

**DECISION NOTICE  
FINDING OF NO SIGNIFICANT IMPACT**

**Mt. Emily Fuels Reduction Project  
Environmental Analysis**

**Forest Plan Amendment #32**

USDA Forest Service  
Wallowa-Whitman National Forest  
La Grande Ranger District  
Union County, Oregon

An Environmental Assessment (EA) that discusses the proposed Mt. Emily Fuels Reduction project within the 7,295 acre planning area on the La Grande Ranger District of the Wallowa-Whitman National Forest is available for review at the La Grande Ranger District Office in La Grande, Oregon and at the Forest Headquarters in Baker City, Oregon.

**The Decision**

Based on the analysis described in the EA, it is my decision to implement Alternative 3 as the method of treatment and management of these National Forest lands. This decision addresses the purpose and need by modification of fire behavior potential, treatments within fire adapted ecosystems, and old growth management within a wildland urban interface (WUI). This project includes mechanical treatments along the private/public land interface and strategic ridgetop locations as well as the re-introduction of fire into fire regimes one, two, and three.

This project is an integral part of a collaborative effort to manage vegetation on private, state, and public lands adjacent to urban development to reduce fire hazard and improve defensible space. Treatments are designed to compliment fuel reduction efforts on private land to create a community fuel break.

Alternative 3 has been designed to provide added protection of all resources and resource values while still meeting the purpose and need through design modifications related to old growth habitat, lynx habitat, protection of visual quality, and inventoried roadless areas.

This project will also modify the Wallowa-Whitman National Forest Plan through a non-significant Forest Plan amendment for fuel reduction treatments in allocated and non-allocated old growth, and in Canada lynx habitat. The Wallowa-Whitman National Forest Plan was signed in 1990. Over the ensuing years, new information has come out of a variety of sources such as the Interior Columbia Basin Ecosystem Management Assessment, National Fire Plan, 10-year Comprehensive Strategy, and the Endangered Species Act, which have not been studied and integrated with the resource protection and objectives of the 15 year-old Forest plan. In order to integrate these other resource needs with the fuels objectives and needs within a WUI, a non-significant forest plan amendment has been incorporated as part of this decision to address fuel treatment needs within this wildland urban interface (WUI).

Alternative 3 addresses the following key issues: 1) Wildfire risk on National Forest Lands within the Mt. Emily WUI; 2) Management of old growth within the WUI and old growth currently outside the historic range of variability (HRV) and 3) Maintain Mt. Emily Scenic Quality.

## Preferred Alternative Description:

Alternative 3 was designed to address the purpose and need of reducing fuels and modifying fire behavior with additional consideration given to wildlife, roadless and scenic resources.

The following treatment descriptions provide clarification of the prescriptions in Chapter 2 of the EA. They do not change the intent nor the environmental consequences of the prescriptions described in the EA.

### 1) Fuels Treatment Prescriptions/Objectives

The following describes the treatment objectives, methods and anticipated outcomes of the fuel treatments. The prescriptions target basal area ranges based on plant associations, fire regimes, tree species selected for future management, and resource objectives.

In some situations the target basal areas are difficult or impossible to achieve due to: (1) high mortality levels; (2) the abundance of existing damaged and diseased trees; and (3) the abundance of trees greater than 21 inches in diameter. Where the stands are dominated by large trees which can not be removed, the basal areas will remain at a level above the targeted management zone, however, the understories will be treated for ladder fuels and surface fuels to ensure the integrity of the fuel management objectives.

In those stands where the management zones may be difficult to achieve due to mortality, damage or disease, the general goals will be to meet the fuels treatment needs by treating the surface, ladder, and crown fuels while accepting the best basal area level achievable based on current stand conditions, which may very well be lower than the initial target level.

The final prescription and the environmental consequences for each stand depends on existing stand conditions (refer to site specific stand diagnoses and specialist reports in the Analysis file).

#### A) Priority Areas:

The project area is a priority to treat due to its proximity to a community at risk and potential fire behavior from fuel conditions. Proposed fuel treatment priorities are based on their proximity to private property and strategic locations for fire suppression activities (see map in Appendix B).

Treatment priorities are as follows:

**Priority one** areas include National Forest lands closest to the private / public land boundary and the Mt Emily electronic site (towers, buildings, and microwave dishes).

**Priority two** is a ¼ mile corridor adjacent to forest roads 3120 (portion of) and 3120500. These roads provide access for fire suppression activities and are generally located on a main ridge system.

**Priority three** includes two ridge systems west of forest road 3120. These ridges are logical strategic locations for fire suppression activities and are accessed by forest roads 3120600 and 3120450.

#### B) Surface and Near Surface Fuel Prescriptions:

**Fuels Reduction (HFU)** - treatment of dead standing and down material and imminent mortality through removal, piling or slashbusting. Fuel Model 10 will be reduced to Fuel Models 8 or 9.

**Fuels Small Diameter Thinning (SPC)** – Hand or mechanically thin and remove standing trees less than or equal to four inches diameter at breast height (dbh) and six feet in height. Fuel Model

5 acres will be moved to Fuel Model 8 or 9. This includes lopping, piling, crushing fuel beds with depths >12 inches high or fuel loadings > 25 tons per acre.

**Pile Burning (RMP)** – Burn piles resulting from hand piling or mechanical piling.

**Underburn (RX Fire)** – Prescribed fire to reduce < 3-inch diameter fuel loading. See more detailed description below.

**C) Crown Fuel Prescriptions:**

**Fuels Thin/Lower Management Zone (HTH/LMZ)** – Thinning to reduce tree densities and crown fuels to a lower management zone (LMZ). This prescription targets multiple layers of trees while retaining large trees and fire-adapted species. LMZ provides the highest level of thinning treatment for reducing crown bulk densities (CBD) and future fuel loadings resulting from insect and disease mortality. Treatment will also raise Crown Base Height (CBH).

**Fuels Thin/Upper Management Zone (HTH/UMZ)** – Thinning to reduce tree densities and crown fuels to a range between the mid to upper management zone (UMZ). UMZ provides a lower level of treatment for reducing crown bulk densities compared to LMZ while managing to retain large trees with a mix of fire adapted species and non-fire adapted species, while avoiding suppression mortality from overstocking. This prescription targets the lower tree layer to raise canopy base heights to greater than fifteen feet in height.

**Fuels Thin and Clean (SPC/SCN)** – Hand or mechanically thin and remove standing trees less than or equal to six inch diameter class; prune low live limbs of residual trees.

***Summary of Mechanical Fuel Reduction Treatments:***

**Priority Area One Specifics:**

The following are prescription strategies for Priority One Areas:

**In fire regime one and three outside allocated old growth (MA 15) or roadless (IRA):** Commercial thinning to reduce tree densities and crown fuels will target the LMZ. Prescriptions also include HFU, SCN, pile and pile burning and underburning. This will occur in units: 112, 114-118, 120, 122-124, 136, 139 – 141, 145 and 147 for a total of 367 acres.

**In roadless (IRA):** Commercial thinning to reduce tree densities and crown fuels will occur to a range between the mid to UMZ. Prescriptions also include HFU, SCN, pile and pile burning and underburning. This will occur in units: 101-108, 110, 111, and 113 for a total of 99 acres.

**In allocated old growth (MA 15) or LOS in biophysical group G4:** These prescriptions meet fuels and fire behavior objectives, old-growth areas treated will retain more structural characteristics by thinning to the mid to UMZ. Prescriptions also include HFU, SCN, pile and pile burning and underburning. This will occur in units: 124, 127, 130-133, 136 and 146 for a total of 172 acres.

**In fire regime four:** Commercial thinning to reduce tree densities and crown fuels will target the UMZ. Prescriptions also include HFU, SCN, pile and pile burning. This will occur in units: 119, 138, 143, and 144 for a total of 48 acres.

The following stands will receive treatment of small trees less than 7 inches in diameter. Prescriptions also include HFU, SCN, pile and pile burning. This will occur in Units: 135, 148, and 149 (none of the units are in lynx habitat) for a total of 119 acres.

**Mt Emily electronic site:** Commercial thinning to reduce tree densities and crown fuels will occur around the electronic site to target the UMZ. Prescriptions also include HFU, SCN, pile and pile burning. This will occur in units: 150–152, and 154 for a total of 31 acres.

