highest and best use. Values of both the Federal and non-Federal lands are based upon the private, open market, not value to the government or proponent. The appraisal prepared for the land exchange is reviewed by a qualified review appraiser to ensure that it is acceptable and complies with the appropriate standards. The appraised value of the lands will be shown in the Record of Decision. Under the Federal Land Policy and Management Act of 1976, all exchanges must be equal in value. FS regulations at 36 CFR 254.3(c) require that exchanges must be of equal value or equalized pursuant to 36 CFR 254.12 by cash payment, after making all reasonable efforts to equalize values by adding or deleting lands. If lands proposed for exchange are not equal in value, either party may make them equal by cash payment not to exceed 25 percent of the Federal land value. The amount of any cash equalization payment must be kept to a minimum.

Prior to issuance of the ROD, the National Landownership Adjustment Team will make a second review of those exchanges it had reviewed in the first phase. Once the ROD is issued, a Notice of Decision (NOD) is prepared and sent to interested parties and published one time in local newspapers. The NOD briefly describes the decision made and provides directions for obtaining a copy of the decision.

### **Land Title Transfer and Closing Phase**

After the NEPA/Appraisal phase, the third phase of the land exchange process begins. During this final phase, both parties agree to the appraised land values and mix of lands and/or cash equalization, and a binding exchange agreement is prepared and signed. Additionally, at this stage there is a review of the exchange agreement by the appropriate Regional Office of the FS. These approvals are necessary for the exchange agreement to be implemented. Final processing steps involve the transfer of land title by exchanging of deeds and patent, usually through a simultaneous escrow closing procedure and obtaining final title insurance to assure clear title. A final title opinion by the FS and it's Office of the General Counsel is obtained and posting of land records is accomplished completing the exchange process.

# Appendix D

## Dropped Parcels

### Parcels Dropped from the Action Alternatives between NOI and FEIS

Parcel Number	Legal Acres	GIS Acres	Reason for Deletion
FU3E	640.9	643	Dropped due to resource concerns
FU4	311.79	321	Dropped due to resource concerns
FU19A	161.06	120	Resource Issues mitigated by dropping from Proposed Exchange.
FU20C	40	40	Resource Issues mitigated by dropping from Proposed Exchange.
FU21	322.19	319	Dropped due to resource concerns
FU28	40	38	Resource issues mitigated by dropping from Proposed Exchange.
FW1A S3 3N/48E	40	64	NFSL withdrawn from proposal <sup>1</sup>
FW1B S33&34 3N/48E	320	236	NFSL withdrawn from proposal <sup>1</sup>
FW1C S3&4 2N/48E	373.46	375	NFSL withdrawn from proposal <sup>1</sup>
FW1F S9 2N/48E	80	75	NFSL withdrawn from proposal <sup>1</sup>
FW1G S9 2N/48E	240	228	Resource Issues mitigated by dropping from Proposed Exchange.
FW1H S16 2N/48E	80	75	Resource Issues mitigated by dropping from Proposed Exchange.
FW1I S17 2N/48E	80	83	NFSL withdrawn from proposal <sup>1</sup>
FW3A S19 1N/48E	318.86	318	NFSL withdrawn from proposal <sup>1</sup>
FW3B S30 1N/48E	520.28	509	NFSL withdrawn from proposal <sup>1</sup>
FW3C S31 1N/48E	280.26	276	NFSL withdrawn from proposal <sup>1</sup>
FW4 S20 1N/48E	40	41	Resource Issues mitigated by dropping from Proposed Exchange.
FW17A (Portion of Parcel)	8	8	Portion within Eagle Cap Wilderness dropped from exchange by Agency decision.
FW17A (Remainder of Parcel)	10 (est)	10	NFSL withdrawn from proposal <sup>1</sup>
FW17B S24&25 3S/43E	17 (est.)	17	NFSL withdrawn from proposal <sup>1</sup>
FW17C	2 (est)	2	NFSL withdrawn from proposal <sup>1</sup>
Part of FW18	110.09	109	Lots 2, 3, and NW¼SW¼ of Section 7 dropped for resource mitigation.
PM3	160	160	Parcel sold to entity not interested in exchange.

Parcel Number	Legal Acres	GIS Acres	Reason for Deletion
PM10 S16 12S/31E	640	638	Dropped due to resolvable title issues that cannot be resolved.
PU17 S8&9 4S/32E	160	159	Property sold to entity unwilling to exchange
PU18 S9&10 4S/32E	160	156	Property sold to entity unwilling to exchange
PU22D S4&5 7S/26E	322.25	284	Property sold to entity unwilling to exchange
PU25 S5 7S/24E	320.01	305	Property sold to entity unwilling to exchange
PU26A	40	40	Landowner no longer willing to exchange this private parcel.
PU26B	121.85	122	Landowner no longer willing to exchange this private parcel.
Part of PW7C S11 3N/48E	120	119	Property sold to entity unwilling to exchange
Part of PW8C S11&12 3N/48E	200	179	Withdrawn from proposal – unwilling landowner
Parts of PW 13C,13D,16A S23 3N/48E	160	160	Property sold to entity unwilling to exchange
Part of PW15A S23 3N/48E	120	123	Withdrawn from proposal – unwilling landowner
Part of PW16E S35 3N/48E	120	104	Withdrawn from proposal – unwilling landowner
Part of PW17B S36 3N/48E	120	118	Property sold to entity unwilling to exchange
PW17C S1 2N/48E	101	108	Withdrawn from proposal – unwilling landowner
PW17D S1&2 2N/48E	240	241	Withdrawn from proposal – unwilling landowner
PW23C S18 2N/48E	120	120	Property sold to entity unwilling to exchange
PW23D S17 2N/48E	40	40	Property sold to entity unwilling to exchange
Parts of PW25B, PW25C & PW27E	12.26	12 (Est)	That portion of the parcel encompassing the ranch buildings, railcar bridge, and staging area on the west side of Imnaha River will be dropped. FS not willing to acquire liability for additional structures and potentially hazardous materials.
Part of PW25D	44	44	That portion of the parcel in the W½NW¼ section 21 will be dropped from further consideration. Lands no longer have NF character and encroachments may already exist on this property. <i>17 acres in the NW¼ were dropped prior to the DEIS. 44 acres were dropped from the Preferred Alternative in the FEIS</i>
Part of PW27A S3 1S/48E	80	75	Withdrawn from proposal – unwilling landowner

Parcel Number	Legal Acres	GIS Acres	Reason for Deletion
PW27B S10&11 1S/48E	120	117	Withdrawn from proposal – unwilling landowner
PW33	161.92	161	Landowner withdrew from exchange. Selling property on open market.
Parts of PW34A, B & C	240	247	240 acres including those lands which encompass the ranch buildings, railcar bridge and access road dropped from further consideration. Landowner withdrew these lands. Additionally, the FS not willing to acquire liability for additional structures. <i>Approximately 10 acres immediately surrounding the ranch site were dropped in the DEIS. 240 acres have been withdrawn by the landowner and dropped from the Preferred Alternative.</i>
PW36A S19&30 3S/44E	132 (est.)	136	Withdrawn from proposal – unwilling landowner
PW36B S24&25 3S/43E	47.21 (est.)	48	Withdrawn from proposal – unwilling landowner
PW37	4 (est)	4	Landowner withdrew from exchange.
PW41 S18 2S/36E	40	45	Landowner no longer willing seller
PW43 S23 2S/36E	240	250	Landowner no longer willing seller
PW44A	80	70	Dropped due to resource concerns
PW51B S33 3N/47E	130	123	Withdrawn from proposal – unwilling landowner
Part of PW51D S34 3N/47E	480	476	Withdrawn from proposal – unwilling landowner
PW53 S14&23 3N/47E	160	165	Withdrawn from proposal – unwilling landowner
PW54 S23&26 3N/47E	160	158	Withdrawn from proposal – unwilling landowner

1) These NFS lands were part of the original proposal. When certain private lands were withdrawn from proposal by private landowners, selected NFS lands were also withdrawn



# Appendix E – Response to Comments

## Alternative Development – 100

1. I have questions concerning parcel FU26. ... Why is this piece being carved off and deleted from the Forest Service: ... I cannot find anywhere in the book where a need is listed not described as to why the Forest should delete this parcel. It is contiguous with other Forest Service grounds. It is utilized by a great number of the public for hunting, mushrooming, and recreating purposes. It has good public access from the east and the south. I do not understand why you would want to carve it off. (2/1)

**Response:** *Parcel FU26 has been identified as having high recreational values under the social and economic issue discussion. This parcel has a management area goal to provide non-motorized recreation opportunities in an area that is predominately natural or natural appearing (MA A1). It also has a goal to provide high levels of potential habitat effectiveness for big game and other wildlife species (MA C4). The Rocky Mountain Elk discussion revealed this parcel has important elk habitat. FU26 was also mentioned as being strategically located to allow for future fuels reduction.*

*While this parcel has value as a part of the National Forest System, the lands that would be acquired in the Preferred Alternative have similar values. FU26 has been assigned to Management Area 1A {non-motorized recreation (42 acres)} and Management Area C4 {Wildlife Habitat (147 acres)} in the Umatilla National Forest Land and Resource Management Plan. The loss of these acres with these management goals and objectives would be balanced in the overall Preferred Alternative by a net gain of approximately 143 acres entering Federal ownership to be managed as non-motorized recreation and a net gain of approximately 515 acres entering Federal ownership with a management emphasis of providing quality habitat for game. The quality habitat for game gain represents the net change in acres on the three forests in MA's that have wildlife as a primary management goal (Malheur 4A; Umatilla C3, C4 & E2; Wallowa-Whitman 1W & 3).*

*Lands that are currently in Federal ownership are the assets that would be used in order to acquire desirable lands within the proclaimed boundaries of the three National Forests. These lands help to achieve the overall goal of consolidating National Forest ownership. The exchange of lands would be on an equal value basis. Exchange of lands, rather than purchase, allows for the acquisition of a much larger number of inholdings. Exchange also addresses both local government and public concerns related to large increases in Federal ownership and the resulting impacts to the local tax base and essential public services supported by the tax base.*

2. Hamilton mountain is a logical area to eliminate from the exchange because the DEIS clearly states that losing the Designated Old Growth would be a significant negative environmental impact, and it cannot be adequately mitigated. (14/1)

**Response:** *Correct, the FEIS discusses the effects of conveying the Hamilton Ridge parcels on pages 207-213. With the Preferred Alternative, as with all land exchanges, there must be somewhat of a trade off in benefits to the public and private interests. To accomplish an acquisition of land by exchange, there also must be an equal value of public land conveyed out of Federal ownership. It is the Line Officer's decision to determine that a greater public interest is served by the Preferred Alternative.*

*Section 9 of the Act of December 13, 1975 (P.L. 94-199), Section 6 of the Wild and Scenic Rivers Act (16 U.S.C. 1271-1287), Section 5(c) the Wilderness Act of September 3, 1964 (P.L. 88-577), and Section 5 (a)(2) of the Endangered Species Act of December 28, 1972 (P.L. 93-205) all directly or indirectly instruct the Secretary of Agriculture to acquire, by donation, purchase, or exchange, those lands that are available on a willing seller basis within the boundaries of the Hells Canyon National Recreation Area, Wild and*



*Scenic Rivers, Wilderness Areas, or lands that provide critical habitat for threatened and endangered species. Lands within Congressionally designated areas have the highest priority for acquisition in the three Forest's Land and Resource Management Plans. Lands that preserve habitat for T&E species are also high priority for acquisition. To acquire these highly desirable lands, other lands that have not been congressionally designated may provide the assets necessary to complete an exchange on a willing seller basis. The Preferred Alternative would result in a net increase of 7,442 acres within HCNRA, 2,128 acres within boundaries of W&S Rivers, 243 acres within Wilderness, and 45 miles of anadromous fisheries.*

3. ... the Forest Service may not convey into private ownership Parcels FU3E and FU4. We believe these parcels should be conveyed. We point out if these parcels are not conveyed that mutual attempts by the Forest Service and Pendleton Ranches at blocking up land ownerships in the Butcher Creek area will no occur, and may in turn cause Pendleton Ranches to rethink areas important to it on Horseshoe Ridge and at Butcher Point that are significant to its existing operation which in turn will interrupt land blocking by the government in that area. If FU3E and FU4 are not included within the trade, the effect upon Pendleton Ranches is to drive a wedge into its resultant land ownership. (17/1)

**Response:** *Parcels FU3E and FU4 have been dropped from the Preferred Alternative in response to concerns raised by the CTUIR. Their concerns centered on the net loss of open and unclaimed lands within their ceded boundary and traditional uses of these specific lands. In response to these concerns, the parcels were dropped from further consideration. The Forest Service understands that there may be consequences to dropping these parcels. Consequences may include; 1) not realizing to the fullest extent efficiencies related to conveyance of land parcels lacking access, 2) difficulty of managing isolated parcels, and 3) a lost opportunity to acquire lands desirable for inclusion in the National Forest System.*

4. The DEIS does not comply with the National Environmental Policy Act ... and regulations of 40 C.F.R. Part 1502 and 1506 where as it fails to consider reasonable alternatives. The DEIS consideration of alternatives only addresses different methods of acquisition of the lands. A reasonable range of alternatives would also consider different levels of exchange, such as different combinations of lands to be disposed of or acquired. (18/1)

**Response:** *In the DEIS three action alternatives were evaluated in detail along with the No Action Alternative. The Proposed Exchange and Deed Restriction alternatives considered significantly different levels of exchange. NEPA regulations 40 C.F.R. Part 1502.14 states the environmental impacts of the proposal and the alternatives are to be presented in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public. Other significantly different levels of exchange (conveyed and acquired parcels) were not acceptable to the Forest Service or the facilitator, therefore other exchange alternatives that sharply define the issues and provide a clear basis for choice were not feasible. Minor changes to the Proposed Exchange Alternative would not be sensitive to the issues and provide a clear basis for choice. Also refer to Alternatives Considered but Eliminated from Detailed Study (FEIS pages 31- 32).*

*The alternatives evaluated in detail do not prejudice the decision.*

5. Attached as Exhibit A to this letter is a letter we received from ODFW indicating that these ODFW lands in the Murderer's Creek Management Area have not been approved by the Fish and Wildlife Commission for exchange. The lands also apparently have not been approved for sale to the Forest Service. Thus including these state lands in the EIS is an illegal alternative under the National Environmental Policy Act ("NEPA"). (19/3)

**Response:** *The Forest Service understands the Oregon Department of Fish and Wildlife, with the support of the facilitator in this assembled Proposed Land Exchange, is considering exchanging the State Murderer's Creek parcels. The State parcels are included in the FEIS analysis in compliance with NEPA.*

*It is the responsibility of the State of Oregon to comply with any relevant state statutes and rules governing its participation in the Proposed Land Exchange. The Department of Justice and Oregon Department of Fish and Wildlife letters submitted by the respondent indicates the State will comply with all laws and rules.*

6. The Forest Service failed to consider an adequate range of alternatives for the disposition of the state-owned Map 26 Parcels. The Stouts had offered to purchase some of these parcels for an amount greater than a previous appraisal and are willing to purchase the Map 26 Parcels for the appraised value plus 15 percent. This is a reasonable alternative, given that the purpose and need of the project is to contribute to the economic stability of privately owned ranches and that the Stouts own ranch land in the vicinity, hold grazing rights for the property, and use the buildings on Parcel PM26. Failure to consider this reasonable alternative violated NEPA. (19/7)

**Response:** *Any private offer to purchase the Map 26 State parcels or any other private parcels considered in the Proposed Exchange is beyond the scope of the DEIS.*

7. ... the CTUIR requested that parcels FU4 and FU3E be dropped and the FS identified that parcels FU4 and FU3E would be removed due to acreage imbalance. These two parcels are still included and it was not explained why they were not dropped. ... If the FS does not remove them from the sale, they must consider the alternative suggested by the CTUIR regarding adjusting the eastern boundary lines on FU3A, FU3B and FU3C so the Meacham Creek floodplain to a point upslope of the Union Pacific Railroad right of way does not leave federal ownership. (20/16)

**Response:** *Parcels FU3E and FU4, as well as FU21, have been dropped from the Preferred Alternative to address the imbalance of acres within the ceded boundary of the CTUIR. The Forest Service has also adjusted the boundary along Meacham Creek so that the resulting post-exchange boundary would be on the western right-of-way line of the Union Pacific Railroad. Additionally, the wetland area at the confluence of Meacham and Butcher Creek will be retained in Federal ownership as part of the Preferred Alternative.*

8. One particular parcel we had identified in previous communications to be altered was FU21. A 1/8<sup>th</sup> section portion of parcel FU21 should be dropped, the section containing the springs for cultural resource significance. (20/17)

**Response:** *FU21 has been dropped from the Preferred Alternative in the Land Exchange.*

9. Forest Service parcels that should not be traded away: FU 21 - contains irreplaceable and important LOS habitat and elk winter range (23/1)

**Response:** *FU21 has been dropped from the Preferred Alternative in the Land Exchange.*

10. Forest Service parcels that should not be traded away unless equal ecosystem value lands can be acquired: FM 16A, FM 18, FM 19 - designated LOS habitat, need LOS elsewhere to replace these parcels FM 7, FM 8 - 1 1/2 mile of excellent riparian area on Hall Cr that contributes to anadromous spawning stream and some quality LOS habitat, need commensurate riparian and LOS values elsewhere to replace these parcels (23/2)

**Response:** *Old growth habitat comparable to that contained in parcels FM16A, FM18, and FM19 would not be acquired under the Preferred Alternative, nor would comparable riparian habitat be acquired to mitigate the conveyance of FM7 and FM8 that could specifically benefit Mid-Columbia steelhead and westslope cutthroat trout. The effects of conveying these parcels are discussed in the FEIS on pages 170-213 and in the Fisheries and Wildlife report in the Project Record.*

*With this exchange, as with all land exchanges, there must be somewhat of a trade off in benefits to the public and private interests. To accomplish an acquisition of land by exchange, there also must be an*

*equal value of public land conveyed out of Federal ownership. It is the Line Officer's decision to determine that a greater public interest is served by the Preferred Alternative.*

*Section 9 of the Act of December 13, 1975 (P.L. 94-199), Section 6 of the Wild and Scenic Rivers Act (16 U.S.C. 1271-1287), Section 5(c) the Wilderness Act of September 3, 1964 (P.L. 88-577), and Section 5 (a)(2) of the Endangered Species Act of December 28, 1972 (P.L. 93-205) all directly or indirectly instruct the Secretary of Agriculture to acquire, by donation, purchase, or exchange, those lands that are available on a willing seller basis within the boundaries of the Hells Canyon National Recreation Area, Wild and Scenic Rivers, Wilderness Areas, or lands that provide critical habitat for threatened and endangered species. Lands within Congressionally designated areas have the highest priority for acquisition in the three Forest's Land and Resource Management Plans. Lands that preserve habitat for T&E species are also high priority for acquisition. To acquire these highly desirable lands, other lands that have not been congressionally designated may provide the assets necessary to complete an exchange on a willing seller basis. The Preferred Alternative would result in a net increase of 7,442 acres within HCNRA, 2,128 acres within boundaries of W&S Rivers, 243 acres within Wilderness, and a net increase 45 miles of anadromous fisheries.*

## **Roads/Transportation – 201**

1. The EIS should discuss options for obtaining the necessary resources for maintaining the 60 miles of roads on these conveyed lands. Options might include deed requirements, federally provided resources (i.e. equipment, personnel, money), or road maintenance bond requirements from recipients of the conveyed lands. (22/4)

**Response:** *Maintenance of roads leaving Federal jurisdiction was not identified as a key issue in the FEIS analysis. Deed requirements considered in the Deed Restriction Alternative were developed in response to key issues. Deed restrictions are generally considered only when needed to protect the public interest or to satisfy a requirement of law.*

*The 60 miles of conveyed roads are no longer needed to provide access to surrounding National Forest System lands. The roads will become private roads and the Forest Service has no authority to expend Federal funds on private roads no longer serving Federal lands. These private roads will be maintained in accordance with Oregon State Forest Practices Act standards and guidelines.*

## **Fish/Fisheries – 400**

1. The DEIS should include a wide range of alternatives including not only a no-action alternative, but also something in-between that and the proposed action. An example would be development of an option that leaves larger riparian buffers than those in the proposed action and deletes logging on steeper grades. (10/4)

**Response:** *Chapter 2 of the FEIS describes five alternatives that were evaluated in detail. They include the Proposed Exchange, No Action, Purchase, Deed Restriction and Preferred Alternative alternatives. The Deed Restriction Alternative requires specific deed restrictions on all conveyed parcels containing riparian habitat (FEIS Pages 21-27). Any requirements above and beyond the Forest Plans or the Oregon Forest Practices Act would be outside of the scope of this analysis.*

2. The analysis of effects must be also be analyzed for consistency with legal mandates, rebuilding efforts, regional goals and policies, and the legal mandates contained in PACFISH and the Biological Opinions on that management strategy. (10/6)

**Response:** *The effects analysis included possible conflicts between the alternatives evaluated in detail and the objectives of Federal, regional, State and local land use plans, existing biological opinions, policies and legal controls for the project area. The Biological Assessment was completed for the*

*Preferred Alternative and is included in the Final EIS. The Preferred Alternative complies with PACFISH, INFISH and existing Biological Opinions.*

3. A detailed monitoring plan should be developed and presented as part of the environmental analyses. The monitoring plan should include detailed pre-activity inventories and post-activity monitoring of the following fish habitat and land use parameters. (10/7)

**Response:** *All three forests within the project area have approved Forest Plans. Each Forest Plan, as amended has an ongoing monitoring and evaluation program. Monitoring is the means of measuring and evaluating the effectiveness of Forest Plan implementation. The effects resulting from implementation of the Forest Plan landownership adjustment direction for each forest would be monitored as part of the yearly monitoring and evaluation program.*

4. We have concerns about some steelhead and salmon producing streams leaving public ownership and would like some assurances that no degradation of this important habitat occurs. (12/4)

**Response:** *The Preferred Alternative would convey 7.29 miles of steelhead habitat and .08 miles of Spring Chinook salmon habitat. On private and state lands, the Oregon Forest Practices Act is used to regulate timber harvest and associated activities near channels. The Oregon Forest Practices Act and the Oregon Administrative Rules (OAR); Water Protection Rules identify protections for riparian areas, wetlands, and water quality. Rules related to management of roads and harvest near channels are available in the PR.*

*The Preferred Alternative represents the greatest potential benefit to steelhead and Chinook salmon based on the amount of habitat that would be acquired. Although some detrimental effects would likely result from roads and logging on conveyed parcels, the majority of these effects would be upslope and pose indirect effects. These effects are discussed on pages 177-178 and 180-182 of the FEIS and in the Biological Assessment Appendix F.*

5. The DEIS does not comply with the National Environmental Policy Act ... and regulations of 40 C.F.R. Part 1502 and 1506 where as if fails to adequately disclose environmental impacts regarding fish habitat. The DEIS merely analyzes impacts on fish habitat based on the amount of habitat miles. ... This is not appropriate since different streams and their habitats have varying importance based on the overall health of their systems and the quality of the habitat. Merely providing additional miles of a stream that does not have much of a fishery is totally different than adding just a few miles to a very important fishery stream. Also, the conveyance of 12% of Upper Deer Creek which has quality habitat cannot be compared to the 1.4% to be obtained which has been cut over to come to a meaningless total of 10.6%. (18/7)

**Response:** *The objective of the fisheries section is to describe the various fisheries within the analysis areas and disclose the potential effects to these resources by alternative. The analysis areas used includes individual exchange parcels, 47 watersheds (5<sup>th</sup> field HUC), and subwatersheds with the highest concentration of exchange parcels. The analysis area includes portions of 13 subbasins, across four river basins. Of the 47 fifth level HUCs involved in the Preferred Alternative, six accounts for 50% of the exchange acres, and twelve account for 75% of the exchange acres. This indicates that many watersheds involve extremely minor acreages that would not represent measurable changes to fisheries resources. However, there are fifteen subwatersheds (sixth level HUC) that involve at least 5% of their area in the Preferred Alternative. These subwatersheds warranted closer examination. The same approach in determining effects was taken in the Hydrology, Wetland and Floodplains section. This section has additional information about these fifteen subwatersheds.*

*The affected fish habitat environment is adequately described in the Vegetation, Hydrology, Wetland and Floodplains, Water Rights, Soils, Range and Transportation sections. The fisheries section does not repeat this information but refers the reader to these sections as deemed appropriate. Potential effects to*

*steelhead, Chinook salmon, cutthroat trout, and bull trout focuses on four primary areas of management: grazing by livestock, logging, roads, and water rights. The mechanisms involved in these activities that could affect fisheries are described and referenced in the Environmental Consequences narratives. Alternatives are compared by the miles of fish habitat being conveyed and acquired rather than repeat specific effects of each management activity or mechanism. Therefore, gain/loss in stream miles of habitat by alternative along with professional judgments related to the four primary areas of management were considered measurement indicators for comparing relative effects.*

6. It is also not clear whether the information and analysis in the DEIS is consistent. For example, compare the different numbers at pages 70 and 163 regarding fishery habitat on the Lower NF John Day River. (18/19)

**Response:** *Table 27 on page 70 of the DEIS displays miles of stream by watershed and stream category in the Proposed Exchange. This table shows conveyed and acquired miles by fish bearing, perennial and intermittent streams. Table 63 on page 163 displays FS miles of steelhead habitat (conveyed and acquired) by 5<sup>th</sup> Level HUC on proposed land exchange parcels. The numbers are not comparable since table 27 refers to fish bearing and table 63 refers to steelhead habitat.*

7. Page 272 contains the statement, “All action alternatives would ... increase fisheries production.” The DNR believes that the FS cannot guarantee that simply because it owns the land surrounding the streams the fish population will improve. Specific activities to improve the habitat may be necessary. (20/15)

**Response:** *Page 171 of the FEIS states in reference to the effect that livestock grazing poses to fisheries habitat “These activities near streams can lead to degraded water quality, sediment and nutrient input to streams, and damage to stream banks that cumulatively decrease fish production and survival.” Another reference to fish production on the same page states “these effects can result in direct mortality of eggs and reduced production of fish from the affected spawning cycle(s).*

*Fish habitat is discussed for all the listed species that exist within the geographic scope of this project in terms of miles of habitat that would be acquired and conveyed, and the net change for each species. However, the quality of the exchanged habitat is not discussed in detail, and “high quality fisheries habitat” is not referred to. Some discussion on the quality of habitat being exchanged is provided in the Biological Assessment (FEIS Appendix F).*

*PACFISH and INFISH are interim aquatic conservations strategies and have been incorporated into the Forest Plans for the Malheur, Umatilla, and Wallowa-Whitman National Forests, which are parties to the Preferred Alternative. Interim aquatic conservation strategies were adopted to protect Federally listed fish species and to maintain, restore, and preserve management options for the future. The protections afforded by PACFISH/INFISH are greater than what would be provided on private lands. This fact is discussed in multiple locations in the FEIS.*

8. Fish Issues Regarding Blue Mt Land Exchange – Bear Creek T12S R33E, Sections 4, 8, 9, 17, 18, 19, and 30 Bear Creek contains the most at risk westslope cutthroat (sensitive species) population within the John Day River basin because of limited distribution, isolation, reduced productivity, and population size. Phil Howell and Al Hemmingsen’s assessment indicated this population is on a downward trend. (24/3)

**Response:** *The comment is correct. According to the Oregon Native Fish Status Report, the westslope cutthroat trout population in Bear Creek is one of the most at risk in the John Day River basin. Of the six criteria used to assess the 17 populations in the John Day River basin, Bear Creek and Belshaw Creek fail four of the criteria. “Distribution”, “abundance”, “productivity”, and “hybridization” are the criteria ranked as “fail” for the Bear Creek population, while “reproductive independence” and “existence” are the two criteria ranked “pass”. A section on westslope cutthroat trout has been added to the FEIS (refer to FEIS, pages 188-190).*

9. Fish Issues Regarding Blue Mt Land Exchange – Bear Creek T12S R33E, Sections 4, 8, 9, 17, 18, 19, and 30 Bear Creek also is used by Mid-Columbia ESU steelhead for spawning and rearing. In recent years, an extensive network of beaver dams has confined steelhead access to the lower 2 miles of the stream. However, the beaver dams are temporary structures that periodically wash out and during high water events adult steelhead are able to swim around the edges of or over the dams. (24/4)

**Response:** *The Biological Assessment Appendix F states: “Strawberry Creek (1707020108) includes conveyance of 3.64 miles of steelhead habitat in the Mid-Columbia ESU on Bear and Hall Creek; tributaries to the John Day River approximately five miles northwest of Prairie City. Steelhead redd surveys by ODFW in Bear Creek indicate a low but stable spawning population up until approximately six years ago when a downward trend began. No redds have been detected in the Bear Creek index area in five of the last six years. This apparent downward trend does not reflect a similar trend in the balance of the Upper Main John Day River basin, indicating possible site specific changes in spawning within the Bear Creek system. In fact, the development of beaver dams in the lower reaches of Bear Creek may have impeded upstream migration of spawning steelhead resulting in these recent declines. Year to year differences in survey conditions that effect detection rates of redds, or steelhead spawning outside of the index survey area can not be ruled out in explaining this recent downward trend. Bear and Hall Creeks are in relatively poor condition due to the presence of roads within riparian areas, culverts that are barriers to fish passage, and detrimental effects to riparian vegetation and stream banks from cattle grazing. In 2002 a fish passage device was installed on lower Bear Creek to address a partial barrier posed by an irrigation ditch. Despite the multitude of factors affecting this system, water temperature remains low and capable of supporting the native salmonids that inhabit this system. The coolest water appears to originate from the upper reaches of these creeks within Forest Service lands (Allan Miller 2005). Cool water temperatures are promising from the standpoint of potential to restore fish habitat quality in this system. The problems that exist in these creeks on Forest Service lands appear to have persisted for several decades and there is no evidence that active restoration has been attempted. Riparian fencing is apparent on the lower private reaches of Bear Creek, and they appear to be a combination of exclosures and riparian pastures. If parcels FM4, FM6, FM7 and FM8 are conveyed to private ownership the likelihood of fish habitat restoration occurring is much lower than if they remain under Forest Service management. Additionally, with accelerated logging of the uplands, less road maintenance, and no grazing standards, the rate at which riparian conditions are degraded is likely to increase when FM4, FM6, FM7 and FM 8 are conveyed. It is not possible to predict with any certainty whether changes in ownership of these Bear Creek and Hall Creek parcels will eventually result in the local extirpation of steelhead.” The fact that beaver dams may have temporarily impeded fish passage in recent years has no bearing on how fisheries habitat was assessed or considered in this FEIS.*

10. Fish Issues Regarding Blue Mt Land Exchange – Bear Creek T12S R33E, Sections 4, 8, 9, 17, 18, 19, and 30 Increased frequency and intensity of timber harvest and increased sediment loads associated ground disturbance will likely result in additional negative impacts to westslope cutthroat trout and steelhead habitat (24/5)

**Response:** *FEIS page 82 states: “The Bear Creek subwatershed would convey 20.2% of its total acres, and no acres would be acquired. ....These three sixth level HUC subwatersheds represent the greatest potential for negative effects to steelhead from the Proposed Land Exchange. The Potential for negative effects comes from appreciable percentages of subwatersheds being conveyed to private owners that would likely implement less protective management standards.” FEIS page172 describes the potential effects from future logging on exchanged parcels and states: “FS stream and wetland protection measures are more protective of water and fisheries resources than the state of Oregon standards. The state regulations allow for the removal of shade producing trees, removal of future large woody material for streams, and a narrower buffer of vegetation to filter sediment from runoff”.*