**Priority Area Two Specifics:**

The prescription strategy for Priority Two Area is as follows:

Those units with commercial removal will be treated to reduce tree densities and crown fuels targeting the mid to UMZ. Prescriptions also include HFU, SCN, pile and pile burning. This will occur in units: 234–246, and 248–260 for a total of 511 acres.

Those units within the North Mt Emily IRA will be hand treated including thinning small diameter trees, HFU, SCN, pruning, piling, and pile burning and underburning. No removal will occur. This will occur in units: 201–208, 210 and 211 for a total of 66 acres.

Those units within the Mt Emily IRA will be mechanically treated including thinning small diameter trees, HFU, SCN, pruning, piling, and pile burning and underburning. No removal will occur. This will occur in units: 262, 264, 265, 267, 268 and 271 for a total of 52 acres.

**Priority Area Three Specifics:**

The strategy for these units was to treat to the mid to UMZ, however poor stand conditions make this unobtainable. Therefore treatments will emphasize an HFU prescription, including SCN, pile and pile burning, and underburning. This will occur in units: 307–309 and 311–318 for a total of 251 acres.

**Alternative 3 Mechanical Treatment Acres (All Priority Areas)**

The following table best summarizes the treatment acres in priority areas one, two and three for Alternative 3. This table strictly represents the primary treatment on each acre and does not display overlapping multiple treatments in the harvest units as was represented in Table 9 in Chapter 2 of the EA.

HTH/LMZ	HTH/MID-UMZ	HTH/UMZ	HFU/SCN Only
367	822	79	488

**Prescribed Fire Treatments In all Priority Areas**

Alternative 3 includes prescribed fire treatment on 1,622 acres. It will mechanically treat 1,114 acres prior to prescribed burning in fire regimes 1, 2, and 3. Within the prescribed fire units there are areas that will receive mechanical cleaning and thinning treatments prior to applying prescribed fire. Fire will be re-introduced in periodic intervals over the next 10 years in forested areas and natural openings using low to moderate intensity prescribed fire.

***Removal Systems Summary:***

Where treatments result in commercial products, they will be removed by ground based systems (878 acres) and helicopter systems (622 acres). An estimated 239 acres will not require removal and will be treated by lop and scatter or pile and burn. Approximately 24,696 CCF of saw and wood fiber is expected to be recovered from the preferred alternative.

Approximately 2.5 miles of reconstruction of Forest Road 3120500 is anticipated to improve drainage, reduce erosion and sedimentation, and reinforce the subgrade. Two segments totaling approximately 1.0 miles of temporary spur roads are needed to facilitate removal of the materials.

The temporary spur road in Unit 147 will not be constructed. No new permanent road construction is proposed.

## **2) Mt. Emily Forest Plan Amendment #32**

This decision will amend the Wallowa-Whitman National Forest Plan to include changes to the following three sections outlined below.

### **Section 1: Treatment in Old-growth Below HRV – Forest Plan Amendment**

Forest Plan standards restrict harvest treatment in Late and Old Structure (LOS) that is below the average (midpoint) HRV. An HRV analysis of LOS, by biophysical grouping, indicates that biophysical group G 4 is below the midpoint of HRV for MSLT (multi-strata large trees). To reduce fuels in the Wildland Urban-Interface and protect LOS old growth stands in the project area, the following modification is made to the Wallowa-Whitman Forest Plan, Regional Forester Amendment #2 (Eastside Screens, d. Scenario A):

**Current Direction:** If either one or both of the late and old structural (LOS) stages falls below HRV in a particular biophysical environment within a watershed, then there should be no net loss of LOS from that biophysical environment. Do not allow timber sale harvest activities within stands of LOS structural stages that are below HRV.

**Amended Direction:** Specific to the Mt. Emily project area, this amendment will allow timber sale activities within LOS stages that are below HRV in this project to meet the fuels treatment objectives in the WUI. Harvest within the MSLT LOS will maintain the MSLT structure.

Alternative 3 will treat 143 acres in MSLT stands (reference analysis file for specific stands). This section of the amendment will allow fuels reduction treatments in biophysical group G4 old growth that is below the HRV mid-point for MSLT. Treatments include commercial thinning of trees under 21 inches, removing dead standing and down material, thinning and cleaning of small diameter trees, pile and prescribed burning. Treatments under this amendment will not result in a net loss of old growth and will maintain old growth habitat as defined by Forest standards and definitions.

### **Section 2: Treatment in Allocated Old Growth (MA15) - Forest Plan Amendment**

Treatment in the Bull Canyon allocated old growth is proposed in Alternative 3 to provide a continuous fuels reduction treatment area along the Forest boundary. The Bull Canyon allocated old growth adjoins the Forest boundary at the east edge of the project and continues upslope to the ridgetop.

The Forest Plan does not address treatment needs that reduce fuels and modify fire behavior in old growth within WUIs. The Forest Plan does state under Timber at 4-90, "areas allocated to old-growth timber will have no scheduled timber harvest although salvage may occur following catastrophic destruction if a more suitable replacement stand exists." The exception to salvage following catastrophic destruction has little utility since Bull Canyon is healthy functioning old growth. The direction prohibiting scheduled timber harvest also has little utility because treatment objectives include fuels reduction and fire behavior modification.

The following guideline is being added to clarify compatibility and use of fuels reduction treatments in Management Area 15 in the Mt. Emily Fuels Reduction planning area:

**Wildland Urban-Interface Guideline.** Mechanical and non-mechanical fuels reduction is permitted within stands of allocated old growth within the Mt. Emily WUI to meet fuels treatment objectives. Where treatments are applied they shall retain old-growth characteristics.

The amendment will allow 158 acres of fuels reduction treatments as described above within the Bull Canyon Allocated Old Growth. Treatments include commercial thinning of trees generally under 18 inches, removing dead standing and down material, thinning to a range between the mid to upper management zone, and cleaning of small diameter trees, pile and prescribed burning. Treatments under this amendment will not result in a net loss of old growth, but the amendment will provide for treatments that will maintain old growth habitat as defined by Forest standards and definitions.

Bull Canyon designation as allocated old growth will be retained. This amendment will not change allocation as designated under the Forest Plan.

### **Section 3: Treatment in Canada lynx habitat – Forest Plan Amendment**

The Canada lynx was listed as a threatened species under the Endangered Species Act by the US Fish and Wildlife Service in March 2000. To protect lynx and lynx habitat, the Forest implemented the Canada Lynx Conservation Assessment and Strategy (LCAS; Ruediger et al. 2000). The LCAS provides conservation measures intended to conserve the lynx and reduce or eliminate adverse effects from the spectrum of management activities on federal lands.

The Mt. Emily analysis area provides habitat for the Canada lynx (Grande Ronde River/Hilgard Lynx Analysis Unit and Meacham Lynx Analysis Unit). There are over 7,000 acres of lynx habitat within the lynx analysis units (LAU) with denning and foraging habitat levels that exceed the minimum standard habitat requirements identified in the LCAS (Ruediger et al. 2000).

This project is proposing adoption of the standards and guidelines of the Canada Lynx Conservation Assessment and Strategy, August 2000, as the third section of the non-significant, project-specific Forest Plan amendment for the action alternatives. The LCAS was developed to provide a consistent and effective approach to conserve Canada lynx on federal lands in the conterminous United States and represents the best available science for conservation of Canada Lynx. An analysis of the applicability of each LCAS standard and guideline for this project area was completed and resides in the Analysis file.

Alternative 3 proposes to mechanically treat fuels and prescribe/jackpot burn in lynx habitat and converts 290 suitable acres, of which 179 acres are denning habitat and 111 acres are forage habitat to unsuitable habitat. This section of the amendment modifies the Wallowa-Whitman Forest Plan for the Mt. Emily Fuels Reduction Planning area and will only apply to lynx habitat within the project area.

<b>Alternative 3 – Mechanical Treatments in Lynx Habitat</b>		
<b>Unit Numbers</b>	<b>Habitat Type</b>	<b>Prescription</b>
150, 235, 240, 241, 244, 252, 268, 271, 317	Forage	Combination of all following treatments: HTH/HFU/SCN/RMP/RPB
237, 238, 239, 242, 243, 245, 246, 248, 262, 264, 265, 267, 309	Denning	Combination of all following treatments: HTH/HFU/SCN/RMP/RPB
207	Denning	Combination of all following treatments: HFU/SCN/RMP/RPB

#### **4) Treatment in Inventoried Roadless Areas (IRAs)**

Treatment is proposed in two Inventoried Roadless Areas (IRAs), the North Mt. Emily IRA and the Mt. Emily IRA. The Mt. Emily Fuels Reduction project is not proposing activity on the Umatilla portion of the North Mt. Emily IRA. Treatment is designed to protect or enhance roadless characteristics.

Roadless area management is currently being governed under an Interim Directive approved by the Associate Deputy Chief which became effective on July 16, 2004. The Interim Directive reinstates, with two changes, the direction previously issued in ID No. 1920-2001-1 to implement the Chief's 1230/1920 letter of June 7, 2001, regarding Delegation of Authority/Interim Protection of Roadless Areas. The Interim Direction allows timber harvesting for clearly defined purposes where necessary to meet ecological needs. Treatment purposes for this project which match those defined in the Interim Directive are: "Timber harvest is generally small-diameter material (based on the site), and the removal of the timber is needed to maintain or restore the characteristics of ecosystem composition and structure, for example, to reduce the risk of uncharacteristic wildfire effects."

Alternative 3 will mechanically treat 155 acres within the North Mt. Emily IRA, concentrating on generally small diameter trees due to the nature of the current conditions and the goals of the fuel reduction treatments. Treatment includes commercial thinning (HTH) to between the lower and upper management zones followed by fuels reduction harvest (HFU), fuels thinning (SPC), cleaning (FCN) and pile burning (FHB, FMB).

Prescribed fire will occur in approximately 369 acres (units 101-108, 110, 111, 113, 201-206, 208, 210, 211, 601) in North Mt. Emily and on 48 acres (units 264, 267, 268, 271, 603) in Mt. Emily IRA. Mechanical treatment will occur prior to burning on approximately 187 of these acres.

No trees greater than 21 inches in diameter will be cut. Removal of trees from these areas will be by helicopter. Helicopter landings will be outside of the IRAs. No roads will be constructed in either IRA, temporary or otherwise.

#### **5) Riparian Habitat Conservation Areas (RHCAs)**

Approximately 67 units (307 acres) in Alternative 3 will receive the modified prescriptions described below to treat within riparian habitat conservation areas (RHCAs). Mechanical equipment will not operate in nor will harvest removal occur in riparian areas in order to minimize ground disturbance and reduce the risk of sediment transport to adjacent streams. Hand tools (chain saws) will be used to clean and thin small diameter trees (less than 7 inches), pile and burn. Slash will be hand piled and/or burned.

##### **Small diameter fuels reduction prescriptions:**

Treatment within RHCAs includes the following units: 101 – 108, 112 – 114, 117 – 125, 127 – 133, 135, 136, 138 – 140, 142 – 146, 147, 149, 202 – 206, 208, 210, 211, 215, 216, 218, 220, 221, 223, 225, 227, 230, 231, 237, 238, 240, 243 – 245, 248, 251 – 254, 256 – 259, 262, 264, 265, 268, 271, 301, 303, 306, 309, 315, 316, and 318. Small diameter trees less than seven inches will be thinned and cleaned. The following constraints and mitigations apply to these units:

1. No trees will be cut within 25 feet of any fish bearing and/or perennial stream (none have been identified within the project area).
2. No trees will be cut within 10 feet of any intermittent stream channel.
3. No live trees greater than seven inches dbh will be cut within an RHCA.
4. Within RHCAs, all trees will be cut by hand, no ground-based equipment will be used, and no mechanical treatment or mechanical removal will occur.

Riparian Management Objectives (RMO) will be met or improved in all RHCAs (see PACFISH for objectives). To assure attainment of RMOs, no-cut buffers will be implemented on both sides of

class III and IV streams. Class III streams will receive a 25 foot buffer and class IV streams will receive a 10 foot buffer.

Prescribed burning will occur within all the RHCAs units, however, ignition will not occur within PACFISH designated RHCA buffers. Low and moderate intensity fires will be allowed to back into riparian areas.

#### **6) Access and Travel Management**

Five road segments in the project area have been identified as ineffectively closed (portions of 3120600, 610, 620, 810, and 812), for an estimated 3.57 miles. These roads are planned for use under Alternative 3 and will be effectively closed following project activities.

Specific locations along 2.5 miles of Forest Road 3120500 will be reconstructed to improve drainage, reduce erosion and sedimentation, and reinforce the subgrade. A long term objective is to provide a self-maintained road at the Maintenance Level II. Reconstruction involves the installation of three culverts with 200' of pit run rock to harden culvert crossings, two drain dips with pit run rock, several rolling dips to provide for long term drainage, and areas of spot pit run rock to harden limited areas of the road.

#### **Mitigations and Monitoring:**

Mitigation measures to be implemented consist of those Wallowa-Whitman National Forest Plan Standards and Guidelines that apply to Management Areas 3, 3A, and 15, except where modified by the non-significant Forest Plan amendment described earlier. Specific requirements that apply to this project are listed on pages 60-69 of the EA.

Monitoring of project activities will be accomplished as discussed on pages 71-73 of the EA.

The effects of implementing this alternative, including these modifications, were analyzed by resource specialists as disclosed in the EA and analysis file. The direct, indirect, and cumulative effects of the project as planned are within Forest Plan Standards and Guidelines, including those added/or modified in the forest plan amendment in this decision.

### **Alternatives**

A brief summary of the alternatives considered in this analysis follows:

#### **Alternative One:**

This is the no action alternative that provides a baseline for comparison of the action alternatives. Alternative one considers deferring all management activities.

#### **Alternative Two:**

##### ***Alternative theme:***

Alternative Two is designed to address the purpose and need by optimizing fuel reduction within the three identified priority areas. Fuel reduction is optimized by thinning to the lower management zone.

Strategies and treatments to modify fire behavior and intensity on public lands in the Mt. Emily WUI are emphasized above other issues. Strategies and treatments to create fuel corridors at strategic geographic locations and to increase safety and suppression options in the event of a wildfire are strong secondary objectives.

##### ***Mechanical Fuel Reduction Treatments:***

**Priority Area One Specifics:**

Proposed mechanical harvest treatment will occur on approximately 892 acres in priority area one. Treatments include commercial thinning (HTH) to LMZ, fuels reduction harvest (HFU), fuels thinning (SPC), cleaning (SCN) and mastication or pile burning (FHB, FMB). These treatments are proposed to reduce down and dead standing fuels, raise live tree limb heights (from ground to crown base), and reduce crown bulk density.

**Priority Area Two Specifics:**

Proposed mechanical harvest treatment will occur on approximately 683 acres in priority area two. Treatments include commercial thinning (HTH) to LMZ, fuels reduction harvest (HFU), fuels thinning (SPC), cleaning (SCN) and mastication or pile burning (FHB, FMB).

**Priority Area Three Specifics:**

Proposed mechanical harvest treatment will occur on approximately 394 acres in priority area three. Treatments include commercial thinning (HTH) to LMZ, fuels reduction harvest (HFU), fuels thinning (SPC), cleaning (SCN) and mastication or pile burning (FHB, FMB).

**Summary of Mechanical Treatment in Priority Areas One, Two, and Three**

HTH/LMZ	HFU/SCN Only
1,669	300

**Removal Systems Summary:**

Where treatments result in commercial products, they will be removed by tractor or ground based systems (1,021 acres) and helicopter systems (762 acres). An estimated 186 acres will not require removal and will be treated by lop and scatter or pile and burn. Approximately 55,426 CCF of wood fiber products is expected to be recovered from the proposed action.

Approximately 2.5 miles of reconstruction of Forest Road 3120500 will improve drainage, reduce erosion and sedimentation, and reinforce the subgrade. Approximately 1.0 miles of temporary spur roads are needed to facilitate removal of the materials. No new permanent road construction is proposed.

**Prescribed Fire Fuel Reduction Treatments:**

The following table displays prescribed fire treatment acres by priority areas for Alternative Two:

Priority Area	Acres
One	1,059
Two	146
Three	417
<b>Total</b>	<b>1,622</b>

Prescribed burning will reduce surface fuels in the form of litter, duff, and 0-3 inch woody material. In areas that do not have mechanical pre-treatment, burning will target trees less than four inches in diameter.