*The effects of upland logging are difficult to assess in terms of actual effects to fish populations, but it is reasonable to assume an increased likelihood of negative effects with increased acres of logging. It is also reasonable to assume that PACFISH/INFISH stream buffers include a greater margin of protection than the narrower buffers afforded by the Oregon Forest Practices Act. Therefore, logging on FS lands would pose less of a risk to fisheries than logging on private lands.*

11. ... Bear Creek parcels FM4 through FM10, which contain habitat for westslope cutthroat trout. ... The EIS does not specifically address westslope cutthroat habitat or effects to this species, even though the Forest Service recognizes it as a sensitive species. (25/1)

**Response:** *A discussion of effects to westslope cutthroat trout is contained in the Effects to Fisheries and Wildlife report (Refer to FEIS pages 188-190).*

## **Heritage – 600**

1. CTUIR specific and fundamental concerns that we believe need to be resolved before a final EIS and ROD are issued are specific parcels of federal lands proposed to go into private ownership contain known or suspected cultural resources or sites of critical import to CTUIR and protected by applicable federal laws. These lands have been identified by CTUIR but they remain in the DEIS for exchange. (20/6)

**Response:** *Through several conversations and meetings with tribal members and staff, the Forest Service dropped Parcels FU3E, FU4, and FU21 to remove lands of concern for the CTUIR from the Preferred Alternative. There are no parcels in the Preferred Alternative that are eligible for the National Register.*

2. It would be helpful to define the term “heritage resources.” ...In the Laws and Regulations Applying to the Analysis section, there is an indication that the criteria used to evaluate the eligibility of cultural resources will be listed, but they are not. (20/8)

**Response:** *Heritage resources refer to historic property or historic resource. Heritage resource means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places, including artifacts, records, and material remains related to such a property or resource.*

*The criteria listed in 36 CFR 60.4 is as follows: “The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, building, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and (a) that are associated with events that have made a significant contribution to the broad patterns of our history, or (b) that are associated with the lives of persons significant in our past; or (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or (d) that have yielded, or may be likely to yield, information important in prehistory or history.” Criteria considerations are also listed in 36 CFR 60.4.*

3. If the FS has not considered TCPs under the NHPA then the FS has not adequately taken into account the effects their undertaking will have on historic properties because they have not considered all types of historic properties. (20/9)

**Response:** *Since the DEIS was released for public comment, the Forest Service has worked with the CTUIR to identify parcels that contain areas of concern. As a result, the Preferred Alternative does not contain areas of concern for conveyance.*

4. More detail would be helpful, such as a range of transect intervals, for each forest. Such information as what percentage of lands overall were surveyed would help CTUIR understand the project as a whole. (20/10)

**Response:** *During its meetings with CTUIR since the DEIS was released, the Forest Service has further described its surveying protocol for the parcels to be conveyed.*

5. The Affected Environment section concludes with the statement “there are no sites eligible for the National Register [sic] of Historic Places on Federal parcels currently considered for conveyance in the Proposed Land Exchange.” The DNR does not agree. A report completed by Guy Marden in 2005 identified the presence of a lithic scatter evaluated to meet eligibility criteria for the National Register of Historic Places within a particular parcel. He further states, “The area which contains the lithic scatter will be dropped for the land exchange.” Map 11 shows the parcel continues to contain the lithic scatter. Because the FS has repeatedly assured the CRPP that all parcels with eligible cultural resources have been dropped from consideration in the proposed exchange, other cultural resource reports have not been reviewed in sufficient detail to determine whether there are other sited eligible for the National Register that will be adversely affected by this undertaking. We find this extremely disturbing. We received a map dated 12/3/04 which identified parcels FW4, FW1G, FW18, FU19A and FU20C as being dropped for cultural concerns, yet only FW4 and FW1G have been dropped. (20/11)

**Response:** *FW18 (Portions that contained sites), FU19A, and FU20C are not included in the Preferred Alternative.*

6. The Environmental Consequences of Alternative 1 are listed as no effect because it indicates that an appropriate inventory has been conducted, and those parcels with heritage resources have been dropped. ... an appropriate inventory has not been conducted; an entire class of cultural resources was not considered, TCPs. Also, if heritage resources is defined in the same way that the National Historic Preservation Act defines, historical properties, those parcels with heritage resources have not been dropped. If it is defined more broadly to include other cultural resources not eligible for inclusion in the National Register of Historic Places, those parcels have also not been dropped. Therefore, the conclusion that the undertaking will have no effect on cultural resources is simply wrong. (20/12)

**Response:** *With the assistance of CTUIR members and staff, the Forest Service was able to identify areas of concern. The Preferred Alternative would not convey any of those areas.*

## **Easements – 700**

1. Parcel FM3 would be transferred out of Federal ownership. Idaho Power's existing rights associated with this parcel should be secured through a perpetual easement prior to the transfer of ownership. (4/1)

**Response:** *Idaho Power Company rights would be protected as part of conveyance of property (FEIS Table 95).*

2. Idaho Power currently holds perpetual easements to parcels PW25B, PW25C, PW25D, PW25E, PW27A, and PW27C. The Forest Service acknowledges that "these parcels would be acquired subject to the terms and conditions of these easements, all of which are acceptable to the US." However, the mechanism for authorizing ongoing operation and maintenance activities is not directly addressed. Based on discussions with Alicia Glassford, with the Wallowa-Valley Ranger District, it is Idaho Power's understanding that the SUP for the Hells Canyon transmission lines that is currently in the process of being permitted, and includes the transmission line across these parcels, will authorize O&M of the line on these parcels. If that is not the case, then the Forest Service and Idaho Power needs to have further discussions. (4/2)

**Response:** *Your understanding is correct. It is the intent of both parties to manage the entire transmission line in accordance with the provisions in the Operation and Maintenance plan that is being developed as part of the permitting process for the line across lands currently under NF management.*

3. The DEIS has a section entitled “Federal Parcel Land Use Considerations by Alternative,” and mentions that a “conveyance document would reserve easement to the U.S. “on certain roads across



parcels FM17 and FM21. ... It is not clear whether the conveyance document would reserve easements to the U.S. on those parcels and not the others. It is also not clear whether the easements would be reserved only to the U.S. or whether it would also include the public and private landowners in the area. The DEIS at page 302 discusses access only in terms of the Forest Service being able to access public lands. It states that such access would include public access “as appropriate.” There is no definition as to what the DEIS considers to be “appropriate.” (18/18)

**Response:** *Reservations of roads across Federal lands to be conveyed include full rights of access for the United States and the public. Reservations of roads on Federal parcels would occur only if needed (following the exchange) to provide continued access to adjacent lands remaining in Federal ownership. If a road would not provide access to Federal lands after the exchange occurs, no reservation would be needed or desired. The Forest Service has no authority to maintain roads for private uses.*

*Reserved roads would remain on the Forest Service road system following conveyance of title and would continue to be managed pursuant to regulations found in 36 CFR 212. Use of these roads by the general public or private landowners in the area would not change. Private landowners would continue to use these roads as a member of the general public without authorization. Use by private landowners in a manner that would be different than that of the general public would continue to be authorized by either a special use permit (36 CFR251, Subpart D) or a road use permit.*

*Most lands to be acquired in the Preferred Alternative block up Federal ownership in a specific area and solve existing or potential access issues. Legal access exists from surrounding NFS lands. If the current owner of the lands to be acquired has access that allows use by the public, it will be acquired. Where management direction does not allow motorized public access on certain roads, administrative access may be acquired that does not include public access.*

## **Special Uses – 702**

1. Although alternative 4 would include “Deed Restrictions” on lands conveyed to private parties, DEIS p. 142-43, such restrictions, however, would not be as stringent as federal laws and regulations and do not address whether the USFS will have sufficient resources to monitor and enforce such standards.(10/3)

**Response:** *The development of the Deed Restriction alternative is addressed in the FEIS on pages 21-28. Deed restrictions on parcels proposed for conveyance were developed in response to four significant issues. These issues are 1) the exercise of American Indian treaty rights and cultural uses, 2) water quality, 3) fisheries and, 4) old growth associated species. The restrictions to be included in the deed would require the private recipient of these lands, and their successors in interest, to manage the lands in accordance with Forest Service management standards and guidelines relating to these four key issues, as outlined in the three Forest Plans (as amended by PACFISH/INFISH screens)*

*The FEIS addresses on page 317 the estimated annual costs to the Forest Service to monitor compliance with the deed restrictions.*

2. We recommend there be no special language that might require grazing to continue on public acquired parcels. (12/2)

**Response:** *It is assumed you are referring to the non-Federal parcels that would be acquired in the exchange. There is no language in the FEIS nor is there any agreement as part of the exchange that requires grazing to be authorized or grazing to be continued on the lands to be acquired.*

*Livestock use on NFS lands is only authorized through a grazing or livestock use permit [26 CFR 222.3(a)]. Allotments are designated on NFS lands and other offered lands with the owners consent to form logical grazing management units [36 CFR 222.2(a)]. The FS has designated grazing allotments within the project area on all three forests and has permitted livestock with management prescribed*

through grazing permits, forest plan direction, as amended, allotment management plans (AMP), and annual operating instructions. These policies would continue if the Preferred Alternative were implemented. Table 54 in the FEIS identifies only the parcels and parcel acres to acquire outside of allotments in the Proposed Exchange that are either currently being grazed or are intended to be grazed. Table 55 describes the anticipated management implications to acquired parcels within existing allotments.

3. The Map 26 Parcels should continue to be used for grazing and transfer of ownership to the Forest Service will threaten their continued use for grazing. ... When the land was acquired from the Pine Tree Lumber Company in 1972, the terms of the acquisition were that grazing would continue on the lands. Specifically the grant to the state Department of Fish and Wildlife Service provided that “the grantor [and] its successors and assigns, shall not unreasonably interfere with the use thereof for agricultural or ranching purposes by the grantee, its successors and assigns.” Acquisition of the Pine Tree/State lands by the Forest Service is not consistent with the original term of the grant of the lands and is unreasonable interference with grazing. ... The EIS completely ignores the threat to continued grazing if the Forest Service acquires these lands and does not disclose the deed restriction. This omission violates NEPA because the EIS fails to disclose important information related to the “purpose and need” of the EIS which is to “contribute to the economic stability of privately owned ... ranch(es).” DEIS at 3. See DEIS at 28 Discussion of Alternative 2 where the grazing rights issue is not even mentioned. (19/4)

**Response:** *The deed language that you are referring to is part of the reservation of mineral interests on these lands. This reserved mineral interest originated in a deed from Stewart Livestock Company to Pine Tree Lumber Company in 1959. The reservation in total reads as follows: “Further reserving unto the Grantor, its successors and assigns, an undivided one half interest in all minerals on, under, and to be produced from the land herein conveyed and to the extent not heretofore reserved, together with the right to use the surface to prospect for, mine or produce the same, and together with reasonable right of way for ingress and egress; provided that in the use of the surface the said grantor, its successors and assigns, shall not unreasonably interfere with the use thereof for agricultural or ranching purposes by the grantee, its successors and assigns, and shall avoid using or traversing irrigated corp. lands whenever possible. Reserving to the grantor, its successors and assigns, the right to share equally any rental paid under lease or other arrangement creating the right in any person or persons to prospect for, explore for, mine, or produce metals, whether or not such rental is paid for the privilege of delaying prospecting, mining, or production of minerals from the land, and whether or not the grantor, its successors and assigns, is a party to the transaction.” This language has been reviewed by our legal counsel and they have advised that the interpretation that this language creates a requirement for continued grazing on the land is incorrect. They have interpreted the language to protect the Forest Service, as successor in interest to the grantee, from unreasonable interference (by the owner of the reserved mining interest) with the Forest Service’s use of the lands for grazing or other management activities. Other issues relating to this mineral reservation are discussed on pages 56-67 of the FEIS.*

*It is the intent of the Forest Service that there would be no change in the management of the Murderer’s Creek Allotment following the exchange. Grazing would not be continued on PM22 until a NEPA decision is made analyzing the effects to the land from this use. See Table 59, page 145 in FEIS.*

## **Minerals – 900**

1. We recommend that all mineral rights be acquired by the government for public acquired parcels. (12/3)

**Response:** *The agreement the Forest Service has with Clearwater Land Exchange-Oregon, (the facilitator), states that the Forest Service will not accept any parcels that do not have the mineral estates intact. The exception to that clause is the State of Oregon parcels.*

*The State of Oregon, Murderers Creek parcels would have 50% outstanding mineral rights. The State parcels would be the only parcels in the Preferred Alternative with outstanding mineral rights. Case law has established that the mineral estate is dominant over the surface estate, that is, the owner of the private minerals has the right to use as much of the surface as is reasonably necessary to access and develop the mineral estate. Reasonable access to private minerals must be allowed. The Blue Mountain Land Exchange facilitator has control over an undivided 50% mineral interest in the Murderer's Creek parcels, and has said that they would donate these minerals to the United States. These minerals would then take on Week's Act status allowing mineral development under the Mineral Leasing Laws and regulations. Should the outstanding mineral rights owner propose development, the FEIS determined it is reasonable to conclude that adequate protection would be in place to ensure wise use of these parcels if the facilitator donates the other half interest in the mineral estate to the United States (Letter to Regional Forester/Split Mineral Estate/Murderer's Creek Parcels in project record).*

### **Miscellaneous Comments – 1000**

1. The state parcels are referred to as “private lands” on the table in Appendix A entitled “Private Lands to be Acquired” and on the maps in Appendix B. The Map 26 Parcels are not private lands so there is no strong need for the Forest Service to acquire the lands. (19/1)

**Response:** *Thank you for your comment. The FEIS will correct this error. The maps included in the FEIS, have State lands identified by color coding, see map 1, 25 and 26. Within the text of the FEIS, when a specific State parcel is referred to or listed, it will be identified with the words “State of Oregon”.*

2. The EIS fails to disclose that there are state law requirements regarding the sale and exchange of the Map 26 Parcels and fails to discuss these requirements and whether they have been met. (19/2)

**Response:** *It is the responsibility of the State of Oregon to comply with any relevant state statutes and rules governing its participation in the Preferred Alternative. Refer to category alternative Development – 100 #5.*

3. The EIS cryptically states that the structures on Parcel PM26 would be “retained for their historical values” but would not be “maintained or upgraded for other uses.” DEIS at 258. So to the extent that the Forest Service will not maintain the parcels for grazing use, that is inconsistent with the purpose and need to support the economic stability of ranches. To the extent that the structures will be maintained, that cost has been ignored in the EIS ... (19/6)

**Response:** *As stated in the FEIS (page 145, Table 59), grazing would continue on parcel PM26 following acquisition of the property by the United States. The parcel would be acquired with the structures intact, the facilities being retained for their historic value. The cost for planned management of the site following acquisition of this facility is shown in Table 100 (FEIS, page 257). The estimated costs to the government for acquisition of a site with structures (i.e., abatement of hazards, decommissioning) is estimated at \$10,000 per site. If the structures on this parcel are needed by the grazing permittee in conjunction with the grazing activities, this use could be permitted as part of the grazing permit. Any maintenance costs would be the responsibility of the permittee.*

4. The EIS fails to identify what parcels the state is acquiring for the exchange of the state-owned parcels. (19/8)

**Response:** *Clearwater Land Exchange-Oregon, the facilitator, is responsible for disposition of land to achieve the Oregon Department of Fish and Wildlife management goals and objectives. The information requested is beyond the scope of the FEIS.*

5. The EIS states it is likely that acquisition of the Murder's Creek parcels would assist the ODFW in furthering their mission while not adding an extraordinary burden to the United States. DEIS at 57. This

statement is unexplained. To the extent ODFW is exchanging these parcels in the Forest Service, the EIS does not identify which parcels ODFW would acquire. To the extent that ODFW is selling these parcels, the EIS needs to disclose and consider an alternative of private acquisition where there is a pending offer for one of the parcels for greater than 15 percent of the fair market value. In addition, apparently the acquisition of the parcels would add some burden to the United States although the EIS says that the burden would not be “extraordinary”. DIES at 57. Given that the ODFW could obtain more money from other parties and the United States would be burdened by the acquisition, it makes no sense for the Forest Service to acquire the parcels from ODFW. (19/9)

**Response:** *The Forest Service understands the State Murderers Creek parcels, if included in the Preferred Alternative, would achieve the goals and objectives of the Oregon Department Fish and Wildlife. Refer to the #15 response above and Category Minerals – 900, #1.*

6. The rationale for transferring ownership of the Map 26 Parcels from the ODFW to the Forest Service consists of general unsubstantiated statements in violation of Forest Service acquisition policy NEPA, and the APA. (19/10)

**Response:** *It is the goal of the Forest Service to acquire any lands within its boundaries when available from a willing landowner. The State of Oregon has made these lands available for possible acquisition by the Forest Service as part of this Preferred Alternative. See No. 18 below for further rationale for acquisition.*

7. Although boundary issues are generally cited as a problem the EIS does not explain what those specific issues are with regard to the Map 26 Parcels. (19/11)

**Response:** *In this area, State of Oregon parcels are surrounded by National Forest System lands. Boundaries for these parcels have previously been located and posted on the ground. Acquisition of the parcels would eliminate the need and cost to maintain, or possibly re-survey, these boundaries in the future. Federal ownership would allow for consistent management on the broader landscape, without managing around property lines. Acquisition would also facilitate future transportation planning by eliminating the possible need for easement acquisition and allowing roads to be located and constructed based on the lay of the land, without regard for landownership. The FEIS, page 140-149, discusses the improved ease of management for range. Acquisition of the parcels from the State of Oregon, who is willing to convey these lands at this time to another public agency with similar management objectives, would eliminate any possibility of conversion of these lands to private ownership in the future. Conversion to private ownership could be costly in relation to granting of access permits, encroachments, etc., and also may lead to conflicting management objectives. Also, refer to Category Economic- 1600 #3.*

8. ... Alternative 2, the statement is made, “Merchantable stands that would not be acquired in Alternative 1 would be logged ... Federal lands not conveyed would not be logged.” The CTUIR believes this is misleading. The Forest Service has no way to know whether or not private land will be logged or not. (20/3)

**Response:** *Clearwater Land Exchange-Oregon, the facilitator, requested exchange participant “anticipated management plans” for the next ten years on all parcels in the Proposed Exchange. The management plans in the event No Exchange occurred were submitted for effects analysis. The summary of the submitted information revealed that almost all merchantable stands owned by participants, if not acquired by the FS, would be logged within the ten year analysis period. This information is located in the project record.*

9. The EIS does not discuss the expected duration of the impacts on these acquired clear-cut parcels and what measures will be taken to reduce the magnitude and duration of these impacts. It is recommended that the EIS include a discussion on the actions that can be taken to reduce the impacts from the acquired clear-cut lands and a means of prioritizing the implementation of these measures. (22/5)

**Response:** Impacts of past, present and future actions is discussed in the Watershed Section of the Cumulative Effects section of the FEIS (pages 341-362). The assigned management areas would offer guidance as to the nature of future actions. For example, when appropriate stocking levels would be brought to Forest Standards, if existing levels are below minimums. This work would be prioritized along with reforestation needs on existing National Forest lands.

The site specific future management actions on the acquired parcels would not only be based on the assigned Forest Plan designations, but also the individual Forest and District prioritization and analysis procedures.

## **NEPA Process – 1100**

1. Each and every alternative proposed under the Exchange should be evaluated for its effects on the resources described above in the comment on existing conditions. These effects must be evaluated both for direct and cumulative effects for each alternative. This must be done using the best available science and the science should be cited for support, with conclusions consistent with the best available science. Effects of different alternatives must be adequately differentiated. In particular, the effects of the Exchange should be discussed in terms of impacts to anadromous fish and hunting and gathering rights. (10/5)

**Response:** Chapter 3 summarizes the physical, biological, social, and economic environments of the project area and the effects of implementing each alternative on that environment. It also presents the scientific and analytical basis for the comparison of the five alternatives evaluated in detail. Where appropriate, references are cited for support of conclusions consistent with available science. The reference material is located in the Project Record.

A significant issue narrative comparison by alternative is documented on pages 34-46 of the FEIS. Table 20 provides an additional comparison of significant issues by alternative. This information summarizes by alternative the effects on anadromous fish and hunting and gathering. A cumulative effects analysis begins on page 341 of the FEIS.

2. You must explain in the Final EIS how the proposed action will comply with the Malheur National Forest Plan, because it does not appear that it does. (16/2)

**Response:** The decision to proceed with the exchange of lands as shown in the Preferred Alternative would require a non-significant Forest Plan amendment to re-allocate designated old growth stands on the Malheur National Forest. The decision would be consistent with the amended Forest Plan.

3. The DEIS does not comply with the National Environmental Policy Act ... and regulations of 40 C.F.R. Part 1502 and 1506 where as if fails to adequately disclose environmental impacts regarding current land allocations of the area applicable to the exchange lands. The DEIS fails to provide adequate information on the current land allocations under the various forest plans for the properties proposed to be traded to private interests. For example, winter range areas on the Malheur National Forest are not properly identified and in particular on the North Finger and the proposed exchange lands on Hamilton Mountain. In addition, there is no identification of what lands are allocated or identified in the respective forest plans as lands to be disposed of during the applicable years of the forest plan. ... The categories of lands to be exchanged must be described and if lands are not identified for exchange in the LRMP, the LRMP would need a plan amendment. (18/3)

**Response:** Action alternatives evaluated in detail are described by listing each Forest management area (MA) description and providing total acres within each MA that would be conveyed and acquired. Net change in MA acres is also provided. Refer to Table 5, Table 8, Table 12, and Table 14 for all alternatives evaluated in detail, including the Preferred Alternative. In addition, individual MA acres for all parcels to be considered for conveyance and/or acquisition are available, upon request, in the project record.

*Wallowa-Whitman, Umatilla, and Malheur Forest Plans, as amended, each provide management direction for consolidation of ownership. These plans identify land exchange as the primary tool for land adjustment. NFS lands and certain lands in other ownerships within and surrounding each Forest have been classified and prioritized for acquisition or conveyance. The intent of this management direction is to eventually achieve the best land ownership pattern for Forest Plan implementation. All lands so classified have been placed in one of five groups defined in Landownership Plans located in each of the Forest Plan appendices. This direction combined with the facilitator identifying opportunities for desirable acquisition provided the basis for identifying the NF parcels to convey and acquire in the Proposed Exchange Alternative.*

*The lands in the Hamilton Ridge area (FM15, FM16A, FM16B, FM17, FM18, FM19, FM20, and FM21) were identified in the Malheur LRMP as Group 4 Lands. Direction for Group 4 lands reads as follows: “These lands include small isolated tracts of National Forest System lands situated away from contiguous blocks of Federal land and private lands that are managed for intensive uses such as agriculture, residential subdivision, or industrial development. Federal lands in this group will normally be made available for disposal in land exchanges to acquire private lands in Group 1, 2, and 3. Private lands in this groups are generally not available and will normally not be acquired by the Forest Service.”*

*The FEIS discusses effects to summer and winter range for elk in two ways: 1) specific parcel groupings that are important to elk; and 2) broad scale net changes in winter and summer range acreages. The broad scale assessment of winter and summer range is based on ranges defined by elevation and biological potential rather than forest plan allocations. These effects are on pages 192-197 of the FEIS.*

4. The DEIS does not comply with the National Environmental Policy Act ... and regulations of 40 C.F.R. Part 1502 and 1506 where as it fails to adequately disclose environmental impacts regarding impacts on adjacent landowners. Does the Grant County Comprehensive Plan allocate surrounding lands as exclusive farm use or forest use? Also, does the Grant County Comprehensive Plan include a wildlife overlay zone applicable to these lands? ... With regard to the Hamilton Mountain area, the DEIS not only fails to identify adjoining landowners, but fails to acknowledge or identify that the only access for the Hanson to the back part of their ranch is through the Forest Service land to be traded. ... The impact on property rights of adjacent landowners is also not considered, through this has been a basic consideration of past lands exchanges. ... impacts on real estate values. ... there is no analysis of impacts on property values due to conveyance of public lands into private ownership. (18/4)

**Response:** *We are unaware of any legal requirement or agency policy to analyze economic impacts, if any, to adjacent private lands when considering conveyance of Federal lands.*

*We are unaware of any application that Mr. Hanson has made for access across National Forest lands to his property. If such a need exists, it needs to be addressed. ANILCA access rights apply only to owners of land within the boundaries of the National Forest. If there exists access or a right of access to a property over non-National Forest land or over public roads that is adequate or can be made adequate, there is no obligation to grant additional access across National Forest System Lands. (36 CFR 251, Subpart D)*

*Following conveyance of these lands, management would be in accordance with Oregon State Forest Practices Act. Impacts to adjacent lands as a result of any planned management activity would be addressed in the context of adherence to this State Statute.*

*The lands surrounding and adjacent to the Hamilton Mountain areas are allocated in the Grant County comprehensive Plan and the Grant County Land Development Code as either Primary Forest use or Multi-Use Range. Big Game Combining Zone is also applicable to these lands.*

5. The DEIS does not comply with the National Environmental Policy Act ... and regulations of 40

C.F.R. Part 1502 and 1506 where as if fails to adequately disclose environmental impacts regarding adjoining BLM lands. The DEIS does not show or discuss any adjoining BLM lands next to the Hamilton Mountain area Forest Service lands, but the current Malheur National Forest recreation maps shows several small BLM parcels to the south of this area. ... If they have been traded away, such trading should be identified and discussed in the cumulative effects analysis. (18/6)

**Response:** *The BLM lands to the south of the Hamilton Mountain area were conveyed to private landownership as part of the BLM NOELE exchange in 2000. These lands and others conveyed to private ownership since 1990 are shown in Table 125 of the FEIS. This table also shows the number of private lands entering Federal ownership since 1990.*

6. The DEIS does not comply with the National Environmental Policy Act ... and regulations of 40 C.F.R. Part 1502 and 1506 where it fails to tier to the existing Malheur Forest Plan. The DEIS fails to specify exactly what areas of its analysis or information are based on or tiered to the various National Forest Plans. This is particularly the case with regard to the Hamilton Mountain area and the Malheur National Forest Plan. (18/11)

**Response:** *The DEIS tiers to the Record of Decision, Land and Resource Management Plan, as amended and the FEIS, Malheur National Forest – May 25, 1990 as stated on page 7 of the DEIS. Discussions related to the Malheur National Forest in the DEIS, tier to these decision and management plan documents.*

7. The DEIS does not comply with the National Environmental Policy Act ... and regulations of 40 C.F.R. Part 1502 and 1506 where it fails to provide information on the appraisal work to date. Information on comparisons of values between the private and public lands is necessary for the public to be able to comment on the proposed exchanges. (18/12)

**Response:** *The appraisal information is exempt from the Freedom of Information Act at this phase of the NEPA process. The appraisal is not completed at this time. The appraisal will be available for public review in accordance with FSM 5412.11 as displayed below*

*Unless the responsible official documents a sound legal basis for denial of access, the final approved appraisal report(s) and appraisal review report(s) for Federal and non-Federal lands in land exchange transactions shall be made available, upon written request, to all interested parties when:*

*1. An environmental assessment or draft environmental impact statement is released for public comment identifying a preferred alternative, and the appraisal report(s) have been reviewed and approved for agency use, or;*

*2. The National Environmental Policy Act (42 U.S.C. 4321) decision to approve an exchange is made, and public notice given.*

8. The DEIS does not comply with the National Environmental Policy Act ... and regulations of 40 C.F.R. Part 1502 and 1506 where it fails to consider cumulative effects, including of the recent Triangle Land Exchange. There is no information provided about the Triangle Land Exchange or identification of what areas were exchanged and whether they have any relevance to the current proposed exchange. (18/13)

**Response:** *Several land exchanges and land adjustments are documented under Cumulative Effects heading in the FEIS (page 341). Table 129 documents lands leaving and entering Federal jurisdiction by County. The FS and/or Clearwater Land Exchange-Oregon have specific information on what parcels were conveyed and acquired in the Triangle Land Exchange. This information is available upon request. Areas exchanged under the Triangle Land Exchange were considered in the cumulative effects analysis. As stated on Page 341 of the FEIS, a cumulative effect occurs where the incremental effect of the proposal*

*is added to other past, present, and reasonably foreseeable future actions. If the proposal would have no measurable effect, then there would be no cumulative effect. Therefore, the effects of the Triangle Land Exchange were only considered where an overlap with the effects of the Proposed Exchange would occur.*

*Exchange. Refer to category Alternative Development- 100 #5.*

9. The disposition of the Map 26 Parcels is not consistent with the purpose and need for the action. Because these are state lands, the “need: to shift them to Forest Service ownership is minimal. ... The federal acquisition of Parcel PM26 with its ranch operation buildings, the failure to consider an alternative that would return the Map 26 Parcels to the tax roles since they are now apparently considered surplus by the state of Oregon, and placing these lands in federal ownership which threatens continued grazing fails to meet the purpose and need of the action. (19/5)

**Response:** *As discussed in the FEIS, the exchange parcels include 13 state-managed parcels with a total combined area of 2,758 acres. Based on the tax rates for surrounding private lands, returning these lands to private ownership would generate less than \$1,000 in annual property taxes.*

*The potential effects of the Preferred Alternative on grazing are addressed in the range section in the FEIS. The 13 state-managed parcels include 7 parcels on the Malheur National Forest that are part of the Murderers Creek allotment and 5 parcels on the Umatilla National Forest that are part of the Eden Allotment. As stated in the FEIS, there would be no change in current management or stocking for these allotments under any of the proposed alternatives. Grazing would not be continued on PM22 until a NEPA decision is made analyzing the effects to the land from this use.*

*Refer to Category Special Uses – 702, #3; Alternative Development – 100, #6; and Miscellaneous Comments – 1000, #19 for additional information related to the above comment.*

10. Here, to the extent the Forest Service perceives a need to exchange land to provide resource benefits and increased management efficiency, it has failed to assess and disclose to the public whether past exchanges have accomplished those objectives. Thus, the Forest Service has violated NEPA ... (19/15)

**Response:** *The Wallowa-Whitman, Umatilla, and Malheur Forest Plans, as amended, each provide management direction for consolidation of ownership. These plans identify land exchange as the primary tool for land adjustment. Each previous land exchange has complied with NEPA requirements and achieved the stated purpose and need. The decisions associate with the previous land exchanges have documented the exchanges were in the best interest of the public. The previous land exchange NEPA documents are available for review upon request.*

11. CTUIR is concerned the purpose is misconstrued in the document and results in an inability to accurately assess benefits and costs of the alternatives. ... The CTUIR would like clarification as to which is actually the purpose of the proposed land exchange. (20/1)

**Response:** *The Forest Service purpose of this Proposed Land Exchange is provided on Page 3 of the FEIS, which is to reduce costs of both Federal and private management and for additional Federal jurisdiction within Congressionally Designated Areas or other parcels, such as wetlands, floodplains, and riparian areas that provide fisheries habitat.*

## **Public Involvement – 1101**

1. The DEIS does not comply with the National Environmental Policy Act ... and regulations of 40 C.F.R. Part 1502 and 1506 where as if fails to provide important information necessary for meaningful public comment. The fundamental problem with the failure of the DEIS to address and consider missing information and analysis is that the public has not been afforded the opportunity to read, understand and meaningfully comment on the DEIS. It is not sufficient for the FEIS to finally address this missing



information and analysis, since no further comment period is allowed to the public. (18/2)

**Response:** *The comment period on the DEIS was 45 days from the date the notice of availability was published in the Federal Register. The notice was published in the Federal Register on June 10<sup>th</sup> 2005 and the comment period ended on July 25<sup>th</sup> 2005. The comment period complies with current management direction.*