Eighty-seven percent of percent of prescribed burning under this alternative occurs within fire regimes one, two or three, condition classes two or three. Prescribed burning will help restore these fire-adapted ecosystems closer to historic fire return intervals.

**Alternative Three :**

This is the preferred alternative as described in the EA and under The Decision above.

**Alternative Overview:**

Alternative Elements	Alternative 1	Alternative 2	Alternative 3
Commercial Thin Treatment Acres	0	1,669 acres	1,268 acres
Fuels Reduction/Cleaning Only Treatment Acres	0	300 acres	488 acres
Non-Commercial Thinning Acres	0	300 acres	187 acres
Prescribed Fire Acres	0	1,622 acres	1,622 acres
Acres Mechanical Treat then Burn	0	588 acres	596 acres
RHCA Acres Treated (Hand Treated)	0	344 acres	307 acres
Old Growth (G4) Acres Treated	0	241 acres	143 acres
MA-15 Acres Treated	0	188 acres	158 acres
Acres Treated in North Mt Emily IRA (includes mechanical and Rx burn)	0	369 acres	369 acres
Acres Treated in Mt Emily IRA (includes mechanical and Rx burn)	0	16 acres	48 acres
Yarding Systems:			
Ground Based	0	1,021 acres	878 acres
Helicopter	0	762 acres	622 acres
	0		
Road Work:			
Reconstruction	0	2.5 miles	2.5 miles
Specified Road Construction	0	0.0 miles	0.0 miles
Temporary Road Construction	0	1.0 miles	1.0 miles
Saw/Chip Volume Recovered	0	27.5 MMBF (55,426 CCF)	12.3 MMBF (24,696 CCF)

## **Scoping Process**

Public scoping for the Mt Emily Fuels reduction project was initiated in the spring, 2002, Wallowa-Whitman Forest Schedule of Proposed Actions (SOPA), and has appeared in each quarterly SOPA since then. This mailing is distributed to over 150 individuals, organizations, and agencies. Five letters of interest were received.

Two public forums were held on February 25 and 26, 2003 to discuss the Mt. Emily project and accept public comments. The forums were conducted in cooperation with the Oregon Department of Forestry with hour long presentations by both agencies, followed by questions and answers. Local landowners and valley residents were encouraged to attend with over 150 notifications mailed and advertisement in the local newspaper. Approximately 25 people attended each meeting. Several verbal and written comments were offered and incorporated into the proposed action letter.

A description of the proposed action was mailed on March 21, 2003 (letter dated March 10, 2003) to approximately 280 forest users and concerned publics soliciting comments and concerns related to this project. Seven comment letters were received and reside in Appendix D of the EA.

On April 25, 2003, an overview of the project was presented to the Union County Community Forest Restoration Board. On July 11, 2003 the Forest Restoration Board was given a presentation in the field on the current status and alternatives being developed for the project.

On December 12, 2003, a summary presentation to the Union County Community Forestry Board discussed the projects preferred alternative and fire modeling results.

Several field trips to the Mt. Emily project area were organized to discuss proposed actions on the ground and incorporate feed back. On July 1, 2003 interdisciplinary team members and representatives from Hells Canyon Preservation Council (HCPC) toured portions of the project area. Field trips were organized for Forest Service officials from the Regional office in Portland and the Forest Supervisors office in Baker City, OR.

In April of 2003, an overview of the project was presented to the Level 1 Streamlining Consultation Team from the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife (USF&W). More site-specific project information was provided to the Level 1 Team in July of 2003. A draft of the Mt Emily Biological Assessment for Bull Trout, Steelhead and Spring Summer Chinook Salmon (part of the Upper Grande Ronde Assessment Area Biological Assessment (BA), January 2004) was sent to the regulatory agencies in October 2003. A final BA was submitted in February 2004. A Biological Opinion was issued by NOAA Fisheries on April 20, 2004.

On May 14<sup>th</sup> the Mt. Emily EA was published as available in The Observer Newspaper for a 30 day public comment period. The comment period closed on June 14<sup>th</sup> and three letters of comment were received and responded to (reference Appendix D, Public Comments to the Environmental Assessment). The ID Team met on July 19 and September 8<sup>th</sup> (in the field) with Hells Canyon Preservation Council at their request, to discuss and clarify their comments.

Public meetings were held on May 26-27, 2004 to present the preferred alternative and the effects of implementation analysis in the EA. Approximately 10-12 people attended the meetings.

On September 9 and November 23, 2004, the ID Team took the Forest Supervisor and staff to the project area to discuss the preferred alternative and public comments.

The Biological Assessment for Canada lynx was submitted to the USF&W on August 25, 2004, and a Biological Opinion was issued by USF&W on September 10, 2004.

Scoping and consultation for the project was initiated and is ongoing with the CTUIR and ODF&W.

This project was submitted to The State Historical Preservation Officer (SHPO) for review and has been approved.

An analysis file for this project is available for public review at the La Grande Ranger District. The analysis file includes specialist's reports, data specific to the project, public notifications and their responses, meeting notes, and miscellaneous documentat ion.

### **Reasons for Decision**

I have chosen to implement Alternative 3 because it provides the best combination in responding to the purpose and need for change and the major issues and concerns. I concur with the following key issues that were developed based on key issues and resource analysis by interdisciplinary team members. The key issues and specific reasons for this decision are:

<b>COMPARISON FACTOR</b>		<b>ALTERNATIVES</b>		
<b>Key Issue</b>	<b>Key Indicator(s)</b>	<b>One</b>	<b>Two</b>	<b>Three</b>
<b>Manage Wildfire Risk on NF lands within the Mt. Emily WUI</b>	• Crown fire potential (active, passive or surface)	Passive	Surface	Surface
	• Number of acres treated within fire regimes one, two, or three that are in a condition class two or three	0	1,060 – Mech 1,411 - Burn	991 – Mech 1,411 - Burn
<b>Manage Old Growth Component within the Mt. Emily WUI</b>	• Old Growth acres treated	0	543	418
	• Acres converted from MSLT to SSLT in Biophysical Group 4	0	241	0
<b>Maintain Mt. Emily Scenic Quality</b>	• Unnatural appearing impacts (disturbance) less than 10% of viewshed Y/N (Retention/foreground)	Y	Y	Y
	• Unnatural appearing impacts (disturbance) less than 14% of viewshed Y/N (Partial retention and retention middleground)	Y	Y	Y

## 1. Manage Wildfire Risk on National Forest Lands within the Mt. Emily Wildland Urban-Interface

The fire occurrence rate for the Mt Emily area is 83% higher than the entire Wallowa-Whitman National Forest with approximately sixty three percent of the fires usually occurring in July and August (hottest, driest time of the year). Most of the fires have historically been lightning caused and approximately forty - five percent of the fires that occurred on the Forest occurred on days with multiple fire starts which often means limited suppression resources or delayed initial attack times.

Approximately 100+ homes are located within the Mt. Emily WUI (as defined by the Healthy Forest Restoration Act for a WUI/Community-at-Risk) and at risk to possible loss in the event of a wildfire in this area. The Mt. Emily Fuels Reduction project has been developed in a cooperative and coordinated effort with Oregon Department of Forestry, Umatilla National Forest, Rural Fire Protection Departments, Union County Community Forestry Board, interest groups, and adjacent private and industrial landowners in an effort to protect the Mt Emily community. Joint effort objectives include: 1) managing vegetation and fuels to modify fire behavior and create survivable and defensible space on federal, state, and private lands surrounding the community; and, 2) promoting "FIREWISE" communities through prevention and education measures.

Several land owners in the inter-face area are involved in fuel reduction and "FIREWISE" projects on their property and around their homes in an effort to pro-actively reduce fire hazard and improve defensible space within the community.

The primary objective of Alternative 3 is to modify fire behavior potential in order to protect private lands and property from fires originating on public lands and also to protect public lands from fires originating on private lands. It focuses on treatments to modify fire behavior potential and has been designed to allow for future re-introduction of fire in fire-adapted ecosystems.

This is especially important in the Priority one area where the treatment emphasis objective is to reduce crown fire initiation and rapid fire spread across ownership boundaries and to the electronic structures on the top of Mt Emily. Alternative 3 treats vegetation in a ¼ mile wide corridor inside the forest boundary along the north/south forest boundary with private land, on the east side of the project area. These treatments focus on fuel reduction in forested stands that have high levels of crown density, ladder fuels and surface fuels.

Alternative 3 treats 836 acres in Priority one area through removals, stand cleaning, pruning, piling, pile burning, and/or prescribed fire. Prescriptions target the lowest layer of trees needed to reduce ladder and crown fuels, leaving a mix of both fire dependent and non-dependent trees that are less susceptible to insects, diseases, and fire. Modeling shows that with these treatments, crown fire potential will be reduced from passive and/or active crown fire potential to surface (on acres treated) in all modeling groups. Treatment effectiveness is expected to provide protection along adjacent private lands for 10 – 20 years in terms of recommended stocking levels (ladder and crown fuels) and associated crown fire potential.

Flame lengths in Alternative 3 will be reduced to 1-7 feet on treated acres which will increase a hand crews' opportunity to fight fire direct when flame lengths do not exceed four feet as opposed to Alternative One where the flame lengths will exceed direct attack by both hand crews and mechanical equipment. Engines and dozers (where roads and terrain allow) can directly fight the fire with 4-8 foot flame lengths. Having the opportunity to go direct in Alternative 3 decreases the potential fire size, the risk to public and firefighter safety, and private property (including homes).

Treatment objectives in the Priority two area are to modify fire behavior and intensity, maintain access, and increase suppression options in the event of a wildfire along strategic ridgetop systems. These fuel reduction corridor areas are considered anchor points for suppression tactics should a wildfire occur. Alternative 3 will treat approximately 629 acres to create a ¼ mile wide corridor along forest roads 3120

(from the southern forest boundary to its junction with 3120500) and 3120500 in conjunction with logical topographical or vegetative breaks.

In Priority area three, the treatment objectives are to increase suppression options in the event of a wildfire through treatments, which will modify fire behavior and intensity. These areas are considered alternative anchor points to the 3120 and 3120500 roads. Under Alternative 3, in priority area two there is a change in location of treatment along the 3120 ridgetop road, and in priority area three, treatment is deferred on the ridge top above the 3120-450 road occurs. While Alternative 3 provides for an adequate strategic network of fuel reduction areas along the top of Mt. Emily it will not treat for other resource protection reasons the heavy accumulations of dead and down trees on the ridgetop above the 3120450 road that Alternative 2 would treat. Not treating along this ridge will reduce some fire suppression opportunities, crown fire potential will remain as passive or active, and flame lengths will exceed direct attack capabilities, however, it will retain these areas for lynx habitat, old growth dependant species, and for visual considerations.

Alternative 3 meets the purpose and need of the project by moving fire regimes one, two, and three towards more historic conditions on 32% of the acres that are outside historic conditions. These treatments are expected to last for 10 to 20 years with light maintenance level treatments in 10 to 15 years. This will reduce the risk of intense wildfire behavior to LOS, long-term wildlife habitat, and riparian structure, and areas managed for old growth habitat. Preservation of existing LOS is enhanced while promoting long-term LOS, wildlife diversity, and riparian function across the landscape towards more historical conditions.

Mechanical treatment in Alternative 3 will allow for more opportunities to use prescribed fire. Fuels can be manipulated prior to burning (where as weather and topography cannot) to reduce the potential for high intensity burning and damaging impacts to natural resources during prescribed fire operations. Mechanical pre-treatment will reduce the amount of smoke emissions generated during prescribed burning by reducing the amount of fuels available for combustion.

Alternative 3 will maintain fire return intervals within fire regimes one, two, and three which will help move existing vegetative condition in terms of vegetation composition and structural stages, and disturbance patterns towards historical conditions.

**Wildfire Risk Rationale Summary** – Alternative 3 reduces fuel loadings and crown fire potential by thinning from below followed by surface fuel treatments. These treatments effectively alter fire behavior by reducing crown bulk density, increasing crown base height, and changing species composition to lighter crowned and fire-adapted species (Graham, et al, PNW-GTR-463). These treatments provide a window of opportunity for effective fire suppression and protecting high-value areas (Pollet and Omi 2002).

Alternative 3 prescriptions target the lowest layer of trees needed to reduce ladder and crown fuels, leaving a mix of both fire dependent and non-dependent trees that are less susceptible to insects, diseases, and fire in all three priority areas. This alternative reduces crown fire potential to surface in all Modeling Groups. Flame lengths are reduced to 2-7 feet in all Modeling Groups. The design of Alternative 3 also reduces overstocked stand conditions will also reduce the risk of insect and disease mortality over the next 10 to 20 years (future fuel loadings) but it also provides added habitat and protection for key resources in the area providing an equitable balance of resources that abut the WUI.

Alternative 3 meets the purpose and need for the project for 10 to 20 years while Alternative 2 would increase this period to 20 to 30 years due to higher levels of basal area being proposed for removal. The reduction of crown fire and spotting potential, flame lengths, potential damaging impacts to all resources, increasing fire fighting opportunities, and increasing public and firefighting safety in Alternative 3 is similar to Alternative Two within each of the priority areas, with the exception of priority area three described above.

Alternative One is the no action and would not treat any fuels mechanically or through the use of prescribed fire. Crown fire potential would be passive and/or active in all Modeling Groups under modeled conditions (ninety seventh percentile environmental conditions). Flame lengths range from 4-49 feet and would leave the homes and properties in the WUI at high risk to possible loss in the event of a wildfire.

Alternative Two has the highest level of treatment for reducing crown fuels (crown bulk density) while increasing crown base heights for the next 20 to 30 years however, it is singular in it's focus and is not modified for any other resource needs within the area as Alternative 3 is. While Alternative 2 would meet the purpose and need for wildfire risk reduction, Alternative 3 is an integral part of a collaborative effort to manage vegetation on private, state, and public lands adjacent to urban development to reduce fire hazard and improve defensible space. It provides for the best blend of risk reduction in conjunction with recognizing the biological needs of other natural resources such as old growth dependant species, fisheries, scenery, etc. in the Mt Emily area.

## **2. Issue: Manage Old Growth Component within the WUI; Old-Growth Currently Outside Historic Range**

Within the Mt. Emily area, old growth habitat is managed as allocated old growth (MA -15), which is a land allocation in the Wallowa-Whitman Forest Plan, and mapped old growth, which is one of the structural classifications (large structure) used to implement direction in Forest Plan Amendment #2 (Screens). Management of old growth by either definition will provide habitat for old growth associated wildlife species, however, when within a wildland urban interface, protection of property as well as the natural resources vulnerable to fire can create a conflict of objectives within these areas. Alternative 3 best meets the fuel reduction objectives while providing for additional protection and retention of old growth within the WUI.

Under Alternative 3, allocated old growth is only treated in Priority area one because of the importance of maintaining the integrity of the fuel treatments immediately adjacent to the private lands and homes in the WUI. Alternative 3 was designed to not only treat fewer acres of both MSLT and allocated old growth (MA -15 - Bull Canyon Old Growth) but the prescriptions were modified to maintain more of the old growth characteristics within these areas while still meeting the intent of the fuel reduction needs within the WUI. Alternative 3 will retain higher tree densities than Alternative 2 and biophysical group G4 MSLT treated stands will continue to meet the structure stage definitions (Wallowa-Whitman National Forest Recommended Definitions for New Structure Stages per Amendment #2, November 9, 1995). Within allocated old growth (MA -15 – Bull Canyon Old Growth), the upper diameter limit for removal will generally be 18". Health and safety concerns may dictate the infrequent removal of trees up to 21" d.b.h. By reducing the upper diameter limit for removal within the allocated old growth the old growth characteristics and structure will be better maintained. Alternative 3 will reduce the risk of stand replacement fires in old growth habitat for 10 to 20 years and maintain the large structure by reducing understory competition.

Alternative 3 will treat MSLT in biogroup 4, however, the treated acres will remain in MSLT and the percentage of MSLT in biogroup 4 in the project area will remain the same. Under this alternative, a Forest Plan amendment was required to treat in old growth that is below HRV even though there is no net change in the structure or quantity of LOS in MSLT and it will continue to meet the structure stage definitions associated with the Regional Forester's Forest Plan Amendment #2.