## **Recreation – 1300**

1. The Blue Mountain Land Exchange analysis area includes parcels near or including the Nez Perce National Historic Trail in the vicinity of Indian Village Grove to Dug Bar. The acquisition of non-federal land parcels did not even address the issue of acquiring additional lands near or including the Nez Perce National Historic Trail. These lands come with added responsibility and management under the National Trails System Act (NTSA) and the Nez Perce National Historic Trail Comprehensive Management Plan August 5, 1990 and Interpretation Strategy, which addresses trail marking standards and design standards. On S-4 issues the NPNHT should have been identified as a significant issue. (5/1)

**Response:** *Thank you for the comment. A discussion on the trail was included in the FEIS (page 228).*

2. Alternative 1 would result in more miles of the trail under federal management. The following parcels are those that include the NPNHT PW50, PW21D, PW18, PW16A, PW16C, PW16D, PW15A, PW15B, PW13A, PW12, PW10B, PW7C, PW8A, PW8B, PW8C, PW2A, PW2B and PW2C. These parcels need to be evaluated in detail to regards to the Nez Perce National Historic Trail. (5/2)

**Response:** *A discussion on the trail was included in the FEIS.*

3. Alternative 3 would result in more miles of the trail under federal management. The following parcels of land would be the only land that would be acquired in which the NPNHT is included PW21D, PW16C, PW16A, PW13A, and PW10B. These parcels need to be evaluated in detail to regards to the Nez Perce National Historic Trail. (5/3)

**Response:** *A discussion on the trail was included in the FEIS.*

4. Alternative 4 would result in an increased number of miles of the NPNHT under federal management. The following parcels are included in the parcels to be acquired that include the NPNHT PW21D, PW18, PW16A, PW16C, PW16D, PW15A, PW15B, PW13A, PW13B, PW12, PW10B, PW7C, PW8A, PW8B, PW8C, PW2A, PW2B and PW2C. These parcels need to be evaluated in detail to regards to the Nez Perce National Historic Trail. (5/4)

**Response:** *A discussion on the trail was included in the FEIS.*

5. I am opposed to the loss of valuable accessible land to hunters, and I hope the BMLE will reconsider the exchange of properties FU19, FU20A, FU20B. (9/1)

**Response:** *It is assumed you are referring to FU19A and FU19B (parcels dropped) when citing FU19. The Federal Parcels you refer to are in the Umatilla Landownership Adjustment Plan group IV. These are lands which include small isolated tracts of national forest that are costly to administer and contain no special resource features. The lands are designated Management Area C3 which is big game winter range. The landownership direction is to generally make these lands available to exchange for private lands. These small isolated parcels are surrounded by or adjacent to a large expanse of private land and difficult to manage.*

*FU19A has been dropped from the Preferred Alternative and would be retained in Federal ownership. FU19B, FU20A and FU20B would be conveyed to private as part of the Preferred Alternative. These lands were identified as number 1 priority for availability to exchange for private lands within the forest*

*boundary in the Umatilla NF Land and Resource Management Plan. These small isolated parcels are difficult and expensive to manage.*

*The overall exchange increases NF ownership by approximately 14,300 acres, all of which would be available to public hunting. The overall exchange also shows a net increase of approximately 515 acres of land to be managed with emphasis on providing quality habitat for big game.*

6. The DEIS does not comply with the National Environmental Policy Act ... and regulations of 40 C.F.R. Part 1502 and 1506 where as if fails to adequately disclose environmental impacts regarding recreation. The DEIS does acknowledge the loss of hunting opportunities that would occur in the Hamilton Mountain area, but discusses it only in terms of hunting on that site. The larger impacts of the loss of this habitat on the elk population in the area and reduced number of hunting tags are not addressed. Other areas to hunt are mentioned, but with no information on what habitat is there or whether elk use the areas as they are known to use Hamilton Mountain. (18/9)

**Response:** *Impacts to elk populations from the Preferred Alternative of the Hamilton Ridge parcels would not be enough to result in an overall decrease in tags for that unit (Northside WMU #47) due to the relative minor acreage involved when compared to the size of the entire unit. However, the habitat changes that are likely to result once these parcels are conveyed would change the way elk are distributed in this part of the Northside unit. Elk are likely to spend more time on adjacent private lands which would result in fewer hunting opportunities on public lands. The value of conifer cover on the western extremity of "the North Finger" is very high and is locally important for the distribution of elk and other wildlife. From an appropriate scale to discuss elk populations, the North Finger is unique in its ownership and land type pattern. Conveying the old growth habitat and western extent of public land would have negative effects on recreationists who use the area. It would also have negative effects on elk, pileated woodpeckers, goshawks, and several other species. This impact was disclosed in the FEIS.*

*Acquisition of PM 15-20 would provide more access for hunters, but the setting and experience would not compare to what would be lost on Hamilton Ridge. There are many opportunities for the type of hunting experience one can find in the vicinity of PM 15-20, but the walk-in opportunity on Hamilton Ridge is very uncommon in the Northside unit. Elk habitat is available in PM 15-20, but it is of a lower quality than that found on the western end of the North Finger. This reduction in quality is based on changes in ease of access (as it relates to elk security) and changes to current vegetation.*

## **Economic – 1600**

1. The DEIS identifies providing more efficient cost-effective management of lands as a purpose of the Blue Mountains Land Exchange proposal. A need to consolidate ownership to reduce management costs is also stated. Given the purpose and need, it was surprising to read the proposed action would cause a more than \$100,00 net increase in annual administrative costs. Despite the \$1.4 million one-time administrative savings, it seems that the proposed action would ultimately cost the Forest Service more money than the no action alternative. Please explain how the proposed action even meets the purpose and need for the project. (16/1)

**Response:** *It is assumed you meant to say the proposed action would cause more than \$100,000 net increase in annual administrative costs. The significant annual cost would be caused by a net increase of 856 acres of mapped noxious weeds. The increased noxious weed acreage would result in a net increase in annual weed management costs of \$107,000. These costs would likely decrease over time because active management would decrease the number of acres occupied by noxious weeds. Even assuming that these costs would remain constant over the 10 year period of analysis for this project, the Forest Service would still realize an overall saving of approximately \$290,000 over this period (\$1,436,000 [one-time administrative cost savings] - \$1,148,910 [ten years of annual maintenance costs of \$114,891] = \$287,090).*

*In addition, there would be future savings that have not been assigned dollar values because they are difficult to accurately quantify. These savings are, however, important to consider. Potential savings that are identified, but not quantified in the EIS include savings associated with eliminated property boundary disputes and reduced encroachments/trespass by adjacent landowners. The Preferred Alternative would likely result in a reduction in the number of requests from private landowners to construct access roads across Federal lands that would be conveyed. If this were to occur, the Preferred Alternative would result in a reduction in costs incurred by the FS to process easement and permit requests or conduct NEPA analyses that might otherwise be needed. These potential savings cannot be estimated because the FS cannot predict future access requests and the costs associated with processing these types of requests can vary considerably. Some cases are resolved relatively quickly, while others involve numerous regulatory or legal issues and can take years to complete at a substantial cost. Finally, the FEIS identified potential cost savings associated with fire suppression and prescribed fuels treatment. All of these future savings that are difficult to quantify would work together in achieving the stated purpose and need.*

2. The DEIS does not comply with the National Environmental Policy Act ... and regulations of 40 C.F.R. Part 1502 and 1506 where it fails to provide any information on whether the proposed exchange meets the FLPMA “equal –value” requirement. Despite the FLPMA provision providing for an “equal-value” requirement, the DEIS fails to provide any information on the respective economic values of the various parcels. This assessment of economic values is needed to understand whether resource intrinsic values and public objectives are served under the FLPMA assessment. (18/15)

**Response:** *The FEIS Appendix C, Land Exchange Process explains FLPMA’s equal value requirement. The appraisal which is completed in phase two of the land exchange process will identify the economic values of grouped conveyed and acquired parcels. The existing process is currently in phase two. The appraisal would be available for public review in accordance with FSM 5412.11 as displayed below*

*Unless the responsible official documents a sound legal basis for denial of access, the final approved appraisal report(s) and appraisal review report(s) for Federal and non-Federal lands in land exchange transactions shall be made available, upon written request, to all interested parties when:*

*1. An environmental assessment or draft environmental impact statement is released for public comment identifying a preferred alternative, and the appraisal report(s) have been reviewed and approved for agency use, or;*

*2. The National Environmental Policy Act (42 U.S.C. 4321) decision to approve an exchange is made, and public notice given.*

3. The EIS states “there would be a potential for [access and boundary] costs to increase if the State were to sell these parcels to private interests.” DEIS at 57. The EIS does not explain how these costs for the Forest Service would increase or the magnitude of the cost. (19/12)

**Response:** *The Forest Service purpose of this Preferred Alternative is to provide for more efficient cost effective management of National Forest System lands through consolidation of existing Federal ownership. Boundary survey, marking and maintenance is a significant cost savings if the State parcels are acquired (FEIS, Table 121). Savings that are difficult to quantify include savings associated with eliminated property boundary disputes, reduced encroachments/trespass by adjacent landowners and a reduction in costs incurred by the FS to process easement and permit requests or conduct NEPA analyses that might otherwise be needed. Finally, the FEIS identified potential cost savings associated with fire suppression and prescribed fuels treatment. All of these potential savings that are difficult to quantify would work together in achieving the stated purpose for acquisition of State of Oregon parcels.*

4. The cost of preparing the structure protection plan is not disclosed in the EIS nor is the cost of the long term maintenance of the structures. The point is, the EIS failed to evaluate the high costs of acquisition

against the minimal cost to the Forest Service if these properties were acquired by a private party. (19/13)

**Response:** *The FEIS, Table 119 discloses a cost of \$10,000 per site for facilities acquisition under the Preferred Alternative. Further evaluation, recording and possible inclusion in National Register of Historic Places is included in that cost. If the facilities on PM26 would be retained for their historical values, this cost also includes management/retention of the site for historical value. Also, the cost of a structure protection plan, if it is determined one is needed, would be included in this estimated cost. The facilities would not be maintained or upgraded for other uses, thereby not taxing limited facilities maintenance funding.*

## **Social – 1601**

1. The DEIS also violates the Federal Land Policy and Management Act of 1976 ... where it fails to adequately analyze the necessary factors in order to determine whether the land exchange is in the public interest. The DEIS fails to adequately analyze the necessary factors in order to determine whether the land exchange is in the public interest. ... This DEIS fails to identify and analyze the needs of local people, and particularly with regard to the Hamilton Mountain area. (18/14)

**Response:** *The Social and Economic Environment section addresses the potential social and economic effects of the alternatives evaluated in detail. The Recreation section addresses the effects of the proposed Blue Mountain Land Exchange on the existing social character and recreational setting. This section discusses recreational opportunities and experiences affected by all alternatives evaluated in detail. The following discussion discloses the Proposed Exchange effects on Hamilton Ridge (FEIS page 227): “The parcels in the Hamilton Ridge area, FM15 (325 acres), FM16A (246 acres), FM16B (82 acres), FM17 (596 acres), FM18 (480 acres), FM19 (309 acres) and FM20 (41 acres) are popular among residents of Monument, Hamilton, and Long Creek for firewood gathering and big-game hunting. Recreation activities would no longer be available to the public within these areas, primarily affecting residents of Hamilton and Monument. However, public access on routes 4020-201, 4020-204, 4020-205, and 4020-206 would be retained, allowing access to NFS lands through Parcel FM17 to remaining NFS lands. Some acquired parcels on the Malheur National Forest would provide additional opportunities for big game hunting opportunities and firewood gathering for local residents of Fox and Long Creek. Parcels PM15 (80 acres), PM16 (124 acres), PM17 (162 acres), PM18 (481 acres), PM19 (628 acres), and PM20 (483 acres) would provide these types of opportunities to some of the local communities.”*

## **Timber Production – 1800**

1. Under the Exchange, for example, any lands currently managed by private land owners for timber will continue to be so managed when obtained by the USFS. ... CTWA requests, therefore, that the agency consider managing a portion of these lands for fish and wildlife, recreation, wilderness and other aspects that do not emphasize timber harvest as the primary management activity. The DEIS must therefore designate some of these lands as “old growth” management sites and to increase buffer zones and riparian habitat along the lands obtained in the Meacham Creek area. In addition, the DEIS should conduct additional analysis of Old Growth management areas and the number of miles of increased riparian areas that will result from the exchange including those affecting existing or potential bull trout habitat. (10/1)

**Response:** *Refer to Table 14, Alternative 5- MA Acre Allocation for All Parcels to Convey and Acquire. This table provides information by forest on how the acquired parcels would be managed under the Preferred Alternative. Management area allocation was assigned based upon adjacent Federal land MA allocation, not by how the acquired private lands were previously managed. Management area descriptions provide the multiple-use direction for managing specific areas. Each forest management area is described in terms of management objectives and goals, specific resource priorities, and management direction.*

*Analysis of the old growth situation for the Preferred Alternative can be found in Chapter 3 under the Vegetation section (Old Growth) and under the Wildlife section (Old Growth Associated Wildlife Species). A summary of the riparian condition for the Preferred Alternative can be found in the Hydrology, Wetlands, and Floodplains section, direct effects in Table 36 and the following narrative on pages 80-93. Table 74 contains miles of spawning/rearing (SR) and foraging/migratory/over-wintering (FMO) habitat that could be affected by the Preferred Alternative.*

## **Treaty Rights – 1901**

1. The Forest Service should consider eliminating the Meacham and Butcher Creek areas from the exchange which include critical tribal hunting, fishing and root gathering sites and pristine habitat largely untouched by human development. (10/2)

**Response:** *The Forest Service modified the proposed land exchange to address this concern by removing parcels FU3E and FU4 from the Preferred Alternative.*

2. ... Alternative 1, the statement is made, “Access for traditional uses and the exercising of treaty rights would not be adversely impacted.” ... To restrict or deny access to traditional areas is an adverse impact to tribal members, the tribe itself and to tribal culture. (20/2)

**Response:** *The analysis acknowledges impacts to individual tribal members or families for exercising treaty rights. The CTUIR indicated that the primary use was hunting. The exchange of these lands would cause displacement of these individuals to new areas to continue exercising this treaty right should the Preferred Alternative be selected. Shifting a single family or individual is not an adverse impact considering the membership of the tribe and the fact that more land would be available for more members to exercise treaty rights on Horseshoe Ridge than currently exists in the limited, arduous, access to the upper Meacham/Butcher Creek area.*

*When impacts to hunting is being considered it is hard to define what access to traditional areas mean without knowing the tie the particular family has to this area in the distant past. Every hunter, Indian or otherwise, hunts in traditional areas or favorite areas. It is a place where father and sons or daughters share an experience that builds meaning to a landscape or area. Sometimes this experience is shared with the next generation or is lost when time changes and one of them no longer has the interest for the shared experience because family demands change or one of them dies. The memories are still there for the people involved with the particular landscape and can be rekindled by just the sight of landscape. Not being able to share the location of the past does not necessarily mean that the experience is lost. Road closures, for the protection of wildlife, have caused many people to shift to new areas because they lost access to hunting camps. Impacts to the individuals are mixed because of the loss of a site; they can either lose interest in the activity because the site was important to their experience, continue the relationship with each other and the land at a new location with visits to their old area to relive memories, or find access to the old site to difficult so that memories and activities are shifted to the new site.*

3. CTUIR specific and fundamental concerns that we believe need to be resolved before a final EIS and ROD are issued are the BMLE, as proposed in the EIS results in a substantial decrease in federal acres of “open and unclaimed” lands, or those lands interpreted by case law to be available for tribal access to exercise their treaty reserved rights to hunt. USFS information provided to CTUIR indicates this loss of acres of accessible lands will exceed 2,100 acres. This number increased from USFS estimates provided in 2004. (20/4)

**Response:** *The Preferred Alternative and Deeded Access Alternatives both address the loss of lands close to the CTUIR reservation. If all the potential private lands are removed from the exchange, there really is not much difference between these two alternatives, about 300 acres. Over all, there is a net gain in Federal lands however it is at the expense of lands near the CTUIR.*

4. CTUIR specific and fundamental concerns that we believe need to be resolved before a final EIS and ROD are issued are the BMLE, as proposed in the DEIS results in large blocks of lands going out of federal ownership and going into private ownership in the Meacham Creek area adjacent to the reservation of the CTUIR. These lands are used regularly by CTUIR members, in part due to their proximity to the Reservation and they contain important traditional and cultural resources including usual and accustomed fishing sites. (20/5)

**Response:** *The Preferred Alternative removed the large parcels the Tribe had concerns about from the land exchange. The effects of doing that have been disclosed in the Treaty Rights section of the FEIS.*

5. CTUIR specific and fundamental concerns that we believe need to be resolved before a final EIS and ROD are issued are CTUIR does not have necessary information regarding CTUIR treaty resources such as cultural plants and cultural resources and site information for private lands proposed for acquisition into federal ownership and only received similar information from current federal ownership in early 2005. (20/7)

**Response:** *The Forest Service analysis is based on similar habitat between parcels conveyed and acquired. Personal observations by walking over the landscape in other areas have indicated culturally important plants are common where they are expected to be found. Parcels containing important locations of plants have been removed in the Preferred Alternative.*

6. The FS should limit itself to describing the impact the proposed alternative would have and not attempt to suggest how and where CTUIR members would go to exercise Treaty rights in response to opportunities lost as a result of an action alternative. (20/13)

**Response:** *Reference to this was changed in the final specialist report. The report talked about displaced members having to relocate. There is an assumption or guess as to where that location would be. Lands closest to the reservation would likely receive greater use and new lands would likely be explored by tribal members to see what cultural use they would provide.*

7. Page 272 indicates, “hunting and grazing would not be impacted by the action alternatives.” Given that the amount of open and unclaimed lands within proximity to the reservation will be reduced, and the fact that areas traditionally used by tribal members will be closed to them, hunting will be impacted. (20/14)

**Response:** *The ability to hunt and graze would not be impacted. The amount of lands near the CTUIR reservation would be reduced but that does not affect availability or access. Overall the land exchange increases the amount of land and much of it in the CTUIR’s area of interest. Less land being available may impact the success of hunting close to the reservation, which is why the analysis acknowledges that members may have to travel further to exercise treaty rights. The lands would still be located in their area of interest.*

## **Vegetation – 2000**

1. Additionally, the DEIS violates the National Forest Management Act ... where it fails to provide for diversity of plant and animal communities. Because of the unique shape of this part of the Malheur National Forest and because of the lack of replacement habitat, the proposed transfer of the Hamilton Mountain area will remove the only habitat in that area of the Malheur National Forest, in violation of NFMA and its implementing rules. (18/17)

**Response:** *Late and old forest structure is an important issue in regard to the Hamilton Ridge parcels and is discussed in the FEIS on pages 204-213. The uniqueness of land types and the land ownership pattern is specifically recognized for Hamilton Ridge. However, the conclusions reached through the analysis of effects to old growth associated wildlife species does not support a claim that NFMA requirements for maintenance of species diversity would not be met. Local effects are recognized and documented in the FEIS, but broad scale effects to species diversity are not anticipated.*

## Old Growth – 2001

1. The two parcels of Government land I am interested in both have decadent old growth timber with virtually no reprod and little grass. The land, without being able to remove both standing and fallen old growth, is virtually useless. The old growth should be removed and the land replanted. It would make more sense, from a realistic standpoint, if alternative #4 required the removal of timber over 2"DBH. (1/1)

**Response:** *Thank you for your comment.*

2. This letter pertains to parcels on the Malheur National Forest range 28 East, township 10 South parcel FM19, FM16A, FM18, FM16B, FM17, FM15, and FM21. ... I notice in your DEIS for the Blue Mountain Land Exchange for Oregon that if these parcels are exchanged, old growth stands will be created. The alternate old growth stands both have a public road going right through the middle of them. If this happens, we will also be losing approx. 4 miles of public road of which we can now cut firewood. Why not replace these old growth stands in an area that does not have public access, like it is now in parcel 16A, 18, and 19. ? (6/1)

**Response:** *Each Forest's land and resource management plan provides the legal authority to change dedicated old growth areas through the Forest Plan amendment process. The requirements to maintain the integrity (habitat quality, patch size, spacing) of the allocated old growth network, in the event of dedicated areas being exchanged, is specified in the Forest Plans. Alternative candidate stands on the Malheur N.F, for old growth replacements were identified. FEIS page 120 documents that the identified replacement stands are unsuitable, but represent the best options for replacement of existing old growth.*

3. We recommend the old growth acres be equalized rather than a 1600 acre deficit for the public. (12/1)

**Response:** *Thank you for your comments. With this exchange, as with all land exchanges, there must be somewhat of a trade off in benefits to the public and private interests. To accomplish an acquisition of land by exchange, there also must be an equal value of public land conveyed out of Federal ownership. It is the Line Officer's decision to determine that a greater public interest is served by the Preferred Alternative.*

*Section 9 of the Act of December 13, 1975 (P.L. 94-199), Section 6 of the Wild and Scenic Rivers Act (16 U.S.C. 1271-1287), Section 5(c) the Wilderness Act of September 3, 1964 (P.L. 88-577), and Section 5 (a)(2) of the Endangered Species Act of December 28, 1972 (P.L. 93-205) all directly or indirectly instruct the Secretary of Agriculture to acquire, by donation, purchase, or exchange, those lands that are available on a willing seller basis within the boundaries of the Hells Canyon National Recreation Area, Wild and Scenic Rivers, Wilderness Areas, or lands that provide critical habitat for threatened and endangered species. Lands within Congressionally designated areas have the highest priority for acquisition in the Forest Land and Resource Management Plans of all three forests. Lands that preserve habitat for T&E species are also high priority for acquisition. To acquire these highly desirable lands, other lands that have not been congressionally designated may provide the assets necessary to complete an exchange on a willing seller basis. The Preferred Alternative would acquire 7,442 acres within HCNRA, 2,128 acres within boundaries of W&S Rivers, 243 acres within Wilderness, and a net increase 45 miles of anadromous fisheries.*

4. Additionally, the DEIS violates the National Forest Management Act ... where it proposes an exchange of an old growth are without providing for a legally sufficient replacement stand. It is not allowable for the DEIS to propose a transfer of an old growth area that is not replaceable under the standards of the Malheur National Forest Plan. The two replacement stands do not meet the minimum standards for old growth structure and won't for more than 60 years. Even then, they will not meet the minimum size and spacing requirements. (18/16)

**Response:** A Forest Plan Amendment addresses the net reduction in dedicated old growth habitat and the designation of replacement old growth areas. Quality of the replacement old growth stands are documented on page 120 of the FEIS.

5. The section on old growth (p.322) merely repeats the assessment of current environmental impacts and presents no meaningful cumulative effects analysis. At a minimum, there should be an analysis of what old growth has been lost or gained during the past 15 years since the forest plan was adopted. (18/20)

**Response:** Information regarding past land exchanges was added to the old growth discussion. The cumulative effects analysis was expanded for all of the wildlife section.

6. The CTWSRO do not support the conveyance and acquisition associated with parcels FM15-FM20 located on Hamilton Ridge in the Lower North Fork of the John Day River Watershed and the Cottonwood Creek Watershed until further analysis is completed concerning the impacts to the old growth network located on these lands. (21/1)

**Response:** The effects to old growth associated wildlife species is on pages 204-213 of the FEIS and the Hamilton Ridge parcels are specifically addressed.

7. EPA recommends that the EIS evaluate reducing the amount of old growth habitat considered for conveyance in the Malheur NF under the proposed alternative and limit the amount of old growth structure conveyed to that which can be replaced with stands that have equal old growth potential suitable for old growth associated species. In addition, we recommend that old growth habitat on lands conveyed from the Malheur NF be deeded in a manner that does not allow for timber harvest until suitable replacement old growth habitat exists to support old growth associated species on acquired lands. (22/1)

**Response:** Effects to old growth habitat and associated wildlife species is addressed on FEIS pages 204-213. It was assumed deed covenants on conveyed parcels would decrease the fair market value by approximately fifty percent therefore reducing the potential to acquire private parcels. Table 15 and the discussion on Responsiveness to the Purpose and Need statements mentions the substantial FS costs incurred in monitoring and managing deed restriction compliance. Deed restrictions would not achieve the vast majority of the private entity's desired management goals and objectives and would likely result in lands being withdrawn from the exchange.

8. Wildlife issues ... Hamilton Ridge ...net loss of U.S. Forest Service designated old growth forest. (24/1)

**Response:** The FEIS page 120 describes the process used to designate replacement dedicated old growth areas and states: "The Malheur NF would convey 423 acres of multi-strata LOS, 385 acres of which is forest plan dedicated old growth. No LOS acres would be acquired on the Malheur".

9. ... the North Finger parcels FM 15-21. ... the loss of 375 acres of the only old growth habitat in the Hamilton Ridge area would contradict the intent of the Forest Plan. (2/5/2)

**Response:** Effects of a reduction in dedicated old growth habitat on Hamilton Ridge and subsequent identification of replacement areas is addressed in the FEIS on pages 204-213. A forest plan amendment is part of this EIS which will address the relationship of this action to the Malheur LRMP.

## **Water Quality – 2100**

1. The DEIS should, therefore, include a Water Quality Management plan as part of the EA to address any water bodies not in compliance with state standards. (10/13)

**Response:** Two basins in the Proposed Land Exchange, the Umatilla River Basin and the Upper Grande Ronde Sub-Basin, have completed total maximum daily load (TMDL) and water quality management



*plans (WQMPs) which establish water quality goals for streams in the Basins. These documents in the project record lay out steps toward meeting the goals by establishing numeric goals for allowable levels of pollution (loads) by sub-basin within the larger basin. On NFS Lands, the WQMPs rely on current laws, management plans, and Best Management Practices (BMPs) to provide the basis for improving water quality in the forested landscape. They must follow standards and guidelines (S&Gs) listed in PACFISH, the Biological Opinion for PACFISH, the Biological Opinions for the Land and Resource Management Plans, the Willowa-Whitman and Umatilla National Forest Land and Resource Management Plans, and BMPs.*

*In other basins WQMPs will be developed as part of TMDL development and the USFS will participate in those processes.*

*On non-Federal forest lands, OAR Chapter 340, #0028, (e) is in effect to address compliance with state standards. For forest operations on State or private lands, water quality standards are intended to be attained and are implemented through BMPs and other control mechanisms established under the Forest Practices Act (ORS 527.610 to 527.992) and rules there under, administered by the Oregon Department of Forestry. Therefore, forest operations that are in compliance with the Forest Practices Act requirements are (except for the limits set out in ORS 527.770) deemed in compliance with this rule. The Department of Environmental Quality will work with the Oregon Department of Forestry to revise the Forest Practices program to attain water quality standards.*

*Table 33 identifies watersheds with water quality impaired segments and provides the 303d listing criteria for parcels to convey and acquire in the Preferred Alternative.*

2. The Forest Service does not discuss the cumulative effects of past land exchanges and whether this land exchange is necessary to protect lowland and riparian areas as implied in the EIS. (19/14)

**Response:** *Refer to response #5 above in the old-growth category for a discussion on cumulative effects of past land exchanges. One of the benefits of the Preferred Alternative would be the net gain on NFS lands of wetland and floodplain acres. Wetlands would increase approximately 597 acres and floodplains would increase approximately 186 acres under the Preferred Alternative (FEIS, Table 36).*

3. The EIS states that water temperatures onsite or downstream from the project area would not be affected by harvest near channels on conveyed lands because there is nearly no surface water during the summer months. It is not clear how this conclusion was reached. The OR FPA does not ensure bank stability, site-potential shade, sediment retention, or recruitment of adequate large woody debris, especially for smaller streams. The resultant impacts, both on site and downstream, could include widened channels, decreased pool depth, decreased stream sinuosity, disconnection from the water table and floodplain, and impaired hyporheic flow. The altered stream morphology and function could adversely affect water quality. Additionally, the EIS does not discuss whether water temperatures would increase when water is present in stream channels. The above impacts, along with the effect of riparian habitat removal on winter stream temperatures and anchor ice, should be discussed in the final EIS to provide support for an EIS conclusion that the conveyance of parcels would not result in exceedances of water quality standards. (22/2)

**Response:** *There is nearly no summer surface water on the conveyed parcels in the Butcher Creek Subwatershed. Reductions in shade by timber harvest near channels would not lead to increases in water temperature on site or downstream. Detrimental increases in water temperature are a summer-time phenomena. Anchor ice is seen primarily in low gradient perennial systems, not in intermittent higher gradient channels.*

*Analysis of water quality and channel morphology affects from timber harvest on conveyed lands was based on an assumption that such harvest would be in compliance with the State of Oregon Forest*

*Practices Act and Rules. The potential for detrimental effects to water quality and channel morphology of harvest on conveyed lands is discussed in the FEIS.*

*The State of Oregon DEQ has been assigned responsibility to implement the Clean Water Act and to develop Water Quality Standards. The Oregon Revised Statutes state “For forest operations on State or private lands, water quality standards are intended to be attained and are implemented through best management practices and other control mechanisms established under the Forest Practices Act (ORS 527.770)....*

4. The EIS should present evidence that clearly demonstrates that timber harvest on conveyed lands will not cause exceedances of water quality standards, that beneficial uses will be fully protected, and that anti-degradation provisions of the CWA will be met. Given the potential for impacts to water quality we recommend that conveyed lands include deed provisions that provide similar protection as PACFISH/INFISH Standards and Guidelines. (22/3)

**Response:** *Analysis of water quality and channel morphology affects from timber harvest on conveyed lands was based on an assumption that such harvest would be in compliance with the State of Oregon Forest Practices Act and Rules. The potential for detrimental effects to water quality and channel morphology of harvest on conveyed lands is discussed in the FEIS. The State of Oregon DEQ has been assigned responsibility to implement the Clean Water Act and to develop Water Quality Standards. ORS statute states “For forest operations on State or private lands, water quality standards are intended to be attained and are implemented through best management practices and other control mechanisms established under the Forest Practices Act (ORS 527.770).*

*Refer to category Old Growth- 2001 #7 for response on deed restrictions.*

### **Water Rights – 2103**

1. The DEIS should, however, discuss any contractual or other commitments in relation to the Exchange that would require them to commit water or other resources to land uses in a manner that will impact fish and wildlife species. (10/9)

**Response:** *Water developments and water rights have the potential to conflict with FS management objectives and policies of other jurisdictions. The FEIS discusses these effects and potential commitments by alternative. The fisheries section also addresses water rights and the relevance of water rights to fisheries.*

2. The DIES should, therefore, discuss ways to transfer water right permits on lands the agency will obtain through the exchange to instream use. To this end, we encourage the agency to request that private land owners cancel any abandoned water rights on private lands before these are exchanged for federal lands or for the USFS to formally abandon such rights once such lands fall under federal ownership. (10/10)

**Response:** *Legal council of the USFS indicates that Congress has never given the USFS authority to cancel water rights. Opportunities may exist to lease water to the State of Oregon for instream use and will be considered where possible. The FS Manual direction is to maintain water rights.*

3. In addition, CTWA suggests that the USFS incorporate a commitment in the DEIS to transfer existing water rights obtained in the Exchange to instream uses, including which lands contain water rights that would be transferred instream or have been abandoned and what process, such as state permit transfer, cancellation or other measures would be taken. (10/11)

**Response:** *The USFS can not commit to transfer water to instream uses. The USFS can commit to evaluate the status of water rights post-exchange to determine the potential to transfer water rights to instream use. It is not likely that the USFS would decommission any reservoirs for this purpose.*

4. To better understand water rights issues and potential mechanisms for instream use of such rights related to the Exchange, the DEIS should discuss and attach as an appendix the reports and recommendations by the UNF and WWNF staff on the water rights as they relate to the exchange. (10/12)