Alternative 3 maintains a higher tree density and maintains MSLT structure when compared to Alternative 2 in Priority areas two and three. Treatment to a higher tree density provides a more effective corridor along the 3120500 road. Alternative 3 also defers treatment of six units on a ridge above the 3120450 road. While this will continue to provide a large block of connective habitat within the project area to the adjacent old growth in the Mt Emily IRA it will also retain high fuel loadings which could pose an increased risk to stand replacement wildfires and potentially reduce future connectivity.

**Old Growth Rationale Summary** – The resource tradeoffs under Alternative 3 continue to provide the best combination for providing old growth habitat features on the landscape while treating fuels to protect not only adjacent private lands and property but also affording measures of protection to old growth through time in the event of a wildfire in the project area.

### **3. Issue: Maintain Mt. Emily Scenic Quality**

Mt. Emily is a highly valued visual feature on the landscape to the people living in and visiting the Grande Ronde Valley. On the face of Mt. Emily, the existing stand conditions threaten the sustainability of the scenic resources. In areas where no management has occurred, many of the stands are overstocked and full of dead and down material. Past timber harvest along the upper ridges of the project area have created unnatural appearing openings that detract from the scenery. Alternative 3 will improve the latter condition and have no negative cumulative effects to scenery resources.

Under Alternative 3, the scenic integrity will remain high on the face of Mt. Emily. The scenic sustainability in the upper ridges of the project area will not improve due to the deferring of some treatments in this alternative. The unhealthy conditions that exist along the ridge east of Fiddlers Hell Creek will not be treated and will continue to keep the scenic integrity low to very low on the ridges. Deferred treatment of units 213 to 233 will eliminate the potential to positively affect the scenery that appears unnatural in the area along the rim of Mt. Emily, which would have occurred under Alternative 2.

The Visual Quality Objectives for this area are not being met in all areas under the No Action Alternative and the scenic integrity and ecological integrity are lower in some areas than they should be for this area. The no action alternative would allow the conditions and trends that currently exist to continue to pose a risk of losing positive attributes of the landscape character, but would not cause cumulative effects to the scenery resource.

Efforts occurring on private lands along the east boundary, and project efforts being proposed by the Umatilla National Forest in addition to this project would not create negative effects that would degrade the scenic resources. The type of treatments proposed in these areas in addition to those on public lands would improve scenic integrity as described in the Valued Landscape Character description. The cumulative efforts would increase defensibility in the event of fire thus improving scenic sustainability in an artificial manner.

**Summary** - The actions proposed in Alternatives 3 and 2 are designed to alter the existing conditions in a manner that increases the defensibility of the private properties adjacent to the Forest boundary. The actions proposed are designed in a manner that will not create unnatural or uncharacteristic impacts from a middleground or background view. The impacts visible from a foreground view will include the following: stumps less than 6" in height, some areas of soil disturbance, and evidence of tree removal. The impacts to foreground views will not be concentrated enough to degrade scenic resources. In some areas the slash removal and prescribed burning will decrease the amount of unnatural appearing impacts.

The actions proposed under Alternative 3 will affect the condition and trends that pose risks to the positive attributes of the landscape character. These affects to the condition and trends are minimal, but positive in nature. Alternative 3 treatments also provide the potential for arresting a fire before a large stand replacing event occurs, improving the potential for maintaining scenic sustainability.

#### **Other Issues:**

I further considered the environmental consequences disclosed in the EA for other issues. In review of these consequences I conclude that Alternative 3 best meets the purpose and need by mitigating impacts to soils and site productivity, water quality and fisheries, threatened and endangered species, cultural resources, noxious weeds, other wildlife, inventoried roadless areas, recreation, treaty rights, and public safety while meeting Forest Plan direction. In those areas where Forest Plan direction where new science is in conflict with current Forest Plan direction the Forest Plan has been amended for this project area to integrate the

purpose and need of the project, meet the legal requirements of NFMA, and protect resources within the project area.

At the time of the completion of the EA in May 2004, the Forest was under the direction of the Forest Plan for Inventoried Roadless Areas, therefore the effects described in Chapter three of the EA for roadless reflect the direction of the Forest Plan. However, consultation with the roadless area experts in the Regional Office indicated that we could at any time be back under the direction of the Roadless Area Conservation Rule, therefore, I directed my roadless Specialist to analyze the effects to roadless under both the current Forest Plan direction and using the characteristics for roadless from the Roadless Area Conservation Rule (EA, page 29). These effects are in Appendix A of the Roadless Effects in the Analysis File and given that we are under the Interim Directive of July 16, 2004, they have been an important consideration in my decision making process.

In general, the roadless areas affected by this project are small and due to their shape and the way they lay on the ground in relation to the project area, the opportunities for experiencing roadless values are very restricted within this project area. Roads and timber harvest activities on the private lands present non-conforming sights and sounds to the entire area. Project design protects high quality or undisturbed soil, water and air, maintains the diversity of plant and animal communities, provides habitat for PETS species and ensures retention of reference landscapes and high scenic quality. The only special features of this area are the scenic views of the Grande Ronde Valley east of the area. There may be short term effects to some of these roadless characteristics, but over all they are minimal and the unroaded nature of the area will be maintained under Alternative 3. Alternative 3 meets the Interim Directive approved by the Associate Deputy Chief which became effective on July 16, 2004, which allows timber harvesting for clearly defined purposes where necessary to meet ecological needs. Treatment purposes for this project which match those defined in the Interim Directive are: "Timber harvest is generally small-diameter material (based on the site), and the removal of the timber is needed to maintain or restore the characteristics of ecosystem composition and structure, for example, to reduce the risk of uncharacteristic wildfire effects."

There were a number of public concerns expressed about commercial removal of timber from the roadless area. To address this concern, this decision approves the treatments prescribed in Alternative 3, although implementation of the vegetative treatments within the lower portion of the North Mt. Emily inventoried roadless area will be conducted in two phases. The first phase will include the non-commercial component of the treatments using hand crews or mechanical means such as a "slash-buster". The second phase involves fully implementing the silvicultural prescription, which involves the commercial removal of forest biomass to meet fuels management objectives. Upon completion of the first phase, the District Ranger will invite the Union County Community Forest Restoration Board and other interested publics to evaluate the effectiveness of the treatments towards meeting fuel reduction objectives. I believe this collaborative approach for managing this important fire anchor area will better achieve project objectives.

Alternative 3 meets the standards identified in the Lynx Conservation Assessment and Strategy and provides contiguous lynx habitat adjacent to the Mt. Emily roadless area with a large block of connective habitat within the project area to the adjacent lynx habitat in the Mt Emily IRA. The Forest Plan will be amended by adopting standards and guides from the LCAS which are appropriate for this project area in order to mechanically treat and burn within lynx habitat. The direct and indirect effects of this site-specific Forest Plan amendment will provide greater protection for lynx and lynx habitat than currently provided in the Plan. This site-specific amendment to include applicable standards and guidelines for Alternative 3 provides a specific design for protecting and developing lynx habitat that is not currently in the Forest Plan.

Public concerns were expressed about the potential for increased motorized use along Forest Road 3120500 as a result of the vegetative treatments. Of particular concern is the potential for increased snowmobile use and resultant effects within lynx habitat. To address this concern the District Ranger will monitor both summer and winter motorized use within this area to determine if there is any expansion of use or areas of use. Management strategies can be developed if it is determined there are unacceptable impacts. These management strategies could include restrictive measures that may require additional NEPA analysis prior to implementation.

**In summary**, I have selected Alternative 3 for the following reasons:

- Alternative 3 establishes effective fuel treatment areas in Priority areas 1-3 in the Mt. Emily WUI which will provide fire management officials with numerous safe options for suppression activities to keep fires from escaping to or from private and public lands.
- Alternative 3 partners with the collaborative efforts on adjacent private and public lands within the WUI and substantially contributes to increasing the effectiveness of the work being done on all lands throughout the WUI to protect homes, property, and resources.
- Alternative 3 treats areas classified as having potential for high wildfire risk by lowering fuel loadings and reducing the potential for severe fire intensity and subsequent mortality. Alternative 3 is designed to complete the restoration work needed within the next 2-5 years and then retain its effectiveness for the next 10-20 years.
- Alternative 3 provides opportunities for re-introduction of fire into ecosystems which are outside of their historic range having missed several fire return intervals.
- Alternative 3 ensures no net loss of old growth, valuable wildlife habitat attributes, and offers protection measures for old growth attributes in the future.
- Alternative 3 conserves lynx habitat in the long term through the adoption and use of the lynx conservation strategy standards and guidelines for the project area.
- Alternative 3 minimizes temporary road construction and protects soils and water through project design and use of appropriate mitigation measures.