**Response:** *Specific information compiled for each water development, water use, and water right known to exist for each alternative includes: Type of water development, water use or purpose, type of water use authorization, status of water use and implementation cost. The Blue Mountain Land Exchange Water Rights Existing Condition Report along with case files were made for all of the known water rights and water developments. These case files included photocopies of water rights certificates or permits, water right maps, water right plat cards, livestock allotment records, aerial photos, topographic maps, and parcel maps. This information is available for review in the project record.*

## **Wildlife Species – 2200**

1. The CTWAs is particularly concerned about the National Forest Management Act's requirement that the forest lands be managed to maintain viable populations of existing and desired fish and wildlife species. In addition, the DEIS must insure that the wildlife and forest health aspects of the Exchange are not overshadowed by pressure to benefit private interests. (10/8)

**Response:** *The Fish and Wildlife Sections address the effects to wildlife by alternatives evaluated in detail. Water Quality and Fisheries was considered a significant issue. Chapter 2 has a comparison summary for fisheries and water quality by alternative. The Wildlife section addresses Rocky Mountain Elk, Canada Lynx, Bald Eagle, old growth dependant species and the Regional Forester's sensitive wildlife species. The FEIS has determined the Preferred Alternative with identified mitigation measures is in compliance with National Forest Management Act requirements.*

2. The DEIS does not comply with the National Environmental Policy Act ... and regulations of 40 C.F.R. Part 1502 and 1506 where as it fails to adequately disclose environmental impacts regarding biological assessment. The DEIS does not address biological assessments by NMFS or the USFWS. In contrast, the Triangle FEIS included the biological assessments of these agencies. (18/8)

**Response:** *The requirement to conduct a Biological Assessment (BA) comes from the Endangered Species Act of 1973, as amended, not from the National Environmental Policy Act. The BA that addresses the effects of the Preferred Alternative to Federally listed fish and wildlife species was developed concurrently with the FEIS. The BA is under review by NOAA Fisheries and US Fish and Wildlife Service, and will be the subject of a formal consultation with these agencies. The BA will be incorporated as Appendix F to the FEIS.*

3. The DEIS does not comply with the National Environmental Policy Act ... and regulations of 40 C.F.R. Part 1502 and 1506 where it fails to meet the stated purpose of reducing fragmentation. The proposed transfer of the Hamilton Mountain area does not meet the stated purpose of reducing fragmentation. ... It is apparent from the map at page B-19 that fragmentation will continue in the area because of the transfer to the Forest Service of the private cutover lands in PM23 and 24 and the retention of Forest Service lands next to them. (18/10)

**Response:** *The lands in the Hamilton Mountain area (as shown on map on B-19) were identified in the Malheur National Forest LRMP as Group 4 lands. Landownership direction for Group 4 lands are as follows: "Federal lands in this group will normally be made available for disposal in land exchanges to acquire private lands in Group 1, 2, and 3."*

*Preliminary site specific information on certain lands in the Hamilton Mountain area indicated that they would not likely be eligible for conveyance due to cultural resource concerns. Retention of these lands, and acquisition of parcels PM23 and PM24, creates a larger contiguous block of land that would be more manageable in the future.*

## **Wildlife Habitat – 2201**

1. The DEIS does not comply with the National Environmental Policy Act ... and regulations of 40 C.F.R. Part 1502 and 1506 where as if fails to adequately disclose environmental impacts regarding interrelationships of adjoining federal and private lands regarding wildlife habitats. Particularly lacking in the DEIS is information and analysis on the current interaction of private and federal ownerships regarding wildlife on those lands to be transferred out of public ownership. For example, the value of the old growth and elk habitat on Hamilton Mountain is not only due to the old growth and habitat on the federal lands, but also to the adjoining Hanson Ranch property which provides complementary habitat and additional old growth which increases the habitat effectiveness of the federal lands. There is no information or analysis on this factor in the DEIS. (18/5)

**Response:** *The wildlife habitat values pertinent to the private/public ownership pattern were discussed where appropriate. FEIS pages 191-197 discuss efficiencies of managing elk habitat as it relates to ownership patterns. The context (considering private lands) of old growth habitat on public lands is built into the Blue Mountains scale discussion on FEIS pages 204-213.*

2. The section on fishery and wildlife (p.321) merely repeats the assessment of current environmental impacts and presents no meaningful cumulative effects analysis. At a minimum, there should be an analysis of what fishery and elk habitat has been lost or gained during the past 15 years since the forest Plan was adopted. (18/21)

**Response:** *Past land transactions when considered over the Blue Mountain province have not measurably changed the mix of elk habitat maintained under Forest Service jurisdiction. For example, when considering allocations that emphasize big-game management, the Blue Mountain forests have acquired 6,034 acres and conveyed 6,030 acres. These totals account for adjustments within Management Areas 3 and 3A on the Wallowa-Whitman National Forest, Management Areas C3, C4 and C8 on the Umatilla National Forest and Management Area 4A on the Malheur National Forest (no land adjustments have occurred within MA 20 or 21 on the Malheur NF or within MA3A, C5, or F4 on the Umatilla NF). Consequently, the effect of these past lands adjustments would not change the direct or indirect effects of the alternatives previously disclosed when considered over the Blue Mountain province.*

*Forest Service jurisdiction of fisheries habitat has increased over the last 15 years through past land transactions. The land acquisition transactions have emphasized acquisition of threatened and endangered species habitat from willing sellers, so this trend will likely continue with future adjustments. As an example, the Minam/Big Canyon exchange resulted in a net gain of 2.0 miles of fisheries habitat, the Triangle Exchange resulted in a net gain of 3.59 miles of fisheries habitat. LWCF purchases have also resulted in net gains in fisheries habitat. Examples include parcels along Jim Creek and its tributaries and the Cache Creek, Cougar Bar and Cave Gulch purchases, all of which acquired lands along the Snake River in the northernmost portion of the Hells Canyon National Recreation Area. The effect of these past lands transactions would intensify the beneficial direct and indirect effects on fisheries previously described and moderate the adverse direct and indirect effects on fisheries previously described.*



# Appendix F – Multi-Species Biological Assessment

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04 January 2006, final 08 March 2006

## Table of Contents:

I. Introduction .....	3
Parcel labeling system .....	3
II. Federally Listed Fish & Wildlife Species .....	4
III. Assumptions .....	4
IV. Definitions .....	5
V. Baseline Conditions .....	5
VI. Management Actions .....	9
Forest Management .....	9
Roads .....	12
Water Rights .....	15
Grazing by Livestock .....	18
VII. Matrix Indicators (Primary Constituent Elements & Essential Features) .....	20
VIII. Steelhead Trout .....	23
Effects (direct, indirect, aggregate and cumulative) .....	23
Determination of effect .....	26
Steelhead Proposed Critical Habitat .....	26
IX. Chinook Salmon .....	27
Effects (direct, indirect, aggregate and cumulative) .....	27
Determination of effect .....	27
Chinook Salmon Critical Habitat .....	27
Essential Fish Habitat .....	27
X. Bull Trout .....	28
Effects (direct, indirect, aggregate and cumulative) .....	28
Determination of effect .....	30
Bull Trout Critical Habitat .....	30
XI. Canada Lynx .....	31
Environmental Baseline .....	31
Direct Effects .....	32
Indirect and Aggregate Effects .....	32
Determination of Effect .....	33
XII. Northern Bald Eagle .....	34
Environmental Baseline .....	34
Direct Effects .....	35
Indirect and Aggregate Effects .....	35
Determination of Effect .....	36
XIII. References .....	37

## List of Tables:

- Table BA-1: Bull Trout Habitat within watersheds that contain land exchange parcels.
- Table BA-2: Chinook salmon habitat within watersheds that contain land exchange parcels.
- Table BA-3: Comparison of stream buffer requirements from Oregon Forest Practices Act.
- Table BA-4: Subwatersheds involving >5% of their area, and summary of merchantable forest and non-forest structure.
- Table BA-5: Roads summary.
- Table BA-6: Exchange parcels with water developments and/or water rights.
- Table BA-7: Summary of trends for matrix indicators as influenced by future management actions.
- Table BA-8: Net change in steelhead habitat by DPS.
- Table BA-9: Bull trout habitat by 5<sup>th</sup> HUC, parcel, and habitat category.
- Table BA-10: Bull trout critical habitat.
- Table BA-11: LAU acres summary by habitat suitability category, and percentage of the LAU represented by each category.
- Table BA-12: Parcels containing lynx habitat.
- Table BA-13: Parcels with lynx habitat, context of parcels relative to surrounding habitat.
- Table BA-14: Bald eagle roosts and nests within a mile of parcels.
- Table BA-15: Roads associated with conveyed merchantable timber in watersheds where steelhead habitat will be conveyed.
- Table BA-16: Road densities for conveyed parcels containing merchantable timber, in 5<sup>th</sup> level HUCs where steelhead habitat would be conveyed. Road densities are presented in terms of miles/square mile.
- Table BA-17: Baseline information on steelhead habitat proposed for **conveyance**, by DPS.
- Table BA-18: Baseline information on steelhead habitat proposed for **acquisition**, by DPS.

## List of Appendices:

- Appendix BA-1: Steelhead habitat tables.
- Appendix BA-2: Changes to range allotments.
- Appendix BA-3: Forest structure by watershed.
- Appendix BA-4: Water developments and water rights.
- Appendix BA-5: Steelhead critical habitat.
- Appendix BA-6: Chinook salmon habitat by DPS, watershed, and parcel.
- Appendix BA-7: Canada Lynx maps.
- Appendix BA-8: Bald Eagle maps.
- Appendix BA-9: Blue Mountain Land Exchange Maps (there is no map #9 or #16 due to dropped parcels).
- Appendix BA-10: Matrix Indicators, Primary Constituent Elements, and Essential Features.
- Appendix BA-11: Summary of trends for Matrix Indicators as influenced by future management actions.

## I. INTRODUCTION

The purpose of this Biological Assessment (BA) is to evaluate and disclose the effects of the Blue Mountain Land Exchange (BMLEX) on Snake River and Mid-Columbia River steelhead (*Onchorhynchus mykiss*), bull trout (*Salvelinus confluentus*), Snake River fall run Chinook salmon (*Oncorhynchus tshawytscha*), Snake River spring/summer run Chinook salmon, Canada lynx (*Lynx canadensis*), and bald eagle (*Haliaeetus leucocephalus*), pursuant to the Endangered Species Act (ESA) of 1973, as amended.

The BMLEX involves 254 individual land parcels distributed over parts of the Malheur (Mal), Umatilla (Uma), and Wallowa-Whitman (W-W) National Forests and adjacent private lands. 30,907 acres would be acquired into the National Forest System and 17,756 acres would be conveyed to private parties. The project covers a broad range of biophysical and geophysical conditions from canyon grasslands along the Imnaha River to mixed conifer montane settings in the John Day River basin. Not only does this project represent a broad range of habitat conditions, but it is also distributed over a large geographic area of approximately 90 by 150 miles. Parcels range in size from 0.56 acres (FW30) to 1,271.15 acres (PU16B), and some are isolated while others are aggregated into several hundred contiguous acres. For these reasons it is extremely difficult to define meaningful logical resource units. Generally the logical resource units for this analysis will not conform to conventional projects that are smaller in scope and involve actual activities that alter the environment. Fisheries are conveniently analyzed at the 5<sup>th</sup> level hydrologic unit code (HUC) scale, and in some cases the 6<sup>th</sup> level HUC or the Distinct Population Segment scales.

The project assessed in this BA differs from conventional projects in that no immediate changes to the environment will result from the implementation of the action. The “action” being analyzed is a changing of land deeds between the Forest Service and several private landowners, and a subsequent change in management authority and emphasis on those exchanged lands. Generally public lands are subject to more stringent standards designed to protect and conserve natural resources than privately owned lands. Additionally, a great amount of oversight exists for public land agencies ensuring that legally mandated management standards be applied. Although some standards exist for private lands, there is often little incentive to adhere to such standards and little or no oversight. For example, section 7 of the ESA establishes a process through which Federal land management agencies are required to consult with regulatory agencies (Fish and Wildlife Service and National Marine Fisheries Service) on all projects that may affect a Federally listed species. Section 10 of the ESA requires private landowners to apply for incidental take permits and develop Habitat Conservation Plans for projects that may result in “take” of listed species.

### **Parcel labeling system**

Land exchange parcels are identified by a numbering convention where the first letter (F= Federal or P=Private) represents current ownership, the second letter (W=Wallowa- Whitman, U=Umatilla, and M=Malheur) represents the National Forest, and ends with a numerical, unique identifier. Some parcels also include an alphabetical character at the end as part of the unique identifier.

- FW parcels are Federal parcels on the Wallowa-Whitman NF to be conveyed to private ownership.
- PW parcels are private parcels that would become part of the Wallowa-Whitman NF.
- FU parcels are Federal parcels on the Umatilla NF to be conveyed to private ownership.
- PU parcels are private parcels that would become part of the Umatilla NF.
- FM parcels are Federal parcels on the Malheur NF to be conveyed to private ownership.
- PM parcels are private parcels that would become part of the Malheur NF.



## II. LISTED SPECIES

Both the Snake River and Mid-Columbia steelhead trout (*Oncorhynchus mykiss*) are listed as threatened under the Endangered Species Act. These two populations represent Distinct Population Segments (DPS), units by which National Marine Fisheries Service (NMFS) tracks status and recovery of listed anadromous fish populations.

Bull trout (*Salvelinus confluentus*) is listed as Threatened under the ESA and exist in a somewhat restricted distribution that is tied to cool, high water quality. Bull trout involved in this project are within the Columbia River Distinct Population Segment (DPS). Effects to bull trout from this land exchange would be similar to those discussed for steelhead and Chinook with a few exceptions. Some bull trout habitat is identified that does not support anadromous fisheries. Bull trout spawn at a different time of year than most of the steelhead and Chinook runs in northeast Oregon, leading to different timing considerations for instream work or livestock grazing along spawning and rearing habitat.

Chinook salmon (*Oncorhynchus tshawytscha*) within the Snake River basin is listed as Threatened under the Endangered Species Act. There are two separate listings of Chinook salmon in the Snake River system, a fall run and a spring/summer run. Chinook salmon also occur in the Mid-Columbia basin and are not listed under ESA. However, Chinook habitat in the Mid-Columbia basin is recognized as essential fish habitat (EFH) under the Magnuson-Stevens Fishery Conservation and Management Act, as amended. Effects to Chinook are the same as those discussed for steelhead, but different amounts and locations of habitat are involved.

Northern bald eagle (*Haliaeetus leucocephalus*) and Canada lynx (*Lynx canadensis*) are also threatened species covered by this BA.

## III. ASSUMPTIONS

Since the action does not involve actual changes to the environment, some things must be assumed in order to discuss potential effects. These assumptions are based on existing law and observed practices.

- Forested parcels (and forested portions of parcels) containing merchantable timber (generally >9" average d.b.h.) being conveyed from Forest Service to private will be logged to standards in the Oregon Forest Practices Act within 10 years. It is common practice for private forests in northeastern Oregon to be logged to a commercial thinning or clearcut with reserve trees prescription. Larger diameter trees are usually targeted for harvest on private lands, whereas prescriptions on public lands generally focus on retention of the largest trees and removal of smaller, dead, defective and poor form trees. The results are typically a higher basal area with a large tree component on public land and a lower basal area with a lower average tree diameter retained on private lands.
- Parcels being conveyed from the Forest Service to private will be grazed by domestic livestock (usually cattle) for at least a part of the year. There are no state standards governing livestock grazing on private lands. Where practicable, acquired lands will be incorporated into surrounding grazing allotments, but very few changes will occur except through future revisions of allotment management plans.
- Culverts that are impassable to fish, drainage features associated with roads that contribute sediment to streams, cattle feedlots within 300' of fish bearing streams, and other site-specific resource concerns involving fisheries and water quality are likely to be remedied or mitigated within 10 years (1 year if threatened or endangered species are involved) by the Forest Service once acquired. Many of these situations may persist on private lands indefinitely.

- Road access by the general public will not change appreciably following this land exchange. Gated roads on private parcels will remain gated following acquisition, and roads currently open to the public on private lands will remain open following acquisition. This is a consideration for potential sediment input from roads.

#### **IV. DEFINITIONS**

The following definitions are commonly used in NEPA and/or ESA, and will be used for the purpose of this effects analysis:

- Direct Effects – effects that are caused by the action and occur at or nearly the same time and place of the action. An exception to this definition will be used to compare net increases or decreases in habitat for listed species within 5<sup>th</sup> or 6<sup>th</sup> level HUC watersheds. For example acres or miles of habitat being conveyed or acquired are referred to as direct effects although the actual effects relate to what activities may occur on those lands at some point in the future.
- Indirect Effects – effects that are caused by the action and are later in time or farther removed in space, but are reasonably foreseeable.
- Aggregate Effects – effects that result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions. Aggregate effects overlap in time and space.
- Cumulative Effects – effects occurring on state or private lands that may contribute to the effects from the action being analyzed.
- Convey – refers to land parcels being exchanged from Forest Service to private ownership.
- Acquire – refers to the “acquisition” of land parcels from private to Forest Service ownership.

#### **V. BASELINE CONDITIONS**

Typically environmental baseline conditions are presented in a Biological Assessment to serve as the basis for which to compare the environmental effects of an action. In the case of this land exchange there will be no changes to the environment resulting directly from the action (changing of land deeds). Possible changes to the environment would occur later in time, and effects would be analyzed and consulted on through the Level I process for actions on acquired lands, and ESA section 10 requirements would apply to conveyed lands if the proposed action(s) involve take of a listed species. Changes in ownership patterns and net change (increases or decreases) in habitat going from less protective to more protective management standards are the most relevant considerations for this project. Therefore, a detailed environmental baseline that documents specifics on habitat components and conditions would be of little utility in assessing effects of this action. More meaningful is the amount of habitat for listed species that exists within affected watersheds, and how the exchange of lands would affect the quantity and patterns of habitat considering shifts in management emphasis that would occur after the exchange. In place of a detailed environmental baseline, a general assessment of the conditions of conveyed fisheries habitat is provided. The focus of this baseline information will be on steelhead habitat to be conveyed since steelhead represents the greatest amount of habitat involved in the exchange, and overlaps a considerable amount of habitat of the other listed fish species. Trend information (in terms of matrix pathways and indicators) about conveyed steelhead habitat comes from various BA’s, BO’s, and watershed analyses that cover the watersheds in this project, and is summarized in Table BA-17. A general assessment of the trend of steelhead habitat that is being acquired is also provided (Table BA-18).

Appendix BA-1 shows the amount of steelhead trout habitat that exists in the watersheds that contain land exchange parcels, and the amount of habitat involved in the exchange for steelhead. The amount of bull trout habitat that exists within watersheds affected by the exchange is in Table BA-1. Chinook salmon habitat is similarly summarized in Table BA-2. Environmental baseline for Canada lynx and bald eagle is included in their respective sections.

**Table BA-17:** Baseline information on steelhead habitat proposed for conveyance, by DPS.

MPI Pathways	MPI Indicators	Snake River DPS		Mid-Columbia DPS		
		Big Sheep 1706010203	Meadow Cr. 1706010402	Beech 1707020109	LNFIJR 1707020210	Strawberry 1707020108
<b>Water Quality</b>	Temperature	R	N	N	N	N
	Sediment	R	N	N	R	R
	Chem. Cont.	A	A	R	A	N
<b>Access</b>	Physical barriers	A	A	N	A	N
<b>Habitat Elements</b>	Substrate Embeddedness	R	N	N	R	N
	Large Wood	A	R	R	N	N
	Pool Frequency/Quality	R	R	N	N	N
	Large Pools	R	N	R	R	N
	Off Channel Habitat	A	A	R	N	N
	Refugia	A	A	R	N	N
<b>Channel Conditions &amp; Dynamics</b>	Width:Depth	A	R	R	N	N
	Streambank Condition	A	R	R	R	N
	Floodplain Connectivity	A	A	R	R	N
<b>Flow/Hydrology</b>	Change in Peak/Base Flow	R	N	R	N	N
	Drainage Network Increase	A	N	R	R	N
<b>Watershed Condition</b>	Rd Density & Location	R	N	N	R	R
	Disturbance History	R	R	R	A	N
	RHCA's	R	A	R	U	N

The condition of each MPI parameter is indicated in the following manner: A = properly functioning; R = functioning at risk; N = not properly functioning; and U = data unavailable.

**Table BA-18:** Baseline information on steelhead habitat proposed for acquisition in the Mid-Columbia DPS.

MPI Pathways	MPI Indicators	Beech 1707020109	NFIJ/Big 170702033	*Laycock 170702010	Murderer's 170702014	UMIDR 170702031	Meachum 170701032	Potamus 170702027	U Canas 170702025	UNFIJR 170702021	Wall Creek 170702028
<b>Water Quality</b>	Temperature	N	N	N	N	N	N	N	N	R	N
	Sediment	N	U	N	A	R	U	R	R	R	A
	Chem. Cont.	R	A	R	A	R	A	A	A	R	A
<b>Access</b>	Physical barriers	N	A	N	A	N	A	R	A	U	R
<b>Habitat Elements</b>	Substrate Embeddedness	N	U	N	U	N	A	R	R	N	R
	Large Wood	R	U	R	N	R	A	R	R	R	R
	Pool Frequency/Quality	N	A	N	A	N	N	N	N	N	N
	Large Pools	R	A	R	R	N	N	R	A	A	A
	Off Channel Habitat	R	U	R	N	R	R	N	N	A	N
	Refugia	R	U	R	U	R	R	N	N	U	N
<b>Channel Conditions &amp; Dynamics</b>	Width:Depth	R	U	R	R	R	N	R	A	U	R
	Streambank Condition	R	R	R	A	R	U	A	U	R	A
	Floodplain Connectivity	R	U	R	N	R	A	U	U	U	U
<b>Flow/Hydrology</b>	Change in Peak/Base Flow	R	U	R	N	R	U	U	U	U	U
	Drainage Network Increase	R	A	R	U	R	A	U	U	R	U
<b>Watershed Condition</b>	Rd Density & Location	N	A	N	R	N	R	N	N	A	N
	Disturbance History	R	A	R	R	R	A	A	A	U	R
	RHCA's	R	A	R	R	R	R	N	N	U	R

The condition of each MPI parameter is indicated in the following manner: A = properly functioning; R = functioning at risk; N = not properly functioning; and U = data unavailable.  
 \*PFC information was not available for the Laycock Creek 5<sup>th</sup> field HUC, so ratings from the 4<sup>th</sup> field HUC (Upper John Day River sub-basin) were used in Table BA-18.

**Table BA-18 Continued:** Baseline information on steelhead habitat proposed for **acquisition** in the **Snake River DPS**.

MPI Pathways	MPI Indicators	Big Sheep 170601023	Chesnimus 170601064	*LBig Sheep 170601024	L Imnaha 170601025	Meadow Cr 170601042	#M Imnaha 170601022	U Joseph Cr 170601065
<b>Water Quality</b>	Temperature	R	N	R	N	N	N	N
	Sediment	R	A	R	R	N	R	R
	Chem. Cont.	A	A	A	A	A	A	A
<b>Access</b>	Physical barriers	A	R	A	A	A	A	R
<b>Habitat Elements</b>	Substrate Embeddedness	R	A	R	R	N	R	R
	Large Wood	A	A	R	N	R	N	A
	Pool Freq/Quality	R	R	R	N	R	R	R
	Large Pools	R	R	R	N	N	R	R
	Off Channel Habitat	A	A	A	A	A	A	A
	Refugia	A	A	R	A	A	R	A
<b>Channel Conditions &amp; Dynamics</b>	Width:Depth	A	A	A	A	R	R	A
	Streambank Condition	A	A	A	A	R	R	A
	Floodplain Conn.	A	A	A	R	A	R	A
<b>Flow/Hydrology</b>	Change in Peak/Base Flow	R	R	R	A	N	A	R
	Drainage Network Increase	A	R	A	A	N	A	R
<b>Watershed Condition</b>	Rd Density & Location	R	N	R	R	N	R	N
	Disturbance History	R	R	R	R	R	R	R
	RHCA's	R	A	R	R	A	R	A

The condition of each MPI parameter is indicated in the following manner: A = properly functioning; R = functioning at risk; N = not properly functioning; and U = data unavailable.

\*Properly functioning condition rating were not available for Lower Big Sheep Creek, but field observations and PFC ratings from Big Sheep Creek and the 4<sup>th</sup> level HUC were used to arrive at the values in Table BA-18.

#Properly functioning condition ratings were not available for Middle Imnaha River, but field observations and PFC ratings from the Lower Imnaha and the 4<sup>th</sup> level HUC were used to arrive at the values in Table BA-18.

**Table BA-1: Bull Trout habitat within watersheds that contain land exchange parcels.**

Watershed Name	HUC #	Miles of FMO	Miles of SR
Upper NF John Day River	1707020201	1.90	56.29
Upper Wallowa River	1706010501	8.41	5.08
Wenaha River	1706010603	10.36	58.31
Strawberry Creek	1707020108	24.99	27.16
Umatilla River/Mission Creek	1707010303	27.72	5.62
Upper Camas Creek	1707020205	0	23.29
Upper Eagle Creek	1705020310	21.17	41.18
Upper Imnaha River	1706010201	0	40.05
Upper John Day River	1707020106	5.30	55.61
NF John Day River/Big Creek	1707020203	27.10	8.8
NF John Day River/Potamus Creek	1707020207	40.03	0
Snake River/Divide Creek	1706010104	17.34	0
Snake River/Indian Creek	1705020107	52.83	4.36
Meachum Creek	1707010302	20.86	16.02
Middle Imnaha River	1706010202	17.97	8.75
Middle Wallowa River	1706010503	18.28	0
Lower NF John Day River	1707020210	22.07	0
Lower Wallowa River	1706010506	31.44	8.61
Lower Imnaha River	1706010205	22.98	0
Grande Ronde River/Rondowa	1706010601	27.70	0
Laycock Creek	1707020110	14.81	0
Lower Big Sheep Creek	1706010204	32.63	7.75
Lostine River	1706010502	9.96	16.22
Fields Creek	1707020111	20.26	0
Grande Ronde R/Five Points Creek	1706010404	21.71	16.07
Grande Ronde River/Mud Creek	1706010602	8.04	0
Bear Creek	1706010504	9.99	18.98
Big Creek	1707020303	22.29	29.62
Upper Big Sheep Creek	1706010203	25.62	22.73
Camp Creek	1707020302	17.93	35.72
<b>Total Miles of Bull Trout in DPS</b>		<b>581.69</b>	<b>506.22</b>

**Table BA-2: Chinook salmon habitat within watersheds that contain land exchange parcels.**

Watershed Name	Watershed Number	Miles of Chinook Habitat
<b>SNAKE RIVER DPS</b>		
UPPER BIG SHEEP CREEK	1706010203	24.23
LOWER BIG SHEEP CREEK	1706010204	6.97
GRANDE RONDE R/MUD CR	1706010602	3.45
LOSTINE RIVER	1706010502	24.80
LOWER IMNAHA RIVER	1706010205	28.92
LOWER WALLOWA RIVER	1706010506	23.66
MIDDLE IMNAHA RIVER	1706010202	26.02
UPPER WALLOWA RIVER	1706010501	23.53
GRANDE RONDE R/FIVE POINTS CR	1706010404	6.04
MEADOW CREEK	1706010402	10.43
MEACHAM CREEK	1707010302	1.13
<b>Total for Snake River DPS</b>		<b>179.18</b>
<b>MID COLUMBIA DPS</b>		
UPPER JOHN DAY RIVER	1707020106	10.88
BIG CREEK	1707020303	9.14
<b>Total for Mid-Columbia DPS</b>		<b>20.02</b>
<b>TOTAL:</b>		<b>199.20</b>

## VI. MANAGEMENT ACTIONS

Potential effects to steelhead, Chinook salmon, and bull trout will focus on four primary areas of management: **forest management (logging)**, **roads**, **water rights**, and **grazing by livestock**. The mechanisms involved in these activities that could affect fisheries will be described, and subsequently referenced in the effects discussions that follow. Net increase or decrease of habitat for threatened or endangered species being conveyed or acquired will be discussed rather than repeat specifics of each management activity (eg. Roads) or mechanism (eg. Culverts that prevent fish passage).

**Forest Management** – Logging of mid and late structural forested stands involves a few mechanisms that could result in effects to fisheries habitat. However, the majority of effects can be reduced or eliminated through retention of stream buffers.

1. Removal of trees that contribute to stream shade or could be recruited as large woody material in the channel can lead to degraded stream conditions. Increased stream temperatures can result from reduced shade, and reductions in future large woody material can lead to decreased pool frequency, less cover for fish, and decreased structural complexity in streams. These effects result in less usable fish habitat, increased watershed efficiency (a negative effect related to the rate that water escapes a landscape), and overall lower productivity for fish.
2. Skid trails, forwarder trails, temporary roads, and landings are typically involved in timber harvest operations, creating compaction, soil displacement, sites for accelerated erosion, and sites for invasion of undesirable weeds. When located outside of RHCA's and mitigated with proper restoration techniques these features have little or no influence on streams. However, if left un-mitigated or placed in RHCA's these features can contribute sediment to streams, change seasonal run-off patterns, and ultimately reduce fish habitat quality.
3. A third but less understood mechanism is the effect of reduced tree canopy over the landscape that can change snow accumulation patterns, and timing of peak flows.

Logging of mid and late structural forested stands would progress at a rate determined by timber markets and landowner objectives on private lands. Logging on Forest Service lands would proceed at a rate determined by Forest priorities and stand conditions. PACFISH/INFISH buffers would be applied to all logging on public lands. Buffers on private lands would be retained at least to the minimum required by the Oregon Forest Practices Act. Buffers on private lands would be marginal for protection of fisheries resources, but are considered adequate for maintaining water quality to Oregon DEQ standards. Table BA-4 contains forest structure information for the watersheds in this project that involve 5% or more of their area in exchange parcels (acquired and conveyed), and Appendix BA-3 shows acres and percent of stand initiation stands (SI, un-merchantable, early successional stands) and mid/late structure stands (represents stands with merchantable timber) by watersheds in the exchange. The information in Table BA-4 and Appendix BA-3 provides an idea of how many acres of merchantable timber is available and could be logged in the future.

Table BA-3 compares buffer widths between PACFISH/INFISH and Oregon Forest Practices Act. Table BA-3 is a summary of standard buffers by stream category, but there are many specific considerations that qualify these buffers that could not be summarized in table form. For example, the Oregon Forest Practices Act has different target basal areas for different stream sizes and types. These specifics are covered in detail in "Oregon's Forest Protection Laws, An Illustrated Manual", pages 21-33 (Logan 2002). The type of harvest is also used in determining what level of management can occur within riparian management areas (RMA). Likewise, the PACFISH/INFISH standards contain considerations for managing within RCHA's where such actions would help in the attainment of riparian management objectives (RMO). Stream and wetland protection measures used by the Forest Service are more protective of water and fisheries resources than the state of Oregon standards. For instance, state administrative rules require buffers on small type F, D and N streams that only restrict removal of non-commercial trees, allowing for the removal of trees that are most valuable as large woody material and shade production. Medium and large streams (type F, D and N) require buffers ranging

from 50’-100’ (see Table BA-3) where basal area determined to be excess can be removed. This retains the trees immediately adjacent to streams, but allows for removal of some trees within the RMA that may contribute to stream shade, future instream structure and roughness elements in the floodplain. These narrower buffers of vegetation may be less effective in filtering sediment from runoff than PACFISH/INFISH RHCA’s. Compared to PACFISH/INFISH standards, the Oregon Forest Practices Act likely provides protections for water quality and riparian habitat immediately adjacent to streams, but does not provide for the full complement of structure necessary for proper function, process and form of fish bearing streams.