From the results of site-specific analysis documented in the EA I conclude that:

1. The silvicultural harvest methods will meet the objectives and requirements of the Land and Resource Management Plan for the Wallowa-Whitman National Forest.
2. No timber will be sold from lands not suited for timber production - 36 CFR 219.27 (c). Management prescriptions proposed for the harvesting of timber within appropriate management areas, as amended in this decision comply with requirements found at 36 CFR 219.27 (b) for manipulating tree cover.
3. All manipulation of vegetation in this project will comply with the seven requirements of 36 CFR 219.27(b) and meet the constraints and conditions of the Wallowa-Whitman Integrated Weed Management Plan.
4. This action is consistent with the Wallowa-Whitman National Forest Land and Resource Management Plan, as amended, with the exception of the areas being amended to reflect treatment in lynx habitat, allocated old growth (MA15), and LOS which is below HRV (refer to description in Alternative 3 above). A non-significant amendment of the Forest Plan is part of this decision to reflect these treatments.

#### **Finding of Non-Significance for Forest Plan Amendment**

Alternative 3 of the Mt Emily Fuels Reduction Project amends the Forest Plan in 3 separate sections as described on pages 5 and 6 of this Decision Notice. In determining the significance or non-significance of this amendment, I considered the following factors:

Timing: The amendment will begin implementation in 2005 which is 15 years after the signing of the ROD for the Forest Plan (April 1990). In general, the Forest Plans should be updated every 10-15

years. The Wallowa-Whitman Forest Plan is just beginning its revision cycle (in year 14). Since 2000, emphasis on protection of Wildland Urban Interface areas has been growing in national importance and emphasis. Forest Plans did not address this issue in 1990 and this has been recognized as an area that will be addressed in the upcoming Forest Plan revision. In order to provide for private and public land protection within the Mt. Emily WUI and function as an integral part of the collaborative efforts currently being implemented in the area to manage vegetation on private, state, and public lands, the Mt. Emily project needs to occur now in conjunction with these efforts to reduce fire hazard and improve defensible space adjacent to urban development.

**Location and Size:** Alternative 3 will treat 143 acres of MSLT LOS in G4 in section 1 of the amendment, 158 acres in MA15 in section 2 of the amendment, and 290 acres of lynx habitat under section 3 of the amendment for a total of 591 acres. The Mt. Emily project area is approximately 7,295 acres in size of which, there are 898 acres of MSLT G4, 581 acres of MA15, and approximately 2,000 acres of lynx habitat. The total administrative area of the Wallowa-Whitman National Forest is 2.3 million acres. Therefore, the affected area comprises less than 0.0003 of the administrative area of the Forest.

**Goals, Objectives, and Outputs:** The amendment does not alter relationships between goods and services projected by the Forest Plan. There is no net loss of LOS or allocated old growth under Alternative 3 and allocated old growth remains MA15 under this decision. Lynx habitat is protected under the adoption of the Lynx Conservation Strategy; however, lynx habitat is above the minimum levels called for in the LCAS which allows for treatment such as those being prescribed in this project. In general, due to the small nature of the materials and the type of prescriptions being used, the materials being removed to treat fuels within these areas produce a minuscule increase in outputs over the totals projected by the Forest Plan. However, in comparison to the totals, the increase is imperceptible.

**Management Prescription:** The amendment does not change the allocation of any of the lands within the Mt. Emily project area, it merely permits treatment within these 591 acres to meet the fuels reduction purpose and need for the life of the project. HRV's for LOS and the acres of allocated old growth will remain the same in the project area. Lynx habitat within the project area will be protected and meet the intent of the lynx conservation strategy for lynx. The scale of the change of each of these sections is imperceptible when compared to the total goods and services estimated for the Forest Plan.

I find that the action of fuels reduction activities within G4 LOS, MA15, and lynx habitat within the Mt. Emily project area is not a significant departure from the National Forest Management Act (NFMA) planning requirements or the Forest Plan with respect to (1) timing; (2) location and size; (3) goals, objectives, and outputs; and (4) management prescription. I further find that the action is non-significant with respect to the implementation regulations of the NFMA Title 36, Part 219.10 (e) and (f); the Forest Service Manual at Chapter 1922.51 and 1922.52; and the Forest Service Handbook 1909.12 at Chapter 5.32. Therefore, I find that the action constitutes a non-significant amendment to the Forest Plan.

### **Finding of No Significant Impact (FONSI)**

The selected alternative, with the specified management requirements, constraints, and mitigation measures, provides the best combination of physical, biological, social, and economic benefits.

Based on the site-specific environmental analysis documented in the Environmental Analysis, I have found that this is not a major Federal action, individually or cumulatively, and will not significantly affect the quality of the human environment. Therefore, an environmental impact statement is not needed. This finding is based on the following factors:

1. Public health and safety will only be minimally affected over a short term by the proposed project. Short-term safety hazards such as log truck traffic and falling trees near roads will be mitigated through contract safety provisions (EA, pp. 170-172). Both the short and long term fire-fighter and

public safety relative to reducing potential for high intensity fast moving crown fires would be improved (EA, pp. 76-89, 171).

2. This project proposal does not affect any unique geographical characteristics such as parklands, prime farmlands, wild and scenic rivers, or ecologically critical areas (EA, p. 174).
3. Based on public participation, the effects on the quality of the human environment are not likely to be highly controversial. During the scoping public meetings the public attending these meetings generally indicated that they were in favor of the actions proposed in this project or suggested that the Forest Service should consider doing more to reduce fuels in the project area. Of the eight letters received in response to the Proposed Action, four were in favor (of which two indicated we should be treating more acres for fuels reduction, including using logging as a tool to accomplish it) and four were in favor of fuels reduction, but not in favor of doing it with logging as a tool.

Two more public meetings were presented in June to describe the preferred alternative and the effects of implementing it. The public attending these meetings were in favor of the project and the only comments received were related to considering cutting more trees.

During the comment period for the EA, three letters were received; all from Conservation groups which oppose commercial logging in this area but appear to support hand treatments and prescribed burning. Given the very low level of public response and the generally supportive nature of their participation in public meetings, this project does not appear to be of a controversial nature. (EA, Appendix D)

4. There are no known effects on the human environment that are highly uncertain or involve unique or unknown risks associated with this project. Tree felling and removal, burning, and temporary road construction are common practices and the effects are well known. The EA effectively addresses and analyzes issues and environmental impacts associated with the project (EA, Chapter 3).
5. These actions pose no disproportionately high or adverse human health or environmental effects, including social and economic effects, on minority or low-income populations. This project has shared in the federal government's overall trust responsibility to Indian tribes where treaty or other legally defined rights apply to National Forest System lands. Consultation has incorporated opportunities for tribal comments and contributions to the proposed action. No comments were received. (EA, pages 41, 42, 173-175)
6. These actions do not set a precedent for other projects that may be implemented to meet the goals and objectives of the Wallowa-Whitman National Forest Land and Resource Management Plan. The Forest Plan, as amended has set a goal of managing vegetation in a manner consistent with resource objectives. Alternative 3 is consistent with management direction for these objectives with the exception of the areas being amended to reflect treatment in lynx habitat, allocated old growth (MA15), and LOS which is below HRV (refer to description in Alternative 3 above). A non-significant amendment of the Forest Plan for the Mt. Emily area only is part of this decision to reflect these treatments and does not set precedent for other projects or other project areas. (EA, Chapter 3 and DN page 18-19)
7. There are no known significant adverse, cumulative, or secondary effects between this project and other projects (completed, active, or planned) adjacent to the affected area. Effects to the basic resource values of soil, water, vegetation, air, or fish and wildlife were estimated and determined to be localized and limited (EA, chapter 3). This determination is based on the results of cumulative effects analyses discussed in the EA that considered past, existing, and proposed activities.
8. Based on a cultural resource inventory and report mitigation and protection measures, there are no known cultural, scientific, or historical resource affected by the project. Field studies have been

completed for cultural and historic resources (Heritage Report, analysis file). The timber sale contract will contain a contract clause requiring protection of any newly detected sites.