The effects of upland logging are difficult to assess in terms of actual effects to fish populations, but it is reasonable to assume an increased likelihood of negative effects with increased acres of logging. It is also reasonable to assume that PACFISH/INFISH stream buffers include a greater margin of protection than the narrower buffers afforded by the Oregon Forest Practices Act. Therefore, logging on Forest Service lands would pose less of a risk to fisheries than logging on private lands.

**Table BA-3:** Comparison of stream buffer requirements from Oregon Forest Practices Act.

Stream Size/Class	Stream Type	Stream Buffer	Comments
<b>Oregon Forest Practices Act</b>			
Small	Type F	50’	Restrictions only apply to non-commercial trees for small type N streams.
	Type D	20’	
	Type N	10’	
Medium	Type F	70’	Logging of trees surplus to target basal areas is allowed within RMAs
	Type D	50’	
	Type N	50’	
Large	Type F	100’	Logging of trees surplus to target basal areas is allowed within RMAs
	Type D	70’	
	Type N	70’	
<b>PACFISH/INFISH Applies to all Forest Service Lands</b>			
Class I & II	Fish Bearing	300’	*Fully protected buffer
Class III	Perennial, No Fish	150’	*Fully protected buffer
Class IV	Intermittent	100’	*Fully protected buffer

**Type F** – Streams that have fish and may also be used for domestic water.

**Type D** – Streams used for Domestic water and have no fish.

**Type N** – All other streams that do not meet criteria for types F or D.

**Small** – Average annual flow of two cu. ft. per second or less or any stream with a drainage area less than 200 acres, generally less than four feet wide.

**Medium** – Average annual flow greater than two and less than ten cu. ft. per second, generally between 4-20 feet wide.

**Large** – Average annual flow greater than ten cu. ft. per second, generally greater than 20 feet wide.

**RMA** – Riparian Management Area

\*Fully protected buffer – There are instances where RHCA’s can be actively managed, but there are several criteria that must be met, and these activities would go through Level I consultation with the regulatory agencies.

Table BA-4 contains a summary of the acres of merchantable forest (mid and late structure available for harvest), non-forested acres, and miles of fish bearing, perennial (non-fish bearing), and intermittent streams, for the fourteen subwatersheds that involve at least five percent of their area in this exchange. There were actually fifteen subwatersheds that met the > five percent criteria in the proposed action, but once Alternative 5 (preferred) was finalized only fourteen met this criteria. The Imnaha River/Deer Creek subwatershed is still listed in Table BA-4 although only 4.3% of its area is in the exchange.

Of the 46 fifth level HUCs involved in this exchange, six account for 50% of the acres, and twelve account for 75% of the acres. This indicates that many watersheds involve extremely minor acreages that would not represent measurable changes to fisheries resources. However, there are fourteen subwatersheds (sixth level

HUC) that involve at least 5% (% acquired + % conveyed) of their area in this exchange, warranting closer examination. This is the same approach that was taken in the Hydrology report for the Draft EIS (page 9) to assess water quality and yield.

HUC 6	Subwatershed Name	SWS Acres	Mid and Late Forest Structure Available for Harvest					Non-Forested				
			Conveyed / % of SWS		Miles of Steam Class fish/perennial /intermittent	Acquired acres/ % of SWS		Miles of Steam Class fish/perennial /intermittent	Conveyed / % of SWS		Acquired / % of SWS	
Lower Snake Basin												
*170601020206	IMNAHA River/DEER CR	22998	0	0%	0/0/0.7	74	negligible	3.5/0/4.6	39	0.2%	940	4.1%
170601020304	BIG SHEEP CR/CARROL CR	16580	738	4.5%	.4/1.3/4.6	0	0%	0.0	327	2.0%	0	0%
170601020504	LOWER HORSE CR	12742	0	0%	0.0	267	2.1%	3.1/0/8.1	0	0%	753	5.9%
170601020510	IMNAHA RIVER/ THORN CR	20852	0	0.0%	0.0	203	1.0%	5.1/9/40.6	0	0%	3341	16%
170601060207	LOWER MUD CR	10995	450	4.1%	0/0/3.9	142	1.3%	0/.2/4	497	4.5%	256	2.3%
170601060312	DRY GULCH	11967	0	0%	0.0	638	5.3%	0/0/1.3	0	0%	175	1.5%
170601060401	UPPER CHESNIM CR	19000	0	0%	0.0	626	3.3%	1.1/1/2.2	0	0%	714	3.8%
Middle Columbia Basin												
170701030203	BUTCHER CR	25760	1954	7.6%	3.6/6.3/13.2	1691	6.6%	4/6.7/12.9	1150	4.5%	967	3.8%
John Day Basin												
170702010402	BARK CABIN	15995	0	0%	0.0	928	5.8%	2.1/0/3.9	0	0%	128	0.8%
170702010803	BEAR CR	12448	2520	20.2%	3.6/1.4/9.7	2	0%	0/0/0	12	0.1%	0	0%
170702020305	NF JD /ORIENTAL	15740	0	0%	0.0	255	1.6% **	0/4.8/5.2	0	0%	4	0%
170702020306	TEXAS BAR	19904	0	0%	0.0	2143	10.8%	2.1/3.9/ 13.5	0	0%	25	0.1%
170702020601	SNIPE	27606	768	2.7%	0/.5/4.8	0	0%	0.0	379	1.4%	0	0%
170702020804	UPPER WILSON	26657	0	0%	0	0	0%	3.3/1.8/7	0	0	60	0.20%
170702021001	UPPER DEER CR	16467	1970	12%	1.4/.8/3.9	232	1.4%	0/0/.6	282	1.7%	7	0%

\* Watershed 170601020206, IMNAHA RIVER/DEER CREEK does not involve >5% of its area in alternative 5. After changes between alternative 1 and 5 were made only 4.3% of the subwatershed acres are involved (0.2% conveyed & 4.1% acquired).

\*\* 1720 acres of recently harvest land (structure = SI) would be acquired in the Upper Wilson SWS, which, with the non-forested acres accounts for about 6.7% of the subwatershed, and about 1600 acres (7% of the SWS ) of SI structure in the North Fork John Day/Oriental SWS.



**Roads** – There are many road and access related issues that are being considered in this exchange, although site-specific decisions concerning roads is not a part of the BMLEX decision. Page 2 of the Roads Specialist Report states in assumptions that: 1) “any deferred road maintenance activities related to public safety, protection of cultural resources, or protection of Threatened and Endangered species, or related to providing functional drainage would be implemented as soon as possible following the exchange, most likely within the first year” (Assumption #3, BA p. 4) , 2) “Roads that are currently closed for public access will remain closed.” and 3) “Roads that are currently open for public access will remain open and maintained for High Clearance vehicles, except where roads need to be closed for public safety reasons”. Roads are relevant to fisheries in the following ways:

1. Roads located within RHCA’s often occupy up to half of the riparian area, restricting lateral channel migration and full use of the floodplain.
2. Roads create barriers to fish movement where culverts are undersized, too steep, or perched.
3. Native surface and gravel surface roads often contribute sediment to nearby streams, particularly when drainage structures are absent or poorly maintained. This can contribute to increased substrate embeddedness, thereby reducing effectiveness of spawning habitat or contributing to mortality of fish eggs.
4. Roads can increase the drainage network on a watershed scale, increasing watershed efficiency when roads become hydrologically connected to streams. This results in more rapid movement of water from landscapes, as roads become conduits for water rather than water infiltrating through the soil and being slowly released over a longer time period. The effect to fish is changes in water quantity and peak flow timing that can interrupt migration, decrease available refugia, and create seasonal in-stream barriers to fish movement.

Considering the first assumption on page two of the Roads Specialist Report, the most pressing effects to listed fisheries would be addressed on acquired roads within one year of this exchange. Other less direct effects to fisheries would be addressed later (first decade) and would depend on availability of funding and Forest priorities. Roads that remain in private ownership are generally in poorer condition than roads on Forest Service lands. Roads that are acquired by the Forest Service are more likely to be maintained to reduce sediment, culverts replaced and maintained to accommodate fish passage, and draw bottom roads decommissioned or relocated to restore floodplain function. Roads conveyed from Forest Service to private could expect to be maintained only to address immediate needs for logging or access by the landowner. Drainage structures are likely to be less frequently maintained and one would expect no decrease in roads within RHCA’s on private lands. Although best management practices are intended for forest operations on non-federal lands (Hydrology report page 23), very little oversight is available to enforce these requirements, and some of the poor road conditions found on private lands are not associated with “forest operations” and would not fall under the authority of the Oregon Forest Practices Act. Roads within 300’ of a stream are more likely to contribute to the detrimental effects discussed above. Table BA-5 is a summary of roads (open and closed) involved in the exchange, and displays miles of road within 300’ of streams.

Table BA-5: Roads Summary (miles).

<b>Acquired roads</b>	<b>96</b>
<b>Acquired roads within 300’ of streams</b>	<b>53</b>
<b>Conveyed roads</b>	<b>56</b>
<b>Closed roads</b>	<b>28</b>
<b>Open roads</b>	<b>25</b>
<b>Net Change</b>	<b>+ 40</b>

Future activities associated with timber management will involve road construction, reconstruction, temporary roads, etc. However, with much more land being acquired by the Forest Service than conveyed to private the road density is likely to decrease relative to the current condition. The Forest Service has road density standards and guidelines to ensure that road densities are kept below established maximums. The locations and drainage networks as they relate to water quality and fisheries habitat are always considerations in road design on Forest System lands.

The drainage network in the affected watersheds may improve as 30,907 acres and 96 miles of road comes under Forest Service management. Road maintenance, requiring log haul during dry or frozen conditions, and decommissioning of unneeded roads will mitigate sediment delivery to streams from Forest Service roads. As for conveyed lands, specific road standards that address stream crossings are included in the Oregon Forest Practices Act. The Forest Practices Act also includes requirements for road placement, culvert specifications, other drainage structures, and how to dispose of road waste materials. These standards are designed to reduce the effects from roads on fisheries and water quality. Standards for Forest Service roads exceed those for private land, thus include an additional measure of protection for fisheries and water quality. Forest Service roads generally receive more use, but are likely to receive more regular maintenance than comparable roads on private property. Detrimental effects from roads on listed fisheries will likely be less on Forest Service roads, so the amount of road miles coming from private to Federal represents potential improvements or reduced negative effects from the existing condition.

The changes in road density that may occur on lands conveyed to private ownership is not practical to quantify due to the uncertainties involved in specific road needs for each parcel and logging operation, but can be discussed in general, qualitative terms. Conveyed parcels that do not have a road system in place to facilitate logging will likely experience increases in road densities. The fifth level HUC watersheds most likely to experience increases in road densities are those that currently contain merchantable timber (Appendix BA-3 and Table BA-4). Table BA-15 summarizes the potential for increases in road density for watersheds that contain conveyed steelhead habitat and merchantable timber. The estimated need for additional roads is based on an excerpt from “Society of American Foresters, Forestry Handbook, Logging Chapter, 05/27/1980”. Although over 25 years old, this reference likely still applies to most private forest lands where ground based (skidder) logging remains the most common logging system employed.

The five fifth level HUCs in table BA-15 are those containing parcels for conveyance that also have steelhead habitat, and roads. All parcels for conveyance are displayed if they involved roads AND merchantable timber, whether they would convey steelhead habitat or not. The purpose of this table is to key in on the places where road densities are most likely to increase as an indirect result of this land exchange. Table BA-16 summarizes the existing road densities for only the parcels contained in Table BA-15. Road densities in Table BA-16 can be compared to a threshold density of 5 miles per square mile that represents the typical road density required to access merchantable timber for ground based logging systems. Ground based logging systems, typically skidder, is by far the most common method of extracting timber from private timber lands in northeast Oregon, although mechanical harvesters and forwarders that require fewer roads than conventional skidders are being utilized on some industrial timber lands.

Road densities in Table BA-16 were calculated for only the conveyed acres (total acres of parcels, including non-forested areas) within 5<sup>th</sup> level HUCs where steelhead habitat is proposed for conveyance. Strawberry Creek (1707020108) is the only watershed that currently exceeds 5 miles/square mile, therefore would expect to require no or minimal additional roads to access merchantable timber once conveyed. The other four watersheds are currently below the 5 miles/square mile threshold and would require additional roads to access merchantable timber. The far right two columns of Table BA-15 display the total road densities by 5<sup>th</sup> and 6<sup>th</sup> level HUCs for the watersheds where steelhead habitat would be conveyed. These densities provide a broader perspective of the road situation in these watersheds.

Roads that would not change jurisdiction would remain under Forest Service maintenance (except in the rare occasions where such roads are County or other jurisdiction). Roads that would transfer jurisdiction with the parcels would become the responsibility (maintenance) of the new landowner. Generally roads that stay under Forest Service jurisdiction would remain on a more regular maintenance schedule and be maintained to a higher standard than roads that are conveyed to private parties.

**Table BA-15:** Roads associated with conveyed merchantable timber in watersheds where steelhead habitat will be conveyed.

Watershed Name and 5 <sup>th</sup> Level HUC	Parcel	Parcel Acres	Acres Merch. Timber Conveyed	Miles of Road in parcel	Miles of Road, no change in jurisdiction	Miles of Road, jurisdiction transferred with parcel	*Total Rd Density Mi./Sq. Mi.	
							6 <sup>th</sup> HUC	5 <sup>th</sup> HUC
<b>Mid-Columbia DPS</b>								
Beech Creek 1707020109	FM11	64	27	0.9	0.6	0.3	1.7-4.7	1.7-4.7
	FM12	236	229	2.0	1.8	0.2		
	FM13	317	317	0.7	0.0	0.7		
		617	387	3.6	2.4	1.2		
Lower NF John Day River 1707020210	FM18	480	436	3.2	0.0	3.2	1.7-4.7	Umatilla portion to is 0.7-1.7
	FM17	596	582	3.7	0.9	2.8		
	FM19	309	191	0.7	0.0	0.7		
	FM20	41	41	0.3	0.0	0.3		
	FM21	241	233	1.7	0.9	0.8		
	FU27	102	7	0.4	0.0	0.4		
	FM15	325	321	0.0	0.0	0.0		
	FM16A	246	138	0.0	0.0	0.0		
	FM16B	82	67	0.0	0.0	0.0		
		2422	2016	10	1.8	8.2		
Strawberry Creek 1707020108	FM4	368	361	4.1	0.0	4.1	>4.7	>4.7  Portion that contains Strawberry Wilderness is 0.7-1.7
	FM6	302	302	4.2	0.0	4.2		
	FM7	322	322	3.2	0.0	3.2		
	FM8	581	581	6.2	0.0	6.2		
	FM5	326	326	1.7	0.0	1.7		
	FM9	398	384	3.8	1.8	2.0		
	FM10	314	308	1.6	0.6	1.0		
		2611	2584	24.8	2.4	22.4		
<b>Snake River DPS</b>								
Big Sheep Creek 1706010203	FW10	640	487	4.3	3.4	0.9	>4.7	1.7 - 4.7
	FW6C	43	5	0.3	0.0	0.3		
	FW9	422	210	0.0	0.0	0.0		
	FW11	41	41	0.0	0.0	0.0		
		1146	743	4.6	3.4	1.2		
Meadow Creek 1706010402	FW18	279	124	0.8	0.0	0.8	1.7-4.7	1.7 - 4.7
		279	124	0.8	0	0.8		

\*Total road densities for the 5<sup>th</sup> and 6<sup>th</sup> level HUCs come from “Road Density Analysis Interagency Implementation Team, Steelhead and Bull Trout BO’s”, Marcia Eguchi, April 29, 1999.

**Table BA-16:** Road densities for conveyed parcels containing merchantable timber, in 5<sup>th</sup> level HUCs where steelhead habitat would be conveyed. Road densities are presented in terms of miles/square mile.

Watershed Name and 5 <sup>th</sup> Level HUC	Parcels	Parcel Acres	Miles of Road in Parcel	Existing Road Density for these Parcels Combined
Mid-Columbia DPS				
Beech Creek 1707020109	FM11	64	0.9	3.75
	FM12	236	2.0	
	FM13	317	0.7	
Lower NF John Day River 1707020210	FM18	480	3.2	2.65
	FM17	596	3.7	
	FM19	309	0.7	
	FM20	41	0.3	
	FM21	241	1.7	
	FU27	102	0.4	
	FM15	325	0.0	
	FM16A	246	0.0	
	FM16B	82	0.0	
Strawberry Creek 1707020108	FM4	368	4.1	6.08
	FM6	302	4.2	
	FM7	322	3.2	
	FM8	581	6.2	
	FM5	326	1.7	
	FM9	398	3.8	
	FM10	314	1.6	
Snake River DPS				
Big Sheep Creek 1706010203	FW10	640	4.3	2.57
	FW6C	43	0.3	
	FW9	422	0.0	
	FW11	41	0.0	
Meadow Creek 1706010402	FW18	279	0.8	1.82

**Water Rights** – The relevance of water rights to fisheries relates to in-stream water being available for fish in sufficient quantities and timing to provide for the life history requirements of fish and their food sources. Over-allocated water resources can leave streams dry or with inadequate flows to support fish during parts of the year, generally during summer and fall. Some key points regarding water rights:

- The official position of the Forest Service as stated by the Chief, Principle 1: Water Uses on Forest Service lands: *“We recognize and respect the authority of states to allocate water available for appropriation. We respect valid, existing water rights and will manage water resources on NFS lands to minimize impacts adversely affecting the exercise of such rights”* (Bosworth 2004).
- Federal reserved water rights will be lost on conveyed property, and will not accompany acquired property.
- Water rights (other than Federal reserved rights) would be transferred with land parcels.
- Specific decisions about changes to water rights, presumed abandoned water rights for example, would not be made early enough in the EIS process to incorporate specifics into this analysis.
- Three streams indicate potential for modeled flow reductions of 5% or more under this project: Joseph Creek, Meachum Creek, and Middle Fork John Day River.

- The Forest Service does not cancel water rights (administration policy). However if presumed abandoned water rights were cancelled that would not necessarily result in an increase in water for streams. The streams involved are generally over adjudicated so additional water freed up by cancelled water rights would go to other existing rights. Presumed abandoned water rights will be acquired as they are and when the Forest Service gets to adjudication there may be an opportunity to put them into instream use. For the other rights, which are substantial, there may be opportunities to work with conservation groups to lease this water for instream uses. However, these specific opportunities are not part of the action under consultation.

Table BA-6 shows that 75 land exchange parcels contain water rights or water developments. Of these, 18 water rights on lands proposed for acquisition and one on a conveyed parcel has been in non-use status for more than five years. Some of these are presumed abandoned for more than 20 years (Bliss 2004).

Table BA-6: Exchange Parcels with Water Developments and/or Water Rights.

National Forest	Parcels	# of parcels
Malheur – conveyed lands	FM2, FM9, FM10, FM15, FM16A, FM17, FM18, FM19, FM21	9
Malheur – acquired lands	PM4, PM5, PM7, PM30	4
Umatilla – conveyed lands	FU3A, FU3C, FU3D, FU30	4
Umatilla – acquired lands	PU1A, PU1B, PU5, PU7B, PU7C, PU9A, PU11B, PU15, PU16C, PU16E, PU16H, PU19, PU20, PU22A	14
Wallowa-Whitman – conveyed lands	FW1D, FW6A	2
Wallowa-Whitman – acquired lands	PW3, PW7B, PW7C, PW8A, PW8B, PW8C, PW10B, PW11, PW12, PW13D, PW14, PW15A, PW15B, PW16C, PW16D, PW19B, PW20B, PW20C, PW21C, PW21D, PW23B, PW24A, PW24C, PW24D, PW24E, PW24H, PW25B, PW25C, PW25E, PW27C, PW30, PW34A, PW34C, PW38, PW39A, PW39B, PW39C, PW40, PW48, PW50, PW51A, PW52	42
<b>Total Number of Parcels</b>		<b>75</b>

This project will result in some changes to water developments, water uses, and water rights that have a low potential to result in effects to instream water that is important to listed fish species. Specific information (not necessarily pertinent to this BA) compiled and located in Appendix BA-4 for each water development, water use, and water right includes:

- **Type of Water Development:** well, reservoir, spring diversion, stream diversion.
- **Water Use or Purpose:** domestic or human consumption, irrigation, mining, stock, stock/wildlife, wildlife, railroad, fire protection, and instream (fish and aquatic life).
- **Diversion Rate:** in terms of cfs, if known.
- **Season of Use**
- **Comments**

The Forest Service would acquire 60 parcels with water developments and/or water rights and would convey 15 parcels with water developments and/or water rights. For specific information on each parcel refer to Appendix BA-4.

Water developments and water rights appurtenant to parcels subject to exchange would pass to the new landowners with the exception of Federal reserved water rights which would not be transferred on conveyed parcels.

Federal reserved water rights that may be appurtenant to any single Federal parcel with reserved status are:

- Water needed for fire protection and control.
- Water needed for constructing and maintaining access roads for timber production and watershed protection activities.
- Water needed for irrigation of tree nurseries, seed orchards, and other facilities devoted primarily to the supply of timber or watershed protection.
- Water needed for maintaining Forest Service riding and packstock used in the administration of the Forest Service.
- Water needed in connection with special uses where the user is engaged in activities carried out for watershed protection or timber production on Forest Service lands.
- Water needed in the form of instream flows sufficient to maintain the stability of stream channels for favorable conditions of waterflow and protection against the loss of productive timber lands adjacent to the stream channels.

Any of the above-listed reserved water rights that may exist on Federal parcels subject to the proposed exchange would become void upon conveyance to private ownership. No Federal reserved water rights would be received from or for acquired lands.

Part or all of 18 water rights on acquired lands and 1 water right on conveyed land have been in non-use status for more than 5 years. Most of these water uses are presumed abandoned for at least 20-40 years. When a water right is not used for more than 5 years, it is subject to a rebuttable presumption of forfeiture [ORS 540.610(1)]. This law allows a landowner to overcome the presumption of forfeiture after successfully using a presumed abandoned right for 15 years [ORS 540.610(2)(f)]. These water rights will likely remain inactive once they are acquired by the Forest Service. However, this will not result in more water in streams since many streams are already over-allocated regardless of the status of these rights that remain in non-use status. There will be no change to in-stream water available to fisheries as a result of changes to these 20 water rights.

The potential effects from water developments and rights on streamflows would be more pronounced in the fall than in the spring due to lower streamflows. Streams that could experience at least a 5% reduction in streamflow at some time of the year are: Big Sheep Creek, Horse Creek, Corral Creek, Dodson Creek, Thorn Creek, Tully Creek, Cow Creek, Joseph Creek, Doe Creek, Chesnimnus Creek, Meacham Creek, Idaho Creek, Olmstead Creek, Deadwood Creek, Swamp Gulch, Big Creek, Deep Creek, Middle Fork John Day River and Deer Creek. Of the developments and rights that could affect at least 10% of streamflow, all appear to have been abandoned except Permit S-49249 for irrigation from Joseph Creek and the domestic development on Doe Creek. Although the modeled effect on stream flow is as high as 100% reduction on some streams, there truly will not be an effect from this project since the water rights involved have been inactive for so long.

ODFW instream water rights were considered in the water rights analysis for comparison with the modeled flow reductions. Only three streams indicated modeled flow reductions of 5% or more: Joseph Creek, Meacham Creek, and Middle Fork John Day River. Joseph Creek is the only stream that would have a streamflow increase if the water right were cancelled; water uses on the other streams appear to have been abandoned.

All of the water developments and/or water rights listed in Appendix BA-4 would require between 1 and 6 individual actions to bring them into compliance with state water law. About 315 individual actions have been identified. Total modeled costs for private and Forest Service would be about \$13,240 plus \$2,680/yr. The cost in time involved in getting acquired water rights into compliance with state water law will likely result in the acquired water rights remaining in non use status.

A potential adverse effect from the exercising of water rights is impairment of fish passage at diversion structures; however, no such structures are known to exist on exchange lands. The only water rights that required a closer look to assess effects to fish passage were parcels PW34A and PW34B on Joseph Creek and PW24A on Big Sheep Creek. The water right on Joseph Creek is for placement of a pump in the Creek, so there would be no obstruction to fish passage. The water right on Big Sheep Creek is too small to adversely affect fish passage.

Probable beneficial effects of exercise of water rights/developments include: 1) water storage in reservoirs that regulates downstream flows later in the year; 2) sediment storage in reservoirs; 3) off-channel water for livestock and wildlife provided by upland spring developments; and 4) cold water return flows from irrigated areas adjacent to streams. The beneficial effects attributed to specific water rights involved in this exchange are impractical to measure because of their minute scale or the unpredictability of their use status in the future.

Diversion and consumptive use of water represents an irretrievable commitment of water resources to out-of-stream uses during the time water is diverted. Storage (in reservoirs) represents an irretrievable commitment because water loss by evaporation is higher than water loss by evapo-transpiration from soil and plants. Instream use is retrievable when water rights are not exercised (and related facilities are decommissioned) or are temporarily transferred to instream uses. All three Forest Plans require compliance with state water rights laws. In order to comply with current Forest Plan direction, the following steps need to occur following this land exchange:

- Request that OWRD add newly acquired water rights to the Forest's Annual Water Use Report, and delete the water rights conveyed.
- Inspect and modify newly acquired water developments as needed to ensure they are developed in accordance with the terms and conditions in the water right permit or certificate.
- Acquire water rights for unauthorized water developments or decommission those developments.
- Correct inaccuracies on water rights permits or certificates.
- Use water at least one year in 5 to avoid forfeiture or inform OWRD that water use has been abandoned.
- Cooperate with OWRD in investigations of presumed abandoned water uses.

These steps will eventually lead to better information and ease of tracking the effects of water rights and developments on in stream water availability.

Effects to listed fisheries are not absolute and are tied to the legal and administrative procedures involved in administering water rights and developments. Assuming that all the requirements of OWRD are implemented, the important point to focus on in regard to water rights and fisheries is that 60 water rights/developments will be acquired by the Forest Service and 15 will be conveyed. In no case will this land exchange result in less water remaining in streams for fish compared to the existing condition. So the effect to instream flow from this project will be negligible in regard to fisheries.

**Livestock Grazing** – All watersheds in this exchange have some level of grazing by livestock, mostly cattle, but some sheep and horse grazing is permitted. Forest Service rangelands are managed to standards outlined in PACFISH/INFISH and to meet terms and conditions of biological opinions that cover specific allotments. PACFISH and INFISH establish riparian management objectives (RMO) and provide standards and guidelines designed to attain or maintain RMOs. RMOs exist for pool frequency, water temperature, large woody material, substrate sediment, bank stability, lower bank angle, and width to depth ratio. All of these RMO's are directly or indirectly addressed by the matrix indicators, primary constituent elements and essential features discussed in section VII of this BA. Allotment management plans (AMP) are consulted on through the Level I consultation process whereby specific standards and monitoring are agreed to. The standards for range and riparian conditions will not change as a result of this land exchange. Acres will be added and subtracted from allotments, AUM's will be reduced in some allotments, but regardless of these changes the standards agreed to in previous consultations will not change. Therefore, the changes to allotments will be discussed, but do not

necessarily represent changes (positive or negative) to range or riparian conditions. Additionally, any riparian fencing that has been installed to address site specific grazing problems would not be removed or changed as part of this project. Therefore, rest and recovery of enclosed riparian areas on Forest Service lands would continue following implementation of this decision. Riparian enclosures installed on previously privately owned lands under agreements with ODFW would also remain in place following this exchange. Site specific modifications to riparian fencing may be addressed later in project specific analyses. The following list of likely negative effects from grazing have all been either considered and mitigated in existing biological assessments for AMPs or will be when AMPs are updated and taken through Level I consultation.

The most likely negative effects that grazing poses to fisheries habitat are as follows:

1. Retarding development of a shrub layer next to streams caused by cattle “lounging” in riparian areas for too long. This could lead to increases in water temperature as shade is reduced or prevented from developing.
2. Hoof shear and overgrazing of streamside grasses and forbs can contribute to bank instability, changing stream morphology at a localized scale and creating point sources for sediment. These effects can ultimately lead to bank instability, reduced bank angle, and substrate embeddedness, which lead to reduced quality of fish habitat for spawning, foraging, migration and rearing.
3. Intense and focused cattle use in riparian habitat conservation areas (RHCA) degrade riparian habitat through compaction, denuding of vegetation, point sources of nutrients, and establishment of undesirable weeds. Livestock trailing, bedding, salting, loading, and handling facilities are some of the focused uses that result in detrimental effects to RHCA’s. These activities near streams can lead to degraded water quality, sediment and nutrient input to streams, and damage to stream banks that cumulatively decrease fish production and survival.
4. Direct damage to redds can occur if cattle are permitted to graze along spawning streams while fish are spawning or emerging. This occurs when cattle travel in or across streams. There is the potential for direct damage to redds where fish eggs are crushed or knocked loose and flushed downstream. There is also the possibility for cattle to disrupt spawning behavior of fish by keeping males from fertilizing eggs, or by chasing females from redds while in the process of depositing eggs. These effects can result in direct mortality of eggs and reduced production of fish from the affected spawning cycle(s).

Forest Service lands that have permitted livestock grazing are generally maintained in better condition than non-federal lands that are grazed, although examples of degraded rangelands can be found on federal and private lands. This difference is largely due to the standards and guidelines that govern grazing on public lands, and the monitoring and oversight provided by the interested public and regulatory agencies. There are no state laws that govern grazing on privately owned lands. There is also no outside oversight for grazing on private lands. I should qualify that this assertion is based on 11 years of observations in central and northeastern Oregon, and applies mainly to larger landowners who allow grazing on their lands secondary to timber management objectives. For the above stated reasons, lands coming from private to Forest Service are expected to improve over time in regard to RMOs, and Forest Service lands conveyed to private are expected to degrade or maintain over time if subjected to livestock grazing.

In most situations conveyed lands are such a small part of the allotments, there will be no increases in stocking levels. The Forest Service will continue to administer allotments to assure that PACFISH/INFISH standards and guidelines are met and that allotments are meeting or moving toward a satisfactory condition, RMOs in the case of riparian areas. If there is a change in the ability of managers to maintain desired conditions adjustments in stocking will be made through administrative or environmental analysis of allotment management plans. For this reason, it is not automatically assumed that a reduction in AUM’s in an allotment will result in improved range conditions. Appendix BA-2 details changes to allotments in terms of acres and stocking.



## VII. MATRIX INDICATORS (Primary Constituent Elements & Essential Features)

The action under consultation (Blue Mountain Land Exchange) will not result in changes to the matrix indicators. Future projects that occur on acquired lands will be consulted on individually and effects to the indicators will be assessed in biological assessments specifically for those projects. Future actions on conveyed lands that could result in “take” of listed species would require the landowner to meet the requirements of section 10 of the Endangered Species Act (incidental take permits and habitat conservation plans). However, a general assessment is provided here on how indicators may be affected through changed management emphasis and indirect effects that may eventually result from this exchange. Potential effects were considered cumulatively at the 5<sup>th</sup> field HUC, and at the project scale. Since any actual effects to fisheries habitat would occur later in time as a result of changes in management emphasis and regulatory controls, there is no utility in attempting to project site specific effects to each matrix indicator by parcel. However, it is reasonable to predict upward (“restore”), downward (“degrade”) or neutral (“maintain”) trends for the indicators based on net changes in ownership (quantity and patterns). Generally acquired parcels would experience upward or neutral trends, while conveyed parcels would maintain or degrade in regard to many of the indicators. For conveyed parcels the indicators most directly associated with forest management would likely maintain through protections afforded by the Oregon Forest Practices Act, whereas those indicators more influenced by livestock grazing are likely to maintain or degrade.

In addition to matrix indicators, there are other similar parameters used to specifically assess the effects of actions on listed critical habitat for bull trout, steelhead, and Chinook salmon. Critical habitat for steelhead trout and bull trout is assessed through primary constituent elements (PCE) and Chinook salmon critical habitat uses essential features (EF). In order to reduce redundancy, some of the matrix indicators are grouped based on logical categories and each indicator or group of indicators is associated with PCE’s and essential elements. Then a brief determination and rationale for the determination is provided. Appendix BA-10 contains lists of all the PCE’s and EF’s that apply to this project. Appendix BA-10 assigns numbers to the three respective lists (of PCE’s and EF’s) which are referred to below in the discussions of the matrix indicators. Appendix BA-11 is also provided as a summary for how each of the four management categories may effect (in terms of trend) the matrix indicators. The indicators in Appendix BA-11 are listed individually rather than grouped.

### **1) Subpopulation Size, Growth and survival, Life history diversity and isolation, Persistence and genetic integrity** (These matrix indicators are not specifically related to the PCE’s or EF’s)

**Determination:** This land exchange project will likely have no direct effect on these indicators due to the broad geographic distribution of parcels. However, in some cases where concentrations of stream miles are being acquired (eg. Imnaha River) there may be an upward trend in these indicators as habitat recovers under Forest Service management.

**Rationale:** Many fifth level HUCs contain miniscule amounts of land in this exchange, which dilutes the potential for effects except at the site specific scale. Indicators that involve subpopulation size, growth, and survival will not likely experience any measurable changes as a result of this project. Exceptions may be where several miles of fisheries habitat is acquired and subsequently managed with threatened species recovery as a primary objective. The Imnaha River (and Big Sheep Creek) is an example of where a substantial amount of fisheries habitat would come under a more protective management regime which could result in an upward trend in these indicators over time (see Appendix BA-9, Maps 6 & 8).

### **2) Physical barriers** (Chinook EF #3, Steelhead PCE #3, Bull trout PCE #6)

**Determination:** There will be no direct effect to this indicator, however there could be an upward trend for this indicator as culverts are removed or replaced to restore fish passage.

**Rationale:** There is a high likelihood that culverts posing barriers to fish passage on acquired lands will

be replaced or removed to restore fish passage. These specific actions would be consulted on separately from this exchange project.

### **3) Chemical contaminants/nutrients** (Chinook EF #2, Steelhead PCE #1, 2, & 3, Bull trout PCE #8)

**Determination:** This project would have no effect on chemical contaminants, but there could be a decrease in levels of point source nutrients in the future.

**Rationale:** Some of the acquisition parcels on the Imnaha River have cattle handling facilities within or immediately adjacent to RHCA's that are likely sources of high nutrient input to streams. These will decrease following acquisition as the Forest Service abandons use of them and works to restore the vegetation on these sites. Restoration of these facilities would be consulted on separately.

### **4) Large Wood, Pool frequency and quality, and Large Pools** (Chinook EF #1, 2, 5, 6, 8, & 9, Steelhead PCE #2 & 3, Bull trout PCE # 2)

**Determination:** This land exchange will have no direct effect on the large wood component of streams or the frequency or condition of large pools. An upward trend for these indicators is expected on acquired lands as RHCA's are managed for mature and old growth forest structure which eventually contributes to down wood and large pool development. Conveyed lands would likely maintain through the application of Oregon Forest Practices Act standards.

**Rationale:** Large wood levels will likely increase over time as wider riparian management areas are applied to acquired lands and forested riparian areas are managed with large wood for streams as a primary objective. In some cases active restoration will occur on acquired lands which will accelerate the recovery of these indicators. Generally the likelihood of active stream restoration is greater on Forest Service lands than on private.

### **5) Stream Substrate, Percent Bank Stability, Width:Depth Ratio, Off Channel Habitat, RHCA's, Streambank Condition, and Temperature** (Chinook EF #2, 4, 5, 6, & 7, Steelhead PCE #1, 2, & 3, Bull trout PCE #1, 2, & 3)

**Determination:** Most of these matrix indicators involve biophysical conditions of streams, mainly stream morphology and riparian vegetation. Temperature can be a function of riparian vegetation and stream morphology. Although groundwater is a major determinant of water temperature, width to depth ratio, presence of large pools, and riparian vegetation are important for the maintenance of water temperature. None of these indicators would be directly affected by this action. However, an improving trend is expected within the first decade due to improved management of RHCA's and roads on acquired parcels.

**Rationale:** The BMLEX will not change sediment delivery rates to streams within or downstream from the watersheds containing exchange parcels. Future management activities could result in increases in sediment that could lead to a short-term degradation of this indicator at the site-specific level. Project specific consultations will address the potential for increased sediment delivery to streams. Overall it is expected that the positive effects from improved grazing practices, improved road management and less intense logging on lands acquired by the Forest Service will lead to improvements for these indicators.

### **6) Floodplain Connectivity, Changes to Drainage Network, & Road Density and Location**

(Chinook EF #1, 2, 3, & 9, Steelhead PCE #1, 2, & 3, Bull trout PCE #4, 5, & 6)

**Determination:** The BMLEX will not directly change the existing connectivity between streams and their floodplains, or the drainage network as it relates to roads and other man-made structures that alter drainage networks. Existing conditions will be maintained at all scales in the short-term but an upward trend is expected within the first decade as draw bottom roads are decommissioned and drainage structures maintained on acquired roads.

**Rationale:** There is potential for future active management to improve connectivity on streams acquired by the Forest Service through decommissioning of un-needed or poorly located roads. The likelihood of roads being decommissioned to improve water quality and riparian function is greater on Forest Service

lands than on private. Decommissioning of roads in riparian areas will restore drainage networks, reduce road density, and improve floodplain connectivity relative to the existing condition. These efforts will be higher priority near streams that support Federally listed fish, and will go through project specific planning and Level I consultation that addresses specific effects. Oregon Forest Practices Act rules will apply to road work associated with timber management on conveyed lands. These rules are recognized by Oregon DEQ as adequate to maintain state water quality standards.

#### **7) Refugia** (Chinook EF #3, 5, 6, & 7, Steelhead PCE #1, 2 & 3, Bull trout PCE #5 &6)

**Determination:** Refugia represents many aspects of fish habitat at localized and larger scales. Thermal refugia, juvenile refugia, and escapement (predator avoidance) refugia are all meaningful ways of considering this indicator. The BMLEX is likely to lead to an upward trend for all types of refugia habitat within the first decade on acquired streams. This indicator would likely maintain on most conveyed lands, but could degrade where cattle's grazing is not managed for properly functioning riparian conditions.

**Rationale:** Some types of refugia habitat will increase as large wood is recruited to streams and subsequent large pools develop. Large pools provide depth and turbulence cover used by individuals escaping predation. Large wood also increases the structural complexity of stream habitat offering numerous options for cover to elude predation.

Improved grazing by livestock, recovery of stream banks through PACFISH/INFISH RHCAs, and improved road management will combine to improve several matrix indicators over time that contribute to refugia. As cattle are managed to spend less time in riparian areas bank stability would increase, bank condition would improve, and stream substrate would improve as embeddedness decreases. These areas of recovery will provide refugia in the form of undercut banks and interstitial spaces in the substrate for several smaller age classes of fish. Temperature would also be positively affected through this recovery through increased shade. Recovery of overhanging vegetation also provides cover from predators for fish.

#### **8) Changes to Peak & Base Flows** (Chinook EF #1, 3, & 9, Steelhead PCE #1, 2 & 3, Bull trout PCE #4)

**Determination:** Future actions that result from implementation of the BMLEX are not likely to cause changes in peak and base flows. If changes were to occur, they are not expected to reach measurable levels, nor would minor changes result in adverse effects such as accelerated stream bank erosion or channel scouring.

**Rationale:** These effects are not expected to reach the magnitude where listed fish or their habitat would be affected and would not be measurable at the 6<sup>th</sup> field scale. No change in existing condition is expected at the 5<sup>th</sup> field scale. This determination is based on the relatively small scale of land involved in this exchange in most subwatersheds. The 14 subwatersheds that involve 5% or more of their area in the exchange (see Table BA-4) have the greatest potential to experience changes in peak and base flows, but these changes are dependant on future management. Future projects that could affect peak and base flows would go through Level I consultation or be subject to ESA Section 10 requirements.

#### **9) Disturbance History & Regime**

**Determination:** The combination of management activities (logging, burning, road work, etc.) that may occur following the BMLEX will likely create newly disturbed areas on the landscape. This will add to the aggregate level of disturbance in each of the affected 6<sup>th</sup> field watersheds. This indicator may be degraded at site-specific scales where land is conveyed and is subject to less stringent environmental regulations. This indicator is likely to improve on lands acquired by the Forest Service where more stringent environmental regulations apply. There will undoubtedly be a wide range of activities occurring on Forest Service and private lands in these watersheds, but there is likely to be a net improvement in the disturbance history/regime indicator due to the net increase of land coming under Federal management. It is likely that this level of disturbance will not be of the magnitude where effects to streams occupied by listed fish would occur, so the existing condition will likely be maintained or improve on Forest Service lands as restoration work proceeds in the future. Similarly, the effect at the 6<sup>th</sup> field watershed scale is minimal, and no change in baseline condition is expected.

**Rationale:** Watersheds in the exchange generally involve less than 5% of their area being exchanged (conveyed + acquired), with the exception of 14 subwatersheds (Table BA-4). There are four subwatersheds that contain a substantial percentage of their area that is being conveyed. These are:

- 1) Lower Mud Creek (Lower Snake Basin, 170601060207) with 8.6% of its area being conveyed and 3.6% being acquired for a net reduction in Forest Service land of 5%;
- 2) Butcher Creek (Middle Columbia Basin, 170701030203) with 12.1% of its area being conveyed and 10.4% being acquired for a net reduction in Forest Service land of 1.7%, however, PACFISH RHCA's were removed from conveyed parcels (except 0.05 miles of bull trout FMO habitat in FU1) and will be retained by the Forest Service;
- 3) Bear Creek (John Day Basin, 17070201080) with 20.2% of its area being conveyed and none being acquired; and
- 4) Upper Deer Creek (John Day Basin, 17070202100) with 13.7% of its area being conveyed and 1.4% being acquired for a net reduction in Forest Service land of 12.3%.

The Lower Mud Creek and Butcher Creek are among the four subwatersheds that involve the greatest amount of land being exchanged (conveyed + acquired) with a net reduction of 5% and 1.7% respectively. These amounts and locations of changed ownership are not likely great enough to influence natural disturbance regimes. Localized changes could occur for disturbances such as landslides, small wildfires, or insect and disease outbreaks in conifer stands, but these changes would not be of a magnitude to alter the way disturbances effect water quality or riparian function at the subwatershed scale, nor could these disturbances be attributed to the BMLEX project. Bear Creek and Upper Deer Creek however could experience some changes to natural disturbance regimes as the late/old structural forested stands are logged and younger forested stands dominate the uplands. These two creeks contribute cool, high quality water to downstream fish habitat. It is unknown if the accelerated logging on conveyed parcels (indicated by new landowners through a survey) in these subwatersheds will degrade this indicator, but the likelihood of habitat degradation is higher than if these parcels remained under Forest Service ownership.

## VIII. STEELHEAD TROUT, SNAKE RIVER AND MID-COLUMBIA DPSs

Both the Snake River and Mid-Columbia steelhead trout (*Oncorhynchus mykiss*) are listed as threatened under the Endangered Species Act. These two populations represent Distinct Population Segments (DPS), units by which National Marine Fisheries Service (NMFS) tracks status and recovery of listed anadromous fish populations.

### Direct Effects

This project would acquire 32.72 miles of steelhead habitat, 7.72 miles in the Mid-Columbia DPS and 25 miles in the Snake River DPS. Likewise, 4.35 and 0.83 miles of steelhead habitat would be conveyed in the Mid-Columbia and Snake River DPSs respectively. These quantities of habitat in the exchange are summarized in Table BA-8 below, and detailed by parcel and watershed in Appendix BA-1. This would result in a net increase in steelhead habitat coming under Forest Service management of 3.37 and 24.17 miles for the Mid-Columbia and Snake River DPSs respectively. To put these figures into perspective, there are 34 fifth level HUCs that contain exchange parcels and steelhead habitat. These thirty-four 5<sup>th</sup> level HUCs contain nearly 1,400 miles of steelhead habitat. Nearly twenty-eight miles of stream proposed for acquisition represents about 2% of the habitat in the watersheds involved. This represents a negligible amount at the DPS scale, but could represent measurable effects (likely positive) in subwatersheds where a significant amount of habitat is being acquired (eg. Imnaha River). Just over five miles of habitat proposed for conveyance represents a fraction of a percent of available habitat within the two DPSs. Separating the DPSs and calculating the percent of steelhead habitat involved still results in a fraction of a percent for each DPS.

Table BA-8: Net change in Steelhead habitat by DPS.

Steelhead DPS	Miles of habitat acquired	Miles of habitat conveyed	Net change (miles)
Snake River	25.00	0.83	+ 24.17
Mid-Columbia	7.72	4.35	+ 3.37

Appendix BA-1 shows the amount of steelhead habitat by watersheds, and the amounts of steelhead habitat involved in this exchange. Most notable are several 5<sup>th</sup> level HUCs that involve substantial amounts of steelhead habitat being exchanged.

Strawberry Creek (1707020108) includes conveyance of 3.64 miles of steelhead habitat in the Mid-Columbia DPS on Bear and Hall Creeks, tributaries to the John Day River approximately five miles northwest of Prairie City. Steelhead redd surveys by ODFW in Bear Creek (Appendix BA-9, Map 23) indicate a low but stable spawning population up until approximately six years ago when a downward trend began. No redds have been detected in the Bear Creek index area in five of the last six years. This apparent downward trend does not reflect a similar trend in the balance of the Upper Main John Day River basin, indicating possible site specific changes in spawning within the Bear Creek system. In fact, the development of beaver dams in the lower reaches of Bear Creek may have impeded upstream migration of spawning steelhead resulting in these recent declines. Year to year differences in survey conditions that effect detection rates of redds, or steelhead spawning outside of the index survey area can not be ruled out in explaining this recent downward trend. Bear and Hall Creeks are in relatively poor condition due to the presence of roads within riparian areas, culverts that are barriers to fish passage, and detrimental effects to riparian vegetation and stream banks from grazing by cattle. In 2002 a fish passage device was installed on lower Bear Creek to address a partial barrier posed by an irrigation ditch. Despite the multitude of factors affecting this system, water temperature remains low and capable of supporting the native salmonids that inhabit this system. The coolest water appears to originate from the upper reaches of these creeks within Forest Service lands (Allan Miller 2005). Cool water temperatures are promising from the standpoint of potential to restore fish habitat quality in this system. The problems that exist in these creeks on Forest Service lands appear to have persisted for several decades and there is no evidence that active restoration has been attempted. Riparian fencing is apparent on the lower private reaches of Bear Creek, and they appear to be a combination of exclosures and riparian pastures. If parcels FM4, FM6, FM7 and FM8 are conveyed to private ownership the likelihood of fish habitat restoration occurring is much lower than if they remain under Forest Service management. Additionally, with accelerated logging of the uplands, less road maintenance, and no grazing standards, the rate at which riparian conditions are degraded is likely to increase when FM4, FM6, FM7 and FM 8 are conveyed. It is not possible to predict with any certainty whether changes in ownership of these Bear Creek and Hall Creek parcels will eventually result in the local extirpation of steelhead.

There are four 5<sup>th</sup> level HUCs that include more than two miles of steelhead habitat that would be acquired by the Forest Service within the Snake River DPS. Lower Big Sheep Creek (1706010204) would acquire 2.86 miles of steelhead habitat, Lower Innaha River (1706010205) acquires 10.41 miles, Middle Innaha River (1706010202) acquires 3.87 miles, and Upper Joseph Creek (1706010605) acquires 3.68 miles.

Miles of steelhead habitat being acquired within the Mid-Columbia DPS, by fifth level HUC ranges from 0.15 (Upper NF John Day River, 1707020201) to 1.76 miles (Meachum Creek, 1707010302), representing minor amounts relative to the amount of steelhead habitat in this DPS.

### Indirect and Aggregate Effects

The net increase in steelhead habitat coming under Forest Service management would lead to improvements in fisheries habitat through correction of point sources for sediment from poorly designed/located roads, improved

livestock grazing practices near streams, removal of livestock handling facilities within RHCAs, and wider stream buffers in logging areas. These positive effects would represent minor contributions to recovery of steelhead habitat at the DPS scale, but could result in greater hatching rates and fingerling survival in specific streams that involve higher levels of streams being acquired by the Forest Service. Acquisition of stream miles that bring contiguous reaches under Forest Service management improves efficiencies and effectiveness of RHCA management. An example would be the Imnaha River (Middle, and Lower Imnaha) that involves a total of 14.28 miles of steelhead habitat that would be acquired.

Subwatershed 170701030203 (Butcher Creek, Meachum Creek watershed, Mid-Columbia DPS) would convey 12.1% of its area and 10.4% of its area would be acquired for a net change of – 1.7%. However, it is important to note that riparian habitat associated with Butcher and Meachum Creeks is excluded from the convey parcels, so no steelhead habitat would be going from Forest Service to private in the Butcher Creek subwatershed. It should also be noted that steelhead habitat in Meachum Creek that was removed from convey parcels is in extremely poor condition due to the presence of the railroad (and access road) that runs along its length, strongly influencing the stream's morphology, connection to its floodplain, and overall function as fish habitat. Changes in management emphasis on the uplands within the Butcher Creek subwatershed is not likely to result in degradation of steelhead habitat to a degree that recovery would be impaired.

Subwatershed 170702010803 (Strawberry Creek watershed, Mid-Columbia DPS) would convey 20.2% of its area and none would be acquired. The private uplands in the Bear Creek subwatershed have been more intensively logged than neighboring Forest Service lands, contributing to aggregate effects in terms of less snow intercept, higher road densities, and increased potential for sediment to enter streams. Steelhead habitat in the Bear Creek subwatershed would likely continue to degrade, possibly at an accelerated rate once conveyed to private ownership.

Subwatershed 170702021001 (Upper Deer Creek, Lower North Fork John Day River, Mid-Columbia DPS) would convey 12% of its area and 1.4% of its area would be acquired for a net change of – 10.6% (see Appendix BA-9 Map 17). The uplands in the parcels proposed for conveyance are more heavily forested than the surrounding private lands that have been heavily logged. Accelerated logging, increases in road densities, and increased potential for sediment to enter streams could reduce the quality of steelhead habitat downstream in Deer Creek.

Bear Creek and Upper Deer Creek subwatersheds (FM4, FM5, FM6, FM7, FM8, FM9, & FM10) represent the greatest potential for negative effects to steelhead from upland management activities that may occur as management emphasis shifts to accelerated logging following the exchange. The potential for increased logging, road building and over-grazing by livestock could combine to create upslope effects that lead to negative effects in the streams. However, assuming the Oregon Forest Practices Act is followed, the effects would be within an acceptable range to at least minimally protect fisheries resources. The narrower stream buffers are more vulnerable to disturbances that could compromise the effectiveness of their function. Grazing by livestock could be the main factor that leads to habitat degradation on conveyed lands when compared to lands remaining under Forest Service management. However, range conditions along Bear Creek (primarily in FM4 & FM6) and its tributaries on Forest Service lands are currently experiencing detrimental effects from cattle grazing, roads within RHCA's, and culverts that impede fish passage. Although the detrimental effects to Bear Creek are barely distinguishable between private and Forest Service lands currently, the oversight (by regulatory agencies and the public) and likelihood of these issues being addressed would be greater if these parcels remained under Forest Service management than if conveyed to private ownership.

Fifty-six miles of road within 300' of streams would be acquired by the Forest Service, providing opportunities for restoration or mitigation of road effects to water quality. Not all of these roads are adjacent to steelhead habitat, but total miles of road within 300' of streams provides an idea of the quantity of road miles coming under management standards that are more protective of water quality and fisheries habitat.

Sixty parcels with water rights and/or developments would be acquired, and 15 parcels with water rights and/or developments would be conveyed. Approximately 18 of the water rights on acquired parcels and one on a conveyed parcel have been in non-use status for more than five years, and none of the changes to water rights/developments from this project would result in decreases to instream water.

### **Determination of Effect to Steelhead Trout**

The BMLEX project **may effect, and is likely to adversely affect** Mid-Columbia steelhead trout. Although the action represents an overall beneficial effect to steelhead, the action is also likely to cause some adverse effects by conveying 4.35 miles of steelhead habitat. Sixteen of eighteen fifth level HUCs involved represent a potential improvement in habitat quality for steelhead. The most notable exception is Strawberry Creek (1707020108), specifically Bear Creek subwatershed (170702010803), which would experience a decrease of 3.64 miles of steelhead habitat under Forest Service management. There are also net reductions in steelhead habitat under Forest Service management in Beech Creek (1707020109) and Lower North Fork John Day River (1707020210). Although the conveyed streams in these examples will not receive the level of protection/restoration provided by Forest Service standards and guidelines, the potential effects to steelhead would not likely be measurable at the fifth level HUC scale. The potential adverse effects on conveyed steelhead habitat are not discountable, insignificant, or entirely beneficial, therefore a “likely to adversely affect” determination is warranted.

The BMLEX project **may effect, but is not likely to adversely affect** Snake River steelhead trout. The difference between the Snake River DPS and Mid-Columbia DPS is the amount of habitat being conveyed and specific considerations regarding conveyed habitat. A total of 0.83 miles would be conveyed in the Snake River DPS. Meadow Creek (1706010402) fifth field HUC would convey 0.66 of the 0.83 miles along Burnt Corral Creek near Camp Elkanah. This particular stream reach is immediately beside paved county road 244, which has confined Burnt Corral Creek to the very edge of its floodplain, and rendered much of the floodplain unusable for lateral migration of the creek. Additionally, the creek and a substantial portion of its riparian area are within the highway maintenance right-of-way (80’ both directions from road centerline). Within this right-of-way road maintenance by the county would routinely remove logs and trees that fall across the road (and creek), that pose hazards to traffic or could create flooding conditions on the road. These conditions all affect the quality of steelhead habitat in Burnt Corral Creek, and will not change following this land exchange. There is 0.17 miles of steelhead habitat that would be conveyed in the Big Sheep Creek (1706010203) fifth field HUC. There are two parcels (FW10 and FW6C) that contain approximately 0.09 miles of steelhead habitat each. The habitat in FW6C is non-forested and is influenced by a road that occupies part of the floodplain. The conveyance of FW6C would not result in any changes to steelhead habitat from the baseline. This leaves approximately 0.09 miles in FW10 that would be going to a less protective management scenario. There is merchantable timber and an existing road on the south side of the steelhead habitat that would be conveyed in FW10, and a narrow band of sparse timber on the north side of the stream that quickly turns into grasslands upslope. There are no roads on the north side of the stream, and logging costs on the north side would be very costly. There is potential for logging to Oregon Forest Practices standards to occur along these 0.09 miles of steelhead habitat. This effect is so minor as to be insignificant, with the aggregate effect for this DPS being beneficial due to a net increase of over 24 miles of steelhead habitat coming under a more protective management scenario.

### **Steelhead Critical Habitat**

Critical habitat for Snake River and Mid-Columbia steelhead is scheduled to be formalized on January 2, 2006. This project **may effect, and is likely to adversely affect** steelhead critical habitat in the Mid-Columbia DPS for the same reasons stated above in the determination of effects to steelhead in this DPS. This project **may effect, but is not likely to adversely affect** steelhead critical habitat in the Snake River DPS for the same reasons stated above in the determination of effects to steelhead in this DPS.

Appendix BA-5 contains a list of which land exchange parcels contain critical habitat for steelhead, and which 5<sup>th</sup> field HUC they are located in. Data used in the critical habitat tables (Appendix BA-5) comes from

NOAA National Marine Fisheries Service shape files from their website (<http://www.nwr.noaa.gov/Salmon-Habitat/Critical-Habitat/CH-GIS-Data.cfm>). Some differences exist between the fish distribution data used in the remainder of this analysis and the critical habitat data. These differences may be explained by: 1) minor artifacts of coarse scale GIS mapping; or 2) differences in fish distribution data (ODFW, US Forest Service, NOAA Fisheries) used to generate GIS products.

Primary Constituent Elements (PCEs) have been developed that describe habitat elements needed for continued survival and recovery of threatened steelhead. These elements must be addressed when discussing proposed or ongoing project effects to steelhead Designated Critical Habitat. The Matrix Indicators are a tool by which the PCEs may be discussed, and determinations of effect can be made. Section VII (Matrix Indicators) addresses the PCE's along with similar habitat parameters necessary for assessing effects to Chinook salmon and bull trout critical habitat.

## IX. MID-COLUMBIA AND SNAKE RIVER CHINOOK SALMON

Spring/summer and fall Chinook salmon within the Snake River basin are listed as threatened under the ESA. Chinook salmon also occur in the Mid-Columbia basin and are not listed under ESA. However, Chinook habitat in the Mid-Columbia basin is recognized as essential fish habitat (EFH) under the Magnuson-Stevens Fishery Conservation and Management Act, as amended. Effects from this land exchange to Chinook salmon are nearly identical as those discussed for steelhead, but different amounts of habitat are involved. The distribution of fall Chinook is much less expansive than for spring/summer Chinook. Figures of miles of Chinook habitat involved in this exchange are from distribution data for spring/summer Chinook recognizing that fall Chinook is a smaller subset of these data. The majority of fall Chinook habitat in the vicinity of this project is located in the lower Grande Ronde River and Imnaha River.

**Direct Effects** – This project would acquire 13.96 miles of Chinook habitat in the Snake River DPS and none in the Mid-Columbia DPS. A negligible amount of Chinook habitat would be conveyed in the Snake River DPS, 0.09 miles of the east side of Big Sheep Creek (FW6C). FW6C is largely non-forested and has a road occupying a considerable portion of the floodplain. The quality of Chinook habitat along this portion of Big Sheep Creek is not likely to change as a result of this exchange. There are also five other parcels (FW6A-F) along Big Creek that have small corners overlapping the RHCA, but no actual stream habitat is within the parcels. It is important to note that these Forest Service parcels along Big Sheep Creek in their current arrangement are impractical to manage individually or collectively due to their small size and scattered distribution.

**Indirect and Aggregate Effects** – The acquisition of nearly 14 miles (Appendix BA-6) of Chinook habitat holds potential for improved management by the Forest Service through more protective standards for forest, range and road management. These improvements could result in increased Chinook production and juvenile survival as degraded riparian habitat recovers, fish passage is restored, livestock is excluded from spawning habitat, and upland forests are restored.

### **Chinook Salmon Critical Habitat**

Critical habitat for Snake River Chinook salmon is essentially all the accessible, occupied habitat within the basin, so the discussion of effects for this species also applies to critical habitat.

### **Determination of Effect for Chinook Salmon**

The Blue Mountain Land Exchange **may effect, but is not likely to adversely affect** Chinook salmon or their critical habitat within the Snake River DPS. This determination is based on the miniscule amount of habitat (0.09 miles in FW6C) being conveyed and nearly 14 miles of habitat being acquired into a more protective management scenario.



## **Chinook Salmon Essential Fish Habitat (EFH)**

The Pacific Fisheries Management Council (PFMC) is one of eight regional fishery management councils established under the Magnuson-Stevens Act. PFMC develops and carries out fisheries management plans for salmon, groundfish and coastal pelagic species off the coasts of Washington, Oregon, and California, and recommends Pacific halibut harvest regulations to the International Pacific Halibut Commission.

As required by the Magnuson-Stevens Act, PFMC described and identified Essential Fish Habitat (EFH) in each of its fisheries management plans. EFH includes “those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity.” All streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California are designated as EFH for affected salmon stocks with management plans.

The Magnuson-Stevens Act also established an EFH consultation process. Federal agencies are required to consult with NMFS on all actions that may adversely affect EFH. The NMFS interprets the scope of these consultations to include actions by Federal agencies that occur outside designated EFH, such as upstream or upslope, but which nonetheless may have an adverse effect on habitat conditions necessary for the long-term survival of the species within EFH. The NMFS must provide conservation recommendations for any Federal or State activity that may adversely affect EFH. Within 30 days of receiving EFH conservation recommendations from the NMFS, Federal agencies must conclude EFH consultation by responding to NMFS with a written description of conservation measures the agency will use to avoid, mitigate or offset the impact of its action on EFH. If the Federal agency selects conservation measures, which are inconsistent with the conservation recommendations of NMFS, the Federal agency must explain in writing its reasons for not following NMFS recommendations.

The proposed project area in this BA includes areas designated as EFH for spring Chinook salmon, which was deemed not warranted for listing under ESA on March 9, 1998 (63 FR 11482). EFH for spring Chinook salmon is considered to be those habitats occupied at present and those historic habitats in the John Day Basin. This includes main stem streams and most tributaries below natural barriers. The Blue Mountain Land Exchange alternative described in this BA is **unlikely to adversely affect** EFH based on the amount of habitat coming under a more protective management scenario and the fact that no EFH for Chinook would be conveyed to a less protective management scenario. The remainder of EFH involved in this project is the Snake River Chinook salmon habitat already discussed in detail above. This project is also unlikely to have adverse effects on EFH in the Snake River

## **X. BULL TROUT**

Bull trout involved in this project are within the Columbia River Distinct Population Segment (DPS). Effects to bull trout from this land exchange would be similar to those discussed for steelhead and Chinook with some exceptions. Some bull trout habitat is identified that does not support either of the anadromous species discussed thus far. Bull trout spawn at a different time of year than most of the steelhead and Chinook runs in northeast Oregon, leading to different timing considerations for instream work or livestock grazing along spawning and rearing habitat.

Bull trout distribution data is separated into two categories; spawning and rearing (SR) and foraging/migratory/over wintering (FMO).

**Direct Effects** – This project would acquire 11.50 miles and 1.40 miles of FMO and SR habitat respectively. No SR habitat would be conveyed, and 0.14 miles of FMO habitat would be conveyed. The 0.14 miles to be conveyed are FU1 (0.05 miles) and FW6C (0.09 miles). Six 5<sup>th</sup> level HUCs include exchange parcels that contain bull trout habitat (Table BA-9).

**Indirect and Aggregate Effects** - The addition of nearly 13 miles of bull trout habitat to Forest Service management would likely have minor beneficial effects to bull trout through improved management of roads, upland forests, and livestock grazing. The amount of habitat improvement would likely not be great enough to increase reproduction or survival of juvenile fish. However, improved range, forest and stream conditions over time could combine with positive effects from active restoration elsewhere in these watersheds for the benefit of bull trout populations. Since specifics of what management may occur on these lands are not currently known, it is impractical to quantify these benefits and relate them to this land exchange. However, the large majority of acquired habitat is located in the Imnaha River and Big Sheep Creek (a tributary to the Imnaha River), which greatly improves the ownership pattern for administration of roads, grazing allotments, and forest management (see Appendix BA-9, Maps 6 & 8).

Table BA-9: Bull trout habitat by 5<sup>th</sup> HUC, parcel, and habitat category (FMO or SR).

Watershed (5 <sup>th</sup> HUC)	Parcels	Miles of FMO		Miles of SR	
		Acquired	Conveyed	Acquired	Conveyed
Meachum 1707010302	PU11	0	0	1.05	0
	PU9A	0	0	0.16	0
	PU9B	0	0	0.08	0
	FU1	0	0.05	0	0
Lower Imnaha 1706010205	PW1	0.10	0	0	0
	PW2A	0.17	0	0	0
	PW2B	0.08	0	0	0
	PW10A	0.53	0	0	0
	PW10B	0.42	0	0	0
	PW13A	0.19	0	0	0
	PW13B	0.32	0	0	0
	PW13C	0.02	0	0	0
	PW13D	0.26	0	0	0
	PW16A	0.31	0	0	0
	PW16C	0.41	0	0	0
	PW16E	0.83	0	0	0
	PW20A	0.49	0	0	0
	PW20C	0.49	0	0	0
Upper Big Sheep Creek 1706010203	PW31	0.88	0	0	0
	FW6C	0	0.09	0	0
Lower Big Sheep Creek 1706010204	PW24A	0.47	0	0	0
	PW24B	0.50	0	0	0
	PW24C	0.57	0	0	0
	PW24D	0.51	0	0	0
Middle Imnaha River 1706010202	PW25A	0.36	0	0	0
	PW25B	0.91	0	0	0
	PW25C	0.96	0	0	0
	PW25D	1.16	0	0	0
	PW27C	0.56	0	0	0
Lostine River 1706010502	PW37	0	0	0.11	0
<b>Totals:</b>		<b>11.50</b>	<b>0.14</b>	<b>1.40</b>	<b>0</b>

Parcel FW6C (43 acres, see Appendix 9, Map #6) involves 0.09 miles of bull trout FMO habitat that would be conveyed to private ownership. FW6C is largely non-forested and has a road occupying a considerable portion of the floodplain. The quality of bull trout habitat along this portion of Big Sheep Creek is not likely to change as a result of this exchange. This, along with five other parcels (FW6A, FW6B, FW6D, FW6E and FW6F), represent isolated parcels along Big Sheep Creek that are surrounded by private land. The other five parcels (approximately 40 acres each) along this reach of Big Sheep Creek have corners that overlap the RHCA, but do not include any actual streamside habitat. It is impractical to manage these isolated parcels due to their scattered arrangement and small size.

Parcel FU1 (0.05 miles of FMO habitat) is a five acre parcel along Meachum Creek, between the railroad track and Meachum Creek. This miniscule piece of riparian habitat is negligible in terms of bull trout production or survival in the Meachum Creek watershed.

### **Determination of Effect for Bull Trout**

The BMLEX **may effect, but is not likely to adversely affect** bull trout. At the DPS scale the long-term benefits of this project outweigh the potential negative effects that could occur on conveyed lands.

### **Bull Trout Critical Habitat**

Bull trout critical habitat for this analysis was retrieved from [http://region1ims.r1.fws.gov/imf406\\_15/imf.jsp?site=updated\\_OT5\\_Bulltrout2](http://region1ims.r1.fws.gov/imf406_15/imf.jsp?site=updated_OT5_Bulltrout2). The BMLEX would acquire approximately 11.50 miles of bull trout critical habitat within the Upper Big Sheep, Lower Big Sheep, Lower Imnaha, and Middle Imnaha watersheds. All critical habitat being acquired is foraging/migratory/over-wintering habitat. No critical habitat would be conveyed since no Federal lands are currently listed as critical habitat. Table BA-10 contains the parcels by 5<sup>th</sup> level HUC that contain critical habitat.

No direct effects would occur since no changes to habitat would occur at or near the time and place of the action under consultation. Indirect effects to bull trout critical habitat would include improved grazing practices (including monitoring and oversight by regulatory agencies), removal (and restoration of sites) of cattle handling facilities along the Imnaha River, and road maintenance that reduces sediment input to streams.

The Blue Mountain Land Exchange **may effect, but is not likely to adversely affect** bull trout critical habitat. Based on foreseeable improvements in the management of these acquired lands relative to bull trout habitat, there is likely to be a beneficial effect to bull trout within the first decade following this exchange. Specific actions such as road work, timber management, changes to allotment management plans, etc. will be consulted on individually.

**Table BA-10: Bull Trout Critical Habitat**

<b>Watershed (5<sup>th</sup> HUC)</b>	<b>Parcels</b>	<b>Miles of FMO Acquired</b>
Lower Imnaha 1706010205	PW1	0.10
	PW2A	0.17
	PW2B	0.08
	PW10A	0.53
	PW10B	0.42
	PW13A	0.19
	PW13B	0.32
	PW13C	0.02
	PW13D	0.26
	PW16A	0.31
	PW16C	0.41
	PW16E	0.83
	PW20A	0.49
PW20C	0.49	
Lower Big Sheep Creek 1706010204	PW24A	0.47
	PW24B	0.50
	PW24C	0.57
	PW24D	0.51
Upper Big Sheep Creek 1706010203	PW31	0.88
Middle Imnaha River 1706010202	PW25A	0.36
	PW25B	0.91
	PW25C	0.96
	PW25D	1.16
	PW27C	0.56
<b>Total:</b>		<b>11.50</b>

## **XI. CANADA LYNX**

The lynx analysis unit (LAU) is the logical resource unit for addressing effects to Canada lynx (*Lynx canadensis*). This project involves eleven parcels that contain habitat for threatened Canada lynx. Table BA-11 summarizes which parcels are involved, which LAUs they are in, and acreages by habitat suitability at the LAU scale.

### **Environmental Baseline**

Lynx habitat within parcels is delineated from timber stand exam data; however habitat is not classified in some parcels because no data exists. Where habitat suitability is not known a judgment is made based on biophysical conditions and surrounding habitat. For instance, no vegetation data exists for parcel PW35C. However, the parcel is known to meet the elevation and plant community criteria for lynx habitat. Additionally, three sides of this parcel are bordered by denning habitat. From this information one could surmise that the habitat within parcel PW35C is at least potential habitat for lynx, although it could be in an unsuitable condition. Examination of aerial photographs from the late 1990's, and personal communication with ODFW personnel in Enterprise, Oregon indicate that no logging has been done on PW35C that would render it unsuitable. Table BA-13 contains information concerning the patch size in which these parcels are located to help establish the context of the parcels relative to lynx habitat. Appendix BA-7 is a series of maps of the parcels that contain lynx habitat.

**Table BA-11:** LAU acres summary by habitat suitability category, and percentage of the LAU represented by each category.

<b>LAU (Parcels containing or adjacent to lynx habitat)</b>	<b>Total Forage in LAU</b>	<b>Total Denning in LAU</b>	<b>Total Unsuitable in LAU</b>	<b>Total Lynx Habitat in LAU</b>
Meadow (PU16B)	24,050 (44%)	8,825 (16%)	21,946 (40%)	54,821
NF John Day River (PU13, PW45)	17,634 (47%)	10,830 (29%)	9,192 (24%)	37,656 (+2,451 no data)
Upper Wallowa River (FW13, PW35A-C)	3,845 (21%)	13,111 (73%)	1,027 (6%)	17,983
Upper Imnaha River (PW28)	6,169 (18%)	24,231 (69%)	4,649 (13%)	35,049 (+7,012 no data)
LostineR./Deer Creek Tribs South (FW17A, FW17C, PW37)	1,537 (9%)	15,528 (88%)	624 (3%)	17,689

**Suitable Lynx Habitat** – Of the five LAUs involved in this project, only one (Meadow, on the Umatilla NF) is deficient in suitable lynx habitat. The Meadow LAU currently contains 60% suitable lynx habitat, 10% less than the minimum recommended in the Lynx Conservation Assessment and Strategy (LCAS) (Ruediger 2000). The large majority of these unsuitable acres are a result of the Tower Fire (1996). The areas burned by the Tower Fire are regenerating predominantly to lodgepole pine, and are on track to recover to foraging habitat by 2010, at which point the Meadow LAU will exceed 70% suitable lynx habitat.

**Denning Habitat** – All five LAUs exceed the minimum (10%) recommended percentage of denning habitat. The percentages and acres of denning are listed in Table BA-11.

### **Direct Effects**

This project involves an increase of at least 231 acres of denning habitat. No foraging habitat exists on the private land proposed for acquisition. Three Forest Service parcels representing 80 acres of denning and 26 acres of foraging habitat would be conveyed.

No direct changes to lynx habitat would result from this project. Logging on conveyed parcels could render the habitat unsuitable, but the amounts and locations of conveyed parcels are inconsequential relative to the LAUs. Likewise, acquired parcels would increase the amount of lynx habitat under Forest Service management, but represent very minor acreages relative to scales that are meaningful to an analysis of lynx habitat.

### **Indirect & Aggregate Effects**

The only cumulative effects from adjacent state or private activities are reflected in the existing amounts of lynx habitat within LAU's (Table BA-11). Past logging is the primary factor in creating unsuitable habitat conditions for lynx. Associated roading, site prep burning, non-commercial thinning, and increased human access have also contributed to unsuitable conditions for lynx.

This project would result in a 125-acre net increase of lynx habitat (foraging and denning combined) that would come under the management authority of the Forest Service. These are additional acres that would be analyzed and managed according to the LCAS. Also, any projects planned in or around these Forest Service lands would be subject to oversight through public scoping as part of the NEPA process, and through the consultation process with US Fish and Wildlife Service. There is no requirement for private landowners to consider lynx habitat in the management of their lands.

Private lands that are suitable for timber harvest are commonly logged to some degree. This assertion is based on observations and questionnaires from private landowners involved in this exchange. The most reliable source that indicates the degree of logging on private property comes from the Oregon Forest Practices Act, which allows for intensive logging (clear-cut with reserve trees) on the least restrictive end of the management spectrum. The broad range of logging intensities allowed under the Oregon Forest Practices Act and the diversity of private land objectives make it difficult to predict what changes may occur in lynx habitat on conveyed lands. However, the following site-specific information may be helpful in establishing the context of exchange parcels that contain lynx habitat.

PU16B is on the periphery of lynx habitat and contains an unknown, but predictably minor amount of lynx habitat. This parcel is also on the periphery of the elevational and plant community zone necessary for lynx habitat. Past logging, mostly commercial thinning has resulted in unsuitable conditions for lynx on this parcel that will persist as long as timber production is a priority on the property. The minor acreage in PU16B that has potential to develop into suitable lynx habitat is negligible when considering its size and position in relation to the LAU.

PU13 and PW45 are adjacent to one another in the North Fork John Day River LAU. These parcels are also near the periphery of lynx habitat and represent minor acreages relative to the LAU.

PW37 is a 3.54-acre parcel within a 10,709-acre patch of denning habitat. The minute size of this parcel makes it negligible when discussing lynx habitat unless it represents an outstanding feature or important location deserving of more detailed consideration. This parcel contains no outstanding features that make it any more important than other denning habitat within the Lostine River/Deer Creek Tribes South LAU.

PW35A-C are a combination of denning and non-habitat. Extremely steep, rocky slopes and stringers of forest, talus, and avalanche chutes characterize this area. The steepness and difficulty of the ground contribute to high logging costs that would discourage many private landowners from managing the timber on these parcels. Although unlikely, helicopters could be utilized for logging this area.

PW28 is 119 acres of which 28 acres is denning habitat and the balance is non-habitat. Acquisition of this parcel would be a very minor contribution to the Upper Imnaha River LAU.

**Table BA-12: Parcels containing lynx habitat.**

<b>Parcel # (Total Acres)</b>	<b>Acres &amp; Habitat Category</b>
PU16B (1271)	No specific data, mixture of non-habitat/unsuitable/forage
PU13 (108)	No specific data, unsuitable & forage
PW45 (49)	No specific data, unsuitable & forage
PW37 (4)	4 acres of denning
PW35A (229)	122 acres of denning
PW35B (153)	77 acres of denning
PW35C (76)	No specific data, mixture of non-habitat/unsuitable/forage
PW28 (119)	28 acres of denning
<b>Total</b>	<b>At least +231 acres of denning</b>
FW13 (118)	68 acres of denning, 26 acres of forage
FW17A (10)	10 acres of denning
FW17C (2)	2 acres of denning
<b>Total</b>	<b>-80 denning, -26 forage</b>

FW13 (2 separate parcels totaling 118 ac), FW17A and FW17C represent 80 acres of denning and 26 acres of foraging habitat that would be conveyed and potentially rendered unsuitable through logging in the future.

Appendix BA-7 shows FW17C situated in a patch of “marginal forage” habitat. The marginal forage category was adopted on the Wallowa-Whitman NF for the sole purpose of analyzing the relative quality of lynx foraging habitat. Marginal forage is habitat that meets the forage definition at a minimal level, generally not supporting snowshoe hares, but may support alternate prey species. “Primary forage” and “marginal forage” are considered together when discussing the amount of foraging habitat at the LAU scale.

**Determination of Effect**

This project **may effect, but is not likely to adversely affect** Canada lynx or their habitat. There is no defensible means to assess what the changes in management control mean to the viability or future recovery of lynx. Also, due to the large number of private landowners involved and the potential for re-sale of parcels, there is little reliable information that allows for an analysis of reasonably foreseeable actions that could contribute to aggregate effects.

The best and worst-case scenarios for lynx habitat do not represent a measurable benefit or detriment to lynx or lynx habitat. This finding is based on: 1) the minute acreages involved over five LAUs; 2) the fact that most of these acres are on the periphery of core lynx habitat; and 3) because none of the lynx habitat involved represent outstanding features or important locations deserving of more detailed consideration.

Although a minor amount of lynx habitat could be rendered unsuitable, the effects are not great enough to compromise the potential for lynx to re-colonize these LAU’s at some point in the future. Nor are the effects great enough to negatively affect lynx that may currently exist within these LAU’s.

**Table BA-13:** Parcels with lynx habitat, context of parcels relative to surrounding habitat.

Parcel #	LAU	Denning	Foraging	Unsuitable	Non-Habitat
PU16B	Meadow Creek		Adjoins 246 acre patch	Small amount	Mostly non-habitat
PU13	NF John Day River		Adjoins 382 & 79 acre patches	Contains an undetermined amount	Contains an undetermined amount
PW45	NF John Day River		Adjoins 365 acre patch	Contains an undetermined amount	Contains an undetermined amount
FW13	Upper Wallowa River	Contains 68 acres, adjoins 4,673 acre patch	Contains 26 acres, adjoins 222 & 49 acre patches		25 acres
PW37	LostineR./Deer Creek Tribs South	Contains 3.54 acres, part of 10,709 acre patch			
FW17A	LostineR./Deer Creek Tribs South	Contains 10.23 acres, part of 10,709 acre patch			
FW17C	LostineR./Deer Creek Tribs South		Contains 2.42 acres, part of 37.53 acre patch		
PW35A	Upper Wallowa River	122 acres			108 acres
PW35B	Upper Wallowa River	77 acres			Minor inclusions
PW35C	Upper Wallowa River	Mostly denning			Minor inclusions
PW28	Upper Imnaha River	28 acres			91 acres
<b>Total</b>		<b>-78/+230</b>	<b>-28/+unk.</b>		

Critical habitat for Canada lynx has been proposed, but none is proposed in the state of Oregon. Therefore this project will have no effect on critical habitat for lynx, nor will this project preclude future designations of critical habitat within the project area.

## XII. BALD EAGLE

Bald eagles in the lower 48 states were first protected in 1940 by the Bald Eagle Protection Act and then were Federally listed as endangered in 1978. In 1995, the bald eagle was reclassified as threatened in all of the lower 48 States. The bald eagle was proposed for delisting on July 6, 1999; a decision on whether to delist the bald eagle is pending (64 FR 36453). No critical habitat has been designated for the bald eagle.

### Environmental Baseline

The entire state of Oregon is within the Seven State Pacific recovery area, and the Blue Mountain Land Exchange project is within Management Zone 9. The Pacific Bald Eagle Recovery Plan outlines goals by management zone that will be used to measure recovery.

Management Zone 9 has a recovery population goal of eight nesting pairs, producing at least 1.0 young per nest for a five-year average (USFWS 1986). Nesting success in 2003 for Management Zone 9 was five occupied sites with 1.62 young per site (Isaacs 2003). At least one new nest site was identified in 2004 in Zone 9 (Shaw Reservoir), but there are no land exchange parcels within several miles of this nest.

Records from the Oregon Department of Fish and Wildlife, Oregon Department of Forestry, Frank Isaacs (Oregon Cooperative Fish and Wildlife Research Unit), and Forest Service were queried to identify known bald eagle roosts and nests within the vicinity of the Blue Mountain Land Exchange. Approximately 74 roosts and five nests are located within the minimum convex polygon that defines the area of the land exchange. The next step was to identify parcels within one mile of a known nest or roost. One nest and three roosts are within a mile of at least one parcel. Table BA-14 contains details on which parcels, nests and roosts are involved. Appendix BA-8 is a series of maps showing the eagle nest and roosts that are within one mile of land exchange parcels.

### Direct Effects

There would be no direct effects to bald eagles or their habitat from this project. The acreages involved in this exchange and how they relate to known roosts or nests are discussed in Indirect and Aggregate Effects below.

**Table BA-14:** Bald eagle roosts and nests within a mile of parcels.

Roosts	Nests	Parcel Number	Parcel Acres		Distance
	Dry Creek (628)	FU27	102		< 0.75 mile
Wenaha River		PU1B	521		1 mile
Horse Canyon		PU16F	343		0.25 mile
Bear Creek (BLM)		FM10	314		0.50 mile
Total:			864* ac acquired	416* ac conveyed	

\*These totals represent acreages of parcels that have at least a portion of their area within 1 mile of a known roost or nest. The total areas provided are for the entire parcels and some of these acres are further than a mile from roosts or nests.

### Indirect and Aggregate Effects

The Dry Creek nest tree is very near the border of a private land parcel (formerly PU26B which was dropped from the preferred alternative). The private parcel adjacent (to the west of the nest) has been heavily logged and will not provide suitable structures for roosting, nesting or perching for several decades (Vanwinkle 2003). PU24 is greater than one mile from the Dry Creek nest and is not expected to contribute to the viability of this nest site. Parcel FU27 is approximately 0.75 miles from the Dry Creek nest and represents the best quality replacement habitat in case the existing nest stand is lost (fire, wind, insects, trespass logging, etc.). FU27 is



connected to other Forest Service land on one side, but is surrounded by private on three sides. This ownership pattern contributes to FU27 functioning somewhat like an island of potential habitat for bald eagles. This parcel would likely be logged following conveyance, and it is far enough away from the Dry Creek nest to not be subject to requirements of OARs for bald eagle nests. It is unknown what the effect of conveyance and subsequent logging of FU27 would have on bald eagles, but potentially important replacement bald eagle resources would be lost on conveyed parcel FU27.

There is a slight chance that some potential replacement roost, perch or nest trees could be lost to logging on PU16F if the parcel remains in private ownership, but the risk to eagles would be low. This low risk is based on the location of the highest quality roost trees within a riparian management area for a “large, type F” stream (North Fork John Day River). Also, ample options for roosts, perches and nest trees exist along the NF John Day River, many of which are located on Forest Service and ODFW (Bridge Creek Wildlife Area) lands.

FM10 contains some suitable replacement roost trees if the Bear Creek roost were to be lost. The Bear Creek roost is located on BLM land and receives the same considerations under the Endangered Species Act as it would if it were located on National Forest land.

The three roost sites within a mile of parcels would be protected in the short-term (estimated 20 years) whether this exchange occurs or not. OARs protect roosts on private lands and ESA requirements ensure protection for eagle sites on Forest Service lands. The primary difference between protections afforded roosts on private versus Forest Service ownerships is that long-term protection is more likely under federal ownership since OARs do not provide for replacement roosts in case existing ones are lost.

There are no timber sale operations in the vicinity of the Dry Creek nest or the Bear Creek, Horse Canyon or Wenaha River roosts that would contribute to aggregate or cumulative effects of this land exchange. Ongoing recreation, road maintenance, and fire suppression activities are considered in the management of known bald eagle sites on Federal lands, and will not contribute to adverse cumulative effects of this exchange.

#### **Determination of Effect**

The BMLEX **may effect, but is not likely to adversely affect** bald eagles. This project would be negligible in terms of short-term effects to known bald eagle sites. There would be a potential long-term effect in losing replacement nest and roost trees on parcels FM10 and FU27. However, this potential negative effect would not likely be important enough to influence the rate at which recovery goals are achieved in Management Zone 9.

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**Appendix BA-1: Steelhead Habitat Tables.**

Miles of steelhead habitat on the **Malheur National Forest** by fifth level HUC, that contain land exchange parcels. Miles of steelhead habitat only reflects the miles within the Malheur Forest boundary in watersheds that overlap Forest boundaries.

Watershed Name and 5 <sup>th</sup> Level HUC	Total Miles of Steelhead Habitat	Miles of Steelhead Habitat		
		Parcel	Acquired	Conveyed
Beech Creek 1707020109	40.53	FM11 FM12 PM8B	0.08	0.09 0.37
Big Creek 1707020303	26.34	PM5	0.76	0
Camp Creek 1707020302	18.41		0	0
Cottonwood Creek 1707020209	8.50		0	0
Laycock Creek 1707020110	39.09	PM20	1.15	0
Long Creek 1707020304	11.52		0	0
Lower NF John Day River 1707020210	21.45	FM18	0	0.25
Murderer's Creek 1707020104	32.74	PM21	1.22	0
Strawberry Creek 1707020108	26.31	FM4 FM6 FM7 FM8	0	1.19 1.02 0.69 0.74
Upper John Day River 1707020106	10.54		0	0
Middle SF John Day River 1707020103	8.79		0	0
<b>Totals:</b>	<b>244.22</b>		<b>3.21</b>	<b>4.35</b>

**Appendix BA-1: Steelhead Habitat Tables continued**

Miles of steelhead habitat on the **Umatilla National Forest** by fifth level HUC, that contain land exchange parcels. Miles of steelhead habitat only reflects the miles within the Umatilla Forest boundary in watersheds that overlap Forest boundaries.

Watershed Name and 5 <sup>th</sup> Level HUC	Total Miles of Steelhead Habitat	Miles of Steelhead Habitat		
		Parcel	Acquired	Conveyed
Big Creek 1707020303	5.99	PU20	0.57	0
Birch Creek 1707010306	5.17		0	0
Lower Camas Creek 1707020206	12.98		0	0
Meachum Creek 1707010302	58.31	FU2 FU3A FU3B PU11 PU9A PU9B	1.08 0.57 0.11	0
NF John Day R/Big Creek 1707020203	17.04	PU16D PU16E PU16F	0.19 1.16 0.71	0
NF John Day R/Potamus Cr. 1707020207	35.48	PU21	0.44	0
Upper Camas Creek 1707020205	38.98	PU15	0.66	0
Upper NF John Day River 1707020201	27.53	PU13	0.15	0
Wall Creek 1707020208	31.02	PU22B	0.93	0
<b>Totals:</b>	<b>232.50</b>		<b>6.57</b>	<b>0</b>

**Appendix BA-1: Steelhead Habitat Tables continued**

Miles of steelhead habitat on the **Wallowa-Whitman National Forest** by fifth level HUC, that contain land exchange parcels. Miles of steelhead habitat only reflects the miles within the W-W Forest boundary in watersheds that overlap Forest boundaries.

Watershed Name and 5 <sup>th</sup> Level HUC	Total Miles of Steelhead Habitat	Miles of Steelhead Habitat		
		Parcel	Acquired	Conveyed
Bear Creek 1706010504	26.65		0	0
Big Sheep Creek 1706010203	56.65	FW10 FW6C PW31 PW32	1.03 0.56	0.09 0.09
Chesnimnus Creek 1706010604	78.94	PW51A PW51C PW51D	0.50 0.25 0.32	0
Grande Ronde R/Five Points 1706010404	98.93		0	0
Grande Ronde R/Mud Creek 1706010602	69.08		0	0
Lower Big Sheep Creek 1706010204	54.86	PW24A PW24B PW24C PW24D PW24H PW25D	0.52 0.49 0.64 0.54 0.55 0.12	0
Lostine River 1706010502	28.08		0	0
Lower Imnaha River 1706010205	101.18	PW1 PW10A PW10B PW13A PW13B PW13C PW13D PW16A PW16C PW16E PW19B PW19C PW20A PW20C PW2A PW2B PW3 PW48	0.10 0.67 0.31 0.20 0.32 0.24 0.22 0.30 0.37 0.97 1.17 1.13 0.67 0.15 0.20 0.11 1.85 1.43	0
Lower Wallowa River 1706010506	36.57		0	0
Meadow Creek 1706010402	136.43	FW18 PW44A PW44B PW46	0.35 0.25 0.92	0.66
Middle Imnaha River 1706010202	66.13	PW25A PW25B PW25C PW25D PW27C	0.36 0.92 0.98 1.00 0.61	0
Middle Wallowa River 1706010503	15.11		0	0
Upper Imnaha River 1706010201	57.47		0	0
Upper Joseph Creek 1706010605	78.13	PW34A PW34B PW34C	1.00 1.30 1.38	0
Upper Wallowa River 1706010501	32.02		0	0
<b>Totals:</b>	<b>936.23</b>		<b>25.00</b>	<b>0.84</b>

**Appendix BA-1: Steelhead Habitat Tables continued**

Summary Steelhead Table

Watersheds (5 <sup>th</sup> Level HUC)	HUC number	Steelhead Habitat (miles)	Acquired (miles)	Conveyed (miles)
<b>Mid-Columbia DPS</b>				
Beech Creek	1707020109	40.53	0.08	0.46
NF JD R/Big Creek	1707020303	32.33	1.33	
Camp Creek	1707020302	18.41		
Cottonwood Creek	1707020209	8.50		
Laycock Creek	1707020110	39.09	1.15	
Long Creek	1707020304	11.52		
Lower NF J.D.River	1707020210	21.45		0.25
Murderer's Creek	1707020104	32.74	1.22	
Strawberry Creek	1707020108	26.31		3.64
U. John Day River	1707020106	10.54		
Middle SF JD River	1707020103	8.79		
Birch Creek	1707010306	5.17		
Lower Camas Creek	1707020206	12.98		
Meachum Creek	1707010302	58.31	1.76	
NF JD R/Potamus Creek	1707020207	35.48	0.44	
Upper Camas Creek	1707020205	38.98	0.66	
Upper NF JD River	1707020201	27.53	0.15	
Wall Creek	1707020208	31.02	0.93	
<b>Mid-Columbia DPS Totals:</b>		<b>459.68</b>	<b>7.72</b>	<b>4.35</b>
<b>Snake River DPS</b>				
Bear Creek	1706010504	26.65		
Big Sheep Creek	1706010203	56.65	1.59	0.17
Chesnimnus Creek	1706010604	78.94	1.07	
GR River/Five Point Creek	1706010404	98.93		
GR R/Mud Creek	1706010602	69.08		
Lower Big Sheep Creek	1706010204	54.86	2.86	
Lostine River	1706010502	28.08		
Lower Imnaha River	1706010205	101.18	10.41	
L Wallowa River	1706010506	36.57		
Meadow Creek	1706010402	136.43	1.52	0.66
M Imnaha River	1706010202	66.13	3.87	
M Wallow River	1706010503	15.11		
U Imnaha River	1706010201	57.47		
U Joseph Creek	1706010605	78.13	3.68	
U Wallowa River	1706010501	32.02		
<b>Snake River DPS Totals:</b>		<b>936.23</b>	<b>25.0</b>	<b>0.83</b>
<b>TOTAL:</b>		<b>1,395.91</b>	<b>32.72</b>	<b>5.18</b>

**Appendix BA-2: Changes to Grazing Allotments.**

Malheur National Forest	
Bear Valley Ranger District	
Aldrich	No change in management
Murderers Creek	No change in management
Long Creek Ranger District	
Beech Creek	No change in management. Loss of NFS lands on one pasture, adjust term on/off permit to reflect changes in land ownership. No change in stocking.
Blue Mountain	No change in management
Deer Creek	Adjust allotment boundary to exclude conveyed and include acquired parcels. No change in stocking.
Dixie	Adjust allotment boundary reduce permit by 257 AUM.
Hamilton	1/2 of western pastures lost. Potential change in allotment boundary.
King	Loss of all NFS lands on allotment cancel term on/off permit loss of the 3 AUM authorized through the on portion of the permit.
Long Creek	No change in management
Mt. Vernon/John Day	No change in management
Roundtop	No change in management
Prairie City Ranger District	
Hot Springs	No change in management
Sullens	No change in management
Umatilla National Forest	
Heppner Ranger District	
Coalmine	No change in management
Hardman	No change in management
Tamarack Monument	No change in management
North Fork John Day	
Cooper Creek	Loss of all NFS land cancel term on/off permit identifying 62 AUM authorized through the on portion of the permit.
Cunningham	No Change in Management
Hutchison	Loss of all NFS land on allotment cancel term on/off permit loss of 18 AUM authorized through the on portion of the permit.
Indian Creek	No change in management
Klondike	No change in management
Lucky Strike	No change in management
McDonald Spring	Loss of all NFS land cancel term on/off permit for 6 AUM. Loss of one trough no value
Trout Meadows	No change in management
Walla Walla Ranger District	
Butcher Creek	Loss of all NFS land on 2 pastures, gain private on rest of allotment cancel term on/off permit increase term permit. There will be a total loss of 158 AUM (sheep) from the on portion of the permit. Loss of two ponds no value.
Eden	No change in management
Wallowa-Whitman National Forest	
La Grande Ranger District	
Dark Ensign	No change in management
Five Points	No change in management
McCarty	No change in management
Starkey	Loss of most NFS land on one pasture remove from allotment. Pasture removed from rotation. No change in stocking.

HCNRA Ranger District	
Cayuse	No change in management
Cow Creek	No change in allotment management but improvement in administration. There is a private feeding facility on PW48. The permanent facilities will remain and livestock not authorized within until further analysis is completed.
Dodson-Haas	No change in allotment management but improvement in administration. There are private feeding facilities on PW10A & B and PW13B. Permanent facilities will remain and livestock not authorized within until further analysis is completed..
Grouseline	No change in management
Log Creek	No change in management. There are private feeding facilities on PW20C. Permanent facilities will remain and livestock are not authorized within until further analysis is completed.
Lone Pine	No change in management
Middlepoint	No change in allotment management but improvement in administration. There is private winter feeding facilities on PW24C. Permanent facilities will remain and livestock not authorized within until further analysis is completed.
Toomey	No change in management
Pine Ranger District	
Goose Creek	No change in management
Snake River	No change in management
Unity Ranger District	
Bullrun	No change in management
Wallowa Valley Ranger District	
Al-Cunningham	No change in management. There are private feeding facilities on PW34C. The permanent facilities will remain and livestock not authorized within until further analysis is completed.
Big Sheep	No change in management
Buck Creek	No change in management. There are private feeding facilities on PW39B&C. The permanent facilities will remain and livestock not authorized within until further analysis is completed.
Carrol Creek	Loose all NFS land west of Carol Creek. Cancel 42 AUM from term grazing permit. New owner does not intend to continue grazing.
Chesnimnus	No change in management
Divide	Loose most NFS land in one pasture. Cancel 64 AUM from term grazing permit. New owner does not intend to continue grazing.
Doe Creek	No change in management
Needham Butte	No change in management
North Powwatka	Loss of most NFS lands cancel term on/off permit for a loss of 113 AUM from the on portion of the permit. The private owner plans to continue grazing.
South Powwatka	No change in management. Though this parcel is the only federal land within a private land pasture. It is so small no capacity is given to it. Forest Service will no longer manage pasture.



**Appendix BA-3: Forest Structure by Watershed.**

Watershed HUC Number	Watershed Name	Conveyed Stand Initiation, Acres	Conveyed Mid & Late Structure, Acres	Conveyed Merchantable Timber, % of Watershed	Acquired Stand Initiation, Acres	Acquired Mid & Late Structure, Acres	Acquired Merchantable Timber, % of Watershed
1705020107	SNAKE RIVER/INDIAN CREEK		0	0.0%	0	7	0.0%
1705020202	SOUTH FORK BURNT RIVER	4	38	0.1%		0	0.0%
1705020310	UPPER EAGLE CREEK		0	0.0%	0	291	0.2%
1706010104	SNAKE RIVER/DIVIDE CREEK		0	0.0%	0	0	0.0%
1706010201	UPPER IMNAHA RIVER		0	0.0%	0	15	0.0%
1706010202	MIDDLE IMNAHA RIVER	0	57	0.1%	0	385	0.4%
1706010203	BIG SHEEP CREEK	38	771	0.9%	0	8	0.0%
1706010204	LOWER BIG SHEEP CREEK	0	0	0.0%		0	0.0%
1706010205	LOWER IMNAHA RIVER	0	17	0.0%	0	778	0.5%
1706010402	MEADOW CREEK	0	124	0.1%	0	231	0.2%
1706010404	GRANDE RONDE RIVER/FIVE POINTS CREEK	0	57	0.1%	0	378	0.4%
1706010501	UPPER WALLOWA RIVER	0	407	0.3%	0	424	0.3%
1706010502	LOSTINE RIVER	0	12	0.0%	0	4	0.0%
1706010503	MIDDLE WALLOWA RIVER	0	20	0.0%		0	0.0%
1706010504	BEAR CREEK	0	20	0.0%		0	0.0%
1706010506	LOWER WALLOWA RIVER	11	49	0.0%		0	0.0%
1706010601	GRANDE RONDE RIVER/RONDOWA		0	0.0%	0	322	0.3%

Watershed HUC Number	Watershed Name	Conveyed Stand Initiation, Acres	Conveyed Mid & Late Structure, Acres	Conveyed Merchantable Timber, % of Watershed	Acquired Stand Initiation, Acres	Acquired Mid & Late Structure, Acres	Acquired Merchantable Timber, % of Watershed
1706010602	GRANDE RONDE RIVER/MUD CREEK	98	876	0.6%	0	379	0.2%
1706010603	WENEHA RIVER		0	0.0%	0	891	0.5%
1706010604	CHESNIMNUS CREEK		0	0.0%	0	652	0.5%
1706010605	UPPER JOSEPH CREEK		0	0.0%	0	226	0.2%
1707010302	MEACHAM CREEK	154	2707	2.4%	0	1705	1.5%
1707010306	BIRCH CREEK	19	164	0.1%		0	0.0%
1707010309	UPPER BUTTER CREEK	266	618	0.3%		0	0.0%
1707010401	UPPER WILLOW CREEK	13	192	0.2%		0	0.0%
1707010403	RHEA CREEK	13	154	0.1%		0	0.0%
1707020101	UPPER SOUTH FORK JOHN DAY RIVER		0	0.0%	0	3	0.0%
1707020103	MIDDLE SOUTH FORK JOHN DAY RIVER		0	0.0%	0	724	0.6%
1707020104	MURDERERS CREEK		0	0.0%	0	1109	1.3%
1707020106	UPPER JOHN DAY RIVER	0	113	0.1%		0	0.0%
1707020108	STRAWBERRY CREEK	0	2638	1.8%	0	112	0.1%
1707020109	BEECH CREEK	0	387	0.5%	0	1787	2.5%
1707020110	LAYCOCK CREEK		0	0.0%	593	878	0.8%
1707020111	FIELDS CREEK		0	0.0%	0	184	0.2%
1707020201	UPPER NORTH FORK JOHN DAY RIVER		0	0.0%	0	77	0.1%

Watershed HUC Number	Watershed Name	Conveyed Stand Initiation, Acres	Conveyed Mid & Late Structure, Acres	Conveyed Merchantable Timber, % of Watershed	Acquired Stand Initiation, Acres	Acquired Mid & Late Structure, Acres	Acquired Merchantable Timber, % of Watershed
1707020203	NORTH FORK JOHN DAY RIVER/BIG CREEK		0	0.0%	1636	2399	2.3%
1707020205	UPPER CAMAS CREEK		0	0.0%	0	533	0.5%
1707020206	LOWER CAMAS CREEK	402	1166	0.7%	0	139	0.1%
1707020207	NORTH FORK JOHN DAY RIVER/POTAMUS CREEK	42	151	0.1%	0	159	0.1%
1707020208	WALL CREEK		0	0.0%	1720	416	0.3%
1707020209	COTTONWOOD CREEK	0	196	0.1%	0	381	0.3%
1707020210	LOWER NORTH FORK JOHN DAY RIVER	38	2054	1.8%	0	608	0.5%
1707020302	CAMP CREEK		0	0.0%	0	112	0.1%
1707020303	BIG CREEK		0	0.0%	0	428	0.4%
1707020304	LONG CREEK		0	0.0%	0	12	0.0%
1707020401	LOWER JOHN DAY RIVER/KAHLER CREEK		0	0.0%	0	122	0.1%

## Appendix BA-4: Water Rights and Water Developments, by Forest.

Streamflow augmentation is occurring if a water right is in non-use status or already transferred to instream use). Streamflow reduction may be occurring where a water right is being exercised. Consumptive water rights may be used to augment streamflow with a temporary or permanent transfer to instream use if they have been used in the past 5 years.

Most water diverted at springs for livestock purposes is returned to the streams as surface water and/or groundwater. Reservoirs fill during rain and snowmelt events, unless they are excavated into groundwater or are constructed on or below a perennial water source. Evaporation losses from reservoir surfaces in our area is about 24 to 36 inches per year.

In small streams, the amount of water listed in the water rights may only be available during peak snowmelt stream flow periods; stream flow is usually much lower than the water right during the summer. A hydrologist would have to measure bankfull and low streamflow conditions to determine the effect of non-use of the water right on streamflow.

<b>SOURCE, TRIBUTARY TO:</b> Perennial = P Intermittent = I Ephemeral = E Fish-bearing = FB Non-Fish-bearing = NFB	<b>PARCEL CODE</b>  (*) indicates diversion is on parcel	<b>DIVERSION RATE</b> (Quantity: cfs or af) (Rate in cfs/ac) (Duty in af/ac/mo or af/ac/yr)	<b>USE</b> Irrigation = IR Mining = MI Livestock = ST Wildlife = WL Fire Protect = FP Domestic = DO	<b>SEASON OF USE</b>	<b>COMMENTS</b>
<b>Malheur NF – Conveyed</b>					
John Day River <b>Thompson Gulch</b> (I, NFB)	FM2	0.36 cfs	IR 14.4 ac	4/1 – 9/30	The diversion and 130 feet of stream below the diversion are on NF land. 1967 priority date. Stream is perennial NFB at diversion and intermittent below due to diversion of water into the ditch. FS would retain discretionary control.
Bear Creek (P, FB) <b>Intermittent stream</b> (I), trib of Bear Cr; <b>Toad Spr</b> (P), trib of Bear Cr; <b>A spring</b> (P) trib of Bear Cr; <b>Intermittent stream</b> (I), trib of Bear Cr;	FM10 * FM9 * FM9 * FM10 *	0.4 af (1 filling/yr) 0.005 cfs 0.005 cfs 0.4 af (1 filling/yr)	ST ST ST ST	Year long Year long Year long Year long	The two spring developments and two reservoirs have a small effect on the perennial streamflow of Bear Creek, but have a large localized effect on the developed springs and intermittent streams.
North Fork John Day River Deer Creek (P, FB), <b>Runoff, springs, and intermittent streams</b> , tribs of E Fk Deer Cr.	FM15 * FM17 * FM21	?? af, 4 reservoirs ?? af, 5 reservoirs ?? af, 1 res, 1 trough	ST, WL ST, WL ST, WL	Year long Year long Year long	Ten (10) reservoirs and one (1) spring development in the Hamilton Allotment have a small effect on the perennial streamflow of East Fork Deer Cr.
<b>Runoff, springs, and intermittent streams</b> , tribs of W Fk Deer Cr.	FM16A * FM18 * FM19 *	?? af, 4 reservoirs ?? af, 3 res, 1 trough ?? af, 2 reservoirs	ST, WL ST, WL ST, WL	Year long Year long Year long	Nine (9) reservoirs and one (1) spring development in the Deer Creek Allotment have a small effect on the perennial streamflow of West Fork Deer Cr. These developments have a localized effect on developed springs and intermittent streams.
<b>Malheur NF – Acquired</b>					
Bridge Creek <b>N Fk Bridge Cr</b> (P, FB)	PM4 *	1.0 cfs	MI	Year long	<b>Natural streamflow</b> has been reestablished. (Condition of diversion(s), ditch(es), field(s) and stream(s) suggest long-term non-use).
<b>Deep Creek</b> Big Cr tribs ( <b>Deadwood Cr, Swamp Cr</b> )	PM5 PM5 *	5.0 cfs from all sources	MI MI	2/1 – 11/30	<b>Natural streamflows</b> have been reestablished. Cert 25223 was cancelled. (Condition of diversion(s), ditch(es), field(s) and stream(s) suggest long-term non-use).
Long Creek <b>Spgs</b> (P), tribs of S Fk Long Cr	PM7 *	0.50 af (1 filling/yr)	ST, WL, FP	Year long	3 reservoirs reduce streamflow locally due to capture of peak streamflows and evaporation from the water surface.
<b>Murderer's Creek</b>	PM30	1 reservoir	ST, WL	Yearlong	ODFW reservoir.
<b>Umatilla NF – Conveyed</b>					
Umatilla River <b>Meacham Cr</b> (P, FB), trib of Umatilla R	FU3C	Amount used benefi.	Railroad	Year long	<b>Natural streamflow</b> has been reestablished. (Special use permit terminated 15 years ago, presumed abandoned).
<b>Unnamed streams</b> (Meacham Cr tribs)	FU3A *	0.32 af (1 filling/yr)	ST, WL	Year long	4 reservoirs - reduce streamflow locally due to capture of peak streamflows and evaporation from the water surface.

<b>North Fork John Day River</b> USA Spring, trib to Snipe Cr, Camas Cr	FU30 *	?? cfs	ST, WL	Year long	1 reservoir, captures spring runoff. Minor localized effects.
<b>Umatilla NF – Acquired</b>					
John Day River (below North Fork) Unnamed streams, tribs of Wilson Cr and Rock Cr	PU22A *	0.30 af (1 filling/yr)	ST, WL	Year long	5 reservoirs - reduce streamflow locally due to capture of peak streamflows and evaporation from the water surface.
North Fork John Day River (abv Camas Cr) springs & runoff, trib of Camp Cr springs & runoff, trib of Texas Bar Cr springs & runoff, tribs of Nye Cr springs & runoff, unnamed NFJDR trib	PU16C * PU16E * PU16H * PU16B	0.1 af – Res 61 0.1 af – Res 57 0.3 af – Res 58, 59 0.1 af –	ST, WL ST, WL ST, WL ST, WL	Year long	5 reservoirs - reduce streamflow locally due to capture of peak streamflows and evaporation from the water surface.  Camp Cr - water right would allow user to take 100% of stream flow during the low flow period.  Diversion on PU16B, pipeline crosses PU16C, use is on FS land for mining claim. This arrangement would likely not change, but discretionary control would exist with FS.
North Fork John Day River Camas Creek Unnamed str, trib of Lane Cr, Unnamed str, trib of Bear Wallow Cr Unnamed str, trib of Owens Cr	PU15 * PU15 * PU19 *	0.36 af - Res 25 0.32 af - Res 24 0.08 af - Res 37	WL ST WL	Year long Year long Year long	3 reservoirs - reduce streamflow locally due to capture of peak streamflows and evaporation from the water surface.
Middle Fork John Day River Stream (I or P ?), trib of Indian Creek	PU20 *	?? af	ST, WL	Year long	1 reservoir - reduces streamflow locally due to capture of peak streamflow and evaporation from the water surface.
Umatilla River Meacham Creek Runoff, unnamed Butcher Cr trib Spgs & runoff, unnamed Butcher Cr trib unnamed Meacham Cr trib unnamed Meacham Cr trib Spgs & runoff, trib to Kondike Cr Runoff, unnamed Butcher Cr tribs	PU11B * PU11B * PU7C * PU7B * PU5 * PU11B * PU19A	0.22 af - Res 17 0.98 af - Res 16 0.90 af - Res 25 0.90 af - Res 26 0.23 af - Res 27 1.01 af – Res 12, 13	ST, WL ST, WL ST, WL ST, WL ST, WL ST, WL ST, WL	Year long Year long Year long Year long Year long Year long Yearlong	7 reservoirs - reduce streamflow locally due to capture of peak streamflows and evaporation from the water surface.
Wenaha River, trib of Grande Ronde R Unnamed stream (P) (same stream) Unnamed stream (I) Unnamed stream (E) Unnamed spring (P), trib of unamed str	PU1B * PU1B * PU1B * PU1B * PU1B * PU1A *	1.00 af - Res 22 0.12 af - Res 20 0.10 af - Res abv 22 2.56 af - Res 21 0.11 af - Res 19 0.07 cfs - trough	WL WL WL WL WL WL	Year long Year long Year long Year long Year long Year long	5 reservoirs -
<b>Wallowa-Whitman NF – Conveyed</b>					
Fence Creek Cottonwood Cr a reservoir a spring	FW1D * FW1D *	?? af - dev #35 ?? cfs – dev #20	ST, WL ST, WL	Year long Year long	Not a water right, no change from baseline condition.
Prairie Creek (Wallowa R)	FW12	0.005 cfs	DO	Yearlong	Diversion on FW12, point of use on private, no change from current.
<b>Wallowa-Whitman NF – Acquired</b>					
Eagle Creek, trib of Powder River Torchlight Spring	PW38 *	0.002 cfs	ST Developed spr.	Year long	Small localized effects. Insignificant effect.
Grande Ronde River  Mud Creek Unnamed intermittent stream 1 Unnamed intermittent stream 1 Unnamed intermit stream 2 Unnamed intermit stream	PW39A * PW39B * PW39B * PW39B * PW39B * PW39B *	0.1 af – Res 6 0.1 af – Res 5 0.1 af – Res 4 ?? cfs 0.1 af – Res 3 ?? cfs	ST ST ST ST ST ST	Year long Year long Year long Year long Year long Year long	11 reservoirs (stock ponds) have little effect on stream flow, because they are high on the ridge. Effects are localized. Most developments are not locatable on photos. Is it there? Buck Cr Allot development #425 Is it there? Buck Cr Allot development #424 Is it there? Buck Cr Allot development #421

<b>Spring</b> Kuhn Canyon cr / <b>unnamed intermit str</b> Kuhn Canyon cr / <b>Spring</b> Buck Creek <b>Unnamed intermittent stream 3</b> Unnamed intermittent stream 3 / <b>Spring</b> <b>Unnamed intermittent stream 4</b> Unnamed intermittent stream 4 / <b>Spring</b> <b>Unnamed intermittent stream 5</b>	PW39B * PW39B * PW39B * PW39B * PW39C *	0.25 af – Res 1 ?? cfs 0.1 af – Res 2 ?? cfs 0.1 af – Res 7	ST ST ST ST ST	Year long Year long Year long Year long Year long	Shown on topo map. Buck Cr Allot development #423 Is it there? Buck Cr Allot development #422 Buck Cr Allot development #420
Buck Creek <b>Unnamed Interm str 3 (abv) ; Spg (P)</b>	PW39B*	?? cfs ? well	DO	Year long	Purported contaminated culvert well, unable to locate on parcel during field reconnaissance.
Mud Creek Kuhn Canyon cr / <b>Ditch Creek tribs</b>	PW40	abt 1 af in 5 Res	ST	Year long	5 reservoirs - reduce streamflow locally due to capture of peak streamflows and evaporation from the water surface.
Grande Ronde River <b>Joseph Creek - PODs 1, 2, 3</b>	PW34A*	0.763 cfs	I	4/1 – 10/31 ?	This water right (0.933 cfs) is 27% of OWRD-modeled natural stream flows for September at 80% exceedence. Will not be used after exchange since only 1 acre of point of use will remain private. Beneficial effect.
<b>Springs 1 (P)</b> , trib of intermittent stream <b>Springs 4 (P)</b> , trib of intermittent stream	PW34A PW34C	?? cfs ?? cfs	ST ST	Year long Year long	3 spring developments have little effect on stream flow because unused water is returned to streams.
<b>Chesnimnus Cr</b> Devils Run Cr:/ <b>Berland Spring</b>	PW30	0.29 af - Berland Res	ST	Year long	1 reservoir – captures flow from spring area, so substantially reduces streamflow in intermittent channel at reservoir, overflow re-enters stream.
<b>Unnamed intermittent stream</b>	PW30	0.03 af - Fence Res	ST	Year long	1 reservoir - reduces streamflow locally due to capture of peak streamflows and evaporation from the water surface.
<b>Vance Draw Spring</b> , in a trib 1 of Vance Draw	PW52 PW51A	0.2 af – Res 4 0.1 af – Res 1	ST ST	Year long Year long	2 reservoirs - reduce streamflow locally due to capture of peak streamflows and evaporation from the water surface.
<b>Vance Draw</b>	PW52	0.2 af – S R Res 3	ST	Year long	1 reservoir - reduces streamflow locally due to capture of peak streamflows and evaporation from the water surface.
<b>Trib 1 of Vance Draw</b>	PW51A	0.1 af – S R Res 1	ST	Year long	1 reservoir
Tamarack Gulch/ <b>intermittent stream</b> SF Thomason Mdw Cr / <b>Interm stream</b>	PW50 PW50	0.2 af – Res 42 0.7 af – Res 43 to 46	ST ST	Year long Year long	5 reservoirs - reduce streamflow locally due to capture of peak streamflows and evaporation from the water surface.
Thomason Meadow Cr / <b>Intermi strts</b>	PW21D	0.34 af – 1 res	ST	Year long	1 reservoir - reduces streamflow locally due to capture of peak streamflows and evaporation from the water surface. Another reservoir to west?
<b>Imnaha River</b> – above Big Sheep Cr POD – T1N, R48E, Sec 28	PW25B,C *	0.15 cfs	IR	Year long	<b>Natural streamflow</b> has been reestablished. (Condition of diversion(s), ditch(es), field(s) and stream(s) suggest long-term non-use).
<b>Imnaha River</b> – above Big Sheep Cr Tract 2 – POD 1, east side of river  Tract 2 – POD 2, west side of river <b>Dead Horse Cr</b> - Tract 3 POD	PW27C PW25E PW25E PW25E	0.263 cfs 0.094 cfs 0.131 cfs 0.188 cfs	IR IR IR IR	4/1 – 10/15 4/1 – 10/15 4/1 – 10/15 4/1 – 10/15	Tracts 1, 2, and 3 - <b>Natural streamflow</b> has been reestablished. (Condition of diversion(s), ditch(es), field(s) and stream(s) suggest long-term non-use). Insignificant effect.
<b>Dead Horse Cr</b>	PW25E	0.012 af – Res 10	ST	Year long	No evidence of reservoir found
<b>Big Sheep Creek</b> (off channel pit ponds)	PW24E * PW24C *	0.08 af – Res 1 0.08 af – Res 2	ST ST	Year long Year long	Used. Negligible effect on streamflow.
<b>(Big) Sheep Cr</b> – POD Tract 1 <b>(Big) Sheep Cr</b> – POD Tract 3 <b>Camp Cr</b> – POD Tract 2	PW24C * PW24D * PW24H	0.090 cfs 0.098 cfs 0.675 cfs	IR, ST IR, ST IR, ST	4/1 – 10/15 4/1 – 10/15 4/1 – 10/15	Tracts 1 & 3 - IR Helps restore natural streamflow. ST – (Condition of diversion(s), ditch(es) and field(s) suggest long-term non-use). Tract 2 - IR Another ditch on the north side of the creek diverts all streamflow. ST not abandoned (y(Condition of diversion(s), ditch(es) and field(s) suggest long-term non-use, year long). No Effect.

(Big) Sheep Cr (below Camp Cr)	PW24A	0.51 cfs	IR	4/1 – 10/15	IR - Big Sheep Cr – <b>Only POD &amp; ditch are on parcel</b>
Log Cr – POD Tract 1 Log Cr, Kettle Cr, SF Packsaddle Cr, Packsaddle Cr, Buck Cr – PODs Tract 2 Fall Cr – POD Tract 3 Packsaddle Cr – POD Tract 4	PW21C PW20B PW20C PW23B * PW20C	0.143 cfs 0.394 cfs 0.413 cfs 0.090 cfs 0.094 cfs	IR IR IR IR IR	4/1 – 10/15 4/1 – 10/15 4/1 – 10/15 4/1 – 10/15 4/1 – 10/15	<b>Natural streamflow</b> has been reestablished. (Condition of diversion(s), ditch(es), field(s) and stream(s) suggest long-term non-use). No change from baseline.
Log Cr & Kettle Cr	PW20B	0.18 cfs	IR	4/1 – 10/15	<b>Natural streamflow</b> has been reestablished. (Condition of diversion(s), ditch(es), field(s) and stream(s) suggest long-term non-use).
Packsaddle Cr, SF Packsaddle Cr, and Buck Creek (cfs from all sources)	PW20B *	0.15 cfs	IR	4/1 – 10/15	<b>Natural streamflow</b> has been reestablished.; some PODs in parcel. (Condition of diversion(s), ditch(es), field(s) and stream(s) suggest long-term non-use).
Imnaha River – below Big Sheep Cr POD (T3N, R48E, Sec 23)	PW13D	0.113 cfs	IR	4/1 – 10/15	<b>Natural streamflow</b> has been reestablished. (Condition of diversion(s), ditch(es), field(s) and stream(s) suggest long-term non-use).
Imnaha River – below Big Sheep Cr POD (T3N, R48E, Sec 13)	PW10B	0.188 cfs	IR	4/1 – 10/15	<b>Natural streamflow</b> has been reestablished. (Condition of diversion(s), ditch(es), field(s) and stream(s) suggest long-term non-use).
Corral Cr Dodson Cr	PW15B, A PW15A *	0.525 cfs 0.675 cfs	IR IR	4/1 – 10/15 4/1 – 10/15	<b>Natural streamflow</b> has been reestablished. (Condition of diversion(s), ditch(es), field(s) and stream(s) suggest long-term non-use).
Thorn Cr (Section Spring) Inter str (Powerline Sp) (T3N, R48E, S35) Intermittent stream 2 (T3N, R48E, Sec26) Intermittent stream 3 (T3N, R48E, Sec13)	PW14 * PW16D * PW16C * PW11 *	?? cfs ?? cfs ?? af – Res B ?? af – Res A	ST ST ST ST	Year long Year long Year long Year long	2 spring developments have little effect on stream flow because unused water is returned to streams. 2 reservoirs - reduce streamflow locally due to capture of peak streamflows and evaporation from the water surface.
Thorn Cr (& N Fk Thorn Cr)	PW12	0.713 cfs	IR	4/1 – 10/15	<b>Natural streamflow</b> has been reestablished. (Condition of diversion(s), ditch(es), field(s) and stream(s) suggest long-term non-use).
Tully Cr  S Fk Tully Cr  N Fk Tully Cr	PW10B  PW7C *, 8C  PW7B *, 7C	0.156 cfs  ?? cfs  0.03 cfs IR + DO, ST	IR  IR  IR, DO, ST	4/1 – 10/15  4/1 – 10/15  4/1 – 10/15	<b>Natural streamflow</b> has been reestablished. (Condition of diversion(s), ditch(es), field(s) and stream(s) suggest long-term non-use). <b>Natural streamflow</b> has been reestablished. – Decree map errors. (Condition of diversion(s), ditch(es), field(s) and stream(s) suggest long-term non-use). IR & DO not used. <b>Natural streamflow</b> reestablished. ST use valid. (Condition of diversion(s), ditch(es), field(s) and stream(s) suggest long-term non-use).
Inter str (Johnson Sp 1) (T3N, R48E, Sec1) Inter str (Johnson Sp 3) (T3N, R48E, Sec1)	PW8A * PW8B *	?? cfs – dev D ?? cfs	ST ST	Year long Year long	Both springs developments are presumed to have been used in past 5 years. Coming to FS, will not be exercised.
Horse Cr	PW19B *	0.54 cfs	IR	4/1 – 10/15	<b>Natural streamflow</b> has been reestablished. (Condition of diversion(s), ditch(es), field(s) and stream(s) suggest long-term non-use).
Cow Cr POD 1 – SE NE Sec 34 POD 2 – NW NE Sec 34 POD 3 – NW SE Sec 21	PW48 PW48 PW3 *	0.413 cfs 0.075 cfs 0.083 cfs	IR IR IR	4/1 – 10/15 4/1 – 10/15 4/1 – 10/15	<b>Natural streamflow</b> has been reestablished. (Condition of diversion(s), ditch(es), field(s) and stream(s) suggest long-term non-use).
Cow Cr Spring (P)	PW48*	0.02 cfs ?	DO	Year long	May have been used in recent years. Large perennial spring connects to Cow Creek. Coming to FS, will not be exercised.





**Appendix BA-5: Steelhead Critical Habitat continued**

Mid-Columbia DPS  Watershed Name and 5 <sup>th</sup> Level HUC Number	Total Miles of Steelhead Critical Habitat	Miles of Steelhead Critical Habitat		
		Parcel	Acquired	Conveyed
Beech Creek 1707020109	46.35	FM11 FM12 PM12	0.45	0.11 0.34
Lower NF John Day River 1707020210	65.23	FM18 FM19	0	0.78 0.52
Murderer's Creek 1707020104	68.08	PM21 PM25 PM26	1.07 1.17 0.86	0
Strawberry Creek 1707020108	109.21	FM6 FM7 FM8	0	0.70 0.68 0.71
Big Creek 1707020303	92.08	PU20 PM5	0.78 0.76	0
Lower Camas Creek 1707020206	129.90	PU19 FU23 FU20B	0.01	0 0.76 0.06
Meachum Creek 1707010302	80.39	PU11A PU11 PU9A PU9B PU12	0.57 1.88 0.57 0.13 0.16	Steelhead habitat was removed from conveyed parcels
NF John Day R/Big Creek 1707020203	85.31	PU16D PU16E PU16F	0.19 1.14 0.69	0
NF John Day R/Potamus Cr. 1707020207	146.62	PU21	0.47	0
Upper Camas Creek 1707020205	95.75	PU15 PU14	0.65 1.58	0
Upper NF John Day River 1707020201	81.74	PU13 PW45	0.61 0.19	0
Wall Creek 1707020208	110.40	PU22B PU23 PU22A	1.48 1.32 1.67	0
<b>Totals:</b>	<b>1,111.06</b>		<b>18.40</b>	<b>4.66</b>

**Appendix BA-6: Chinook salmon habitat by DPS, watershed, and parcel.**

<b>Watershed Name</b>	<b>Watershed Number</b>	<b>Miles of Chinook Habitat</b>	<b>Parcels</b>	<b>Acquire (miles)</b>	<b>Convey (miles)</b>
<b>SNAKE RIVER DPS</b>					
UPPER BIG SHEEP CREEK	1706010203	24.23	FW6C PW31	1.03	0.09
GRANDE RONDE R/MUD CR	1706010602	3.45		0	0
LOWER BIG SHEEP CREEK	1706010204	6.97	PW24A PW24B PW24C PW24D PW24H	0.52 0.49 0.64 0.54 0.55	
LOSTINE RIVER	1706010502	24.80		0	0
LOWER IMNAHA RIVER	1706010205	28.92	PW1 PW10A PW10B PW13A PW13B PW13C PW13D PW16A PW16C PW16E PW19B PW20A PW20C PW2A PW2B	0.10 0.67 0.31 0.20 0.32 0.24 0.22 0.30 0.37 0.97 1.17 0.67 0.15 0.20 0.11	
LOWER WALLOWA RIVER	1706010506	23.66		0	0
MIDDLE IMNAHA RIVER	1706010202	26.02	PW25A PW25B PW25C PW25D PW27C	0.32 0.92 0.98 1.00 0.61	
UPPER WALLOWA RIVER	1706010501	23.53		0	0
GRANDE RONDE R/FIVE POINTS CR	1706010404	6.04		0	0
MEADOW CREEK	1706010402	10.43	PW44A	0.35	
MEACHAM CREEK	1707010302	1.13		0	0
<b>Snake River DPS totals:</b>		<b>179.11</b>		<b>13.96</b>	<b>0.09</b>
<b>MID-COLUMBIA DPS</b>					
UPPER JOHN DAY RIVER	1707020106	10.88		0	0
BIG CREEK	1707020303	9.14		0	0
<b>Mid-Columbia DPS totals:</b>		<b>20.02</b>		<b>0.0</b>	<b>0</b>
<b>TOTALS:</b>		<b>199.13</b>		<b>13.96</b>	<b>0.09</b>

## **Appendix BA-10: Matrix Indicators, Primary Constituent Elements, and Essential Features**

### **Matrix Indicators (Bull trout, Mid-Columbia and Snake River Steelhead trout, and Snake River Chinook)**

1. Subpopulation size, growth and survival, life history diversity and isolation, Persistence and genetics
2. Physical barriers
3. Chemical contaminants/nutrients
4. Large Wood, Pool frequency and quality, and Large Pools
5. Stream substrate, Percent bank stability, Width:Depth ratio, Off channel habitat, RHCA's, Streambank condition, and Temperature
6. Floodplain connectivity, Changes to drainage network, Road density and location
7. Refugia
8. Changes to peak and base flows
9. Disturbance history & regime

### **Bull Trout Critical Habitat PCE's**

1. Water temperature
2. Complex stream channels
3. Substrates of sufficient amount, size, and composition
4. Natural hydrograph within historic ranges
5. Springs, seeps, groundwater, and subsurface water connectivity
6. Migratory corridors with minimal barriers
7. Abundant food base
8. Permanent water having low levels of contaminants

### **Snake River and Mid-Columbia Steelhead Trout Critical Habitat PCE's**

Only three of the six PCE's are applicable to this project since the remaining three elements involve estuarine, nearshore marine, and off shore marine areas.

1. Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development.
2. Freshwater rearing sites with water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; water quality and forage supporting juvenile development; and natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, and side channels.
3. Freshwater migration corridors free of obstruction with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.

### **Chinook Salmon Essential Features**

1. Water quantity
2. Water quality
3. Free/safe passage
4. Forage/food
5. Cover/shelter
6. Riparian vegetation
7. Substrate
8. Space
9. Water velocity

**Appendix BA-11:** Summary of trends for Matrix Indicators as influenced by future management actions at the project scale (considering a net increase of fisheries habitat for all listed species).

<b>Indicators</b>	<b>Logging</b>	<b>Roads</b>	<b>Water Rights</b>	<b>Grazing</b>
Subpopulation size	Maintain	Maintain	Maintain	Maintain
Growth & Survival	Maintain	Maintain	Maintain	Restore
Life History Diversity & Isolation	Maintain	Restore	Maintain	Restore
Subpopulation Trend	Maintain	Maintain	Maintain	Restore
Persistence & Genetic Integrity	Maintain	Restore	Maintain	Maintain
Temperature	Restore	Maintain	Maintain	Restore
Sediment	Restore	Restore	Maintain	Restore
Chemical Cont./Nutrients	Maintain	Maintain	Maintain	Restore
Physical Barriers	Maintain	Restore	Maintain	Maintain
Substrate Embeddedness	Restore	Restore	Maintain	Restore
Large Wood	Restore	Restore	Maintain	Maintain
Pool Freq. & Quality	Restore	Restore	Maintain	Maintain
Large Pools	Restore	Restore	Maintain	Maintain
Off-channel habitat	Restore	Maintain	Maintain	Restore
Refugia	Restore	Maintain	Maintain	Restore
Width:Depth	Restore	Maintain	Maintain	Restore
Streambank condition	Restore	Restore	Maintain	Restore
Floodplain connectivity	Restore	Restore	Maintain	Maintain
Changes to peak & base flows	Maintain	Restore	Maintain	Maintain
Changes to drainage network	Restore	Restore	Maintain	Maintain
Road density & location	Maintain	Restore	Maintain	Maintain
Disturbance history	Restore	Restore	Maintain	Restore
RHCA's	Restore	Restore	Maintain	Restore
Disturbance regime	Restore	Maintain	Maintain	Maintain