9. A biological evaluation for wildlife PETS species indicates that this project received a "no effect" determination for the "threatened" northern bald eagle and "endangered" Gray Wolf. A "no effect" determination was also made for "sensitive" Peregrine Falcon. This project may impact individual spotted bats and California wolverine or their habitat but will not likely contribute to a trend toward Federal listing or cause a loss of viability to the population.

The biological assessment for Canada lynx determined that the implementation of the project is not likely to adversely affect Canada lynx. USF&WS concurred with this determination (Biological Opinion 9/10/04, Mt. Emily Analysis File).

The biological evaluation for "sensitive" redband trout revealed that this project may effect but is not likely to adversely affect this species due to the design of this project, and the measures incorporated into it for maintaining or improving water quality.

The biological assessment for the "threatened" spring-summer Chinook salmon, summer steelhead indicates that this project may effect, but is not likely to adversely affect these species. (Mt Emily Analysis file). NMFS concurred with this determination (Biologic al Opinion 4/20/2004, Mt. Emily Analysis File).

The biological assessment for the "threatened" bull trout and its potentially critical habitat indicates that this project may effect, but is not likely to adversely affect these species and USFWS concurred with this determination (Biological Opinion 9/10/04, Mt. Emily Analysis File).

A no effect determination was made by the District Botanist for all PETS species and their habitat located within the project area. Only one Sensitive species was documente d to occur within the project area and there will be no impact from projects activities on this or any sensitive plant species. A biological evaluation for plant Proposed, Endangered, Threatened, or Sensitive (PETS) plant species within the project area is located in the Mt. Emily Analysis File.

10. The actions described for this project in the EA do not threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment.
11. Wetlands and floodplains near the planned actions are not affected. Wetlands and floodplains associated with streams and springs will be protected using mitigation measures and design criteria listed on pages 52, 61, and 62 of the EA.
12. There are no known significant irreversible resource commitments or irretrievable loss of resources beyond the scope of the Forest Plan (EA p. 174).

#### **Implementation and Request for Review**

If no appeal is filed, this project may be implemented five business days after the close of the appeal filing period. If an appeal is filed, implementation may not occur for 15 days following the date of appeal disposition. This decision is subject to appeal pursuant 36 CFR 215 by individuals or organizations that provided substantive comments during the comment period which ended June 14, 2004. Any written notice of appeal of the decision must be consistent with 36 CFR 215.14, "Appeal Content." The notice of appeal must be filed hard copy with the Appeal deciding officer at the following address:

Linda Goodman, Regional Forester  
Regional Office  
Attn.: 1570 APPEALS  
P.O. Box 3623  
333 S.W. First Ave.

Portland, OR. 97208-3623

Or it maybe be faxed to:

Fax: (503) 808-2255

Or sent electronically to:

appeals-pacificnorthwest-regional-office@fs.fed.us

It may also be hand delivered to the address above between the hours of 7:45AM and 4:30PM, Monday through Friday except holidays. The appeal must be postmarked or delivered within 45 days from the date the legal notice for this decision appears in The Baker City Herald.

Electronic appeals must be submitted as part of the actual e-mail message, or as an attachment in Microsoft Word, rich text format, or portable document format only. E-mails submitted to e-mail addresses other than the one listed above or in other formats than those listed or containing viruses will be rejected.

For further information, contact Cindy Whitlock, Project Analyst, at the La Grande District, 3502 Highway 30, La Grande, Oregon 97850, or telephone (541) 962-8501.

-----  
STEVEN A. ELLIS  
Forest Supervisor  
Wallowa-Whitman National Forest

-----  
Date

**MT. EMILY FUELS REDUCTION PROJECT  
ENVIRONMENTAL ASSESSMENT**

**La Grande Ranger District  
Wallowa-Whitman National Forest**

## TABLE OF CONTENTS

	<u>PAGE NUMBER</u>
I. PURPOSE OF AND NEED FOR ACTION .....	1
A. Introduction .....	1
B. Proposed Action .....	1
C. Purpose and Need.....	5
D. Decisions to be Made.....	13
E. Project Area Description.....	13
F. Desired Condition .....	14
G. Management Direction .....	14
H. Key Issues.....	15
I. Other Issues.....	27
J. Summary of Scoping Process.....	41
K. Availability and Location of the Analysis File.....	42
II. ALTERNATIVES, INCLUDING THE PROPOSED ACTION .....	43
A. Introduction .....	43
B. Alternative Development Process.....	43
C. Alternatives Considered, but Eliminated from Detailed Study .....	43
D. Alternatives Considered in Detail .....	45
Elements Common to the Action Alternatives .....	45
Alternative Descriptions.....	53
A. Alternative 1 – No Action.....	53
B. Alternative 2 – Proposed Action .....	53
C. Alternative 3 – Preferred Alternative.....	56
Management Requirements, Constraints, and Mitigation Measures.....	60
E. Comparison of How the Alternatives Respond to the Key Issues .....	71
F. Monitoring Plan.....	71
III. ENVIRONMENTAL CONSEQUENCES .....	74
A. Introduction .....	74
B. Alternative Evaluation as They Respond to the Key Issues .....	74
Fire and Fuels Management.....	74
Wildlife Resource – Old Growth .....	89
Scenery Resource Management.....	98
C. Alternative Evaluation as They Respond to the Other Issues.....	101
Inventoried Roadless Areas.....	101
Fisheries and Watershed Resources.....	132
Forest Health/Vegetation Management .....	140
Economic Effects .....	146
Soil Quality and Productivity .....	149
Proposed, Endangered, Threatened, and Sensitive Species (PETS) .....	155
Management Indicator Species (MIS) .....	158

Primary Cavity Excavators (Snags and Log Habitat) .....	159
Elk and Elk Security Habitat .....	161
Neotropical Migratory Birds .....	163
Noxious Weeds .....	166
Access and Travel Management.....	169
Recreation .....	170
Fire-fighter/Public Safety, Cost of Suppression, and Air Quality.....	171
D. Required and Additional Disclosures.....	173
IV. CONSULTATION WITH OTHERS .....	175
V. INTERDISCIPLINARY PARTICIPATION.....	176

#### APPENDICES:

- A. Alternative 2 – Data Table and Map
- B. Alternative 3 – Data Table and Map
- C. Fuel Models and Fire Behavior Results
- D. Public Comments to Environmental Assessment

#### **Changes Post Public Comment Period**

##### **Chapter 1**

**Page 4** – Added Lynx Amendment language to Proposed Action description.

**Page 6** – Added description of non-significant Forest Plan Amendment to Summary of Purpose and Need Introduction.

##### **Chapter 2**

**Page 45** – Description of Fuels Reduction Treatment Prescriptions/Objectives added.

**Page 45** – Edited HFU to take out confusing language.

**Page 47** – Clarified description of Amended Direction for Old Growth Below HRV.

**Page 48** – Clarified description of Wildland Urban-Interface Guideline for Allocated Old-Growth (MA15).

**Page 49** – Changed typo on cutting 21 inch trees to indicate trees less than 21 inches would be cut not greater than 21 inches.

**Page 49** – Clarified that there is over 7,000 acres of lynx habitat in the LAU not the planning area.

**Page 51** – Clarified Connective Corridor treatment outcomes.

**Page 70** – Fixed typos in table for Volume Recovered and Yarding Systems.

##### **Chapter 3**

**Pages 89 through 98** – Edited the Wildlife Resource – Old Growth section to better clarify HRV conditions and environmental consequences.

**Page 136** – Clarified description of prescribed fire effects on water quality.

**Page 139** – Clarified description of fireline construction effects on fish habitat.

**Page 156** – Clarified discussion for gray wolf and Canadian lynx.

**Page 157** – Clarified discussion on the Forest Plan Amendment for Canadian lynx.

**Pages 158 through 160** – Clarified introduction for Management Indicator Species.

**Pages 159 through 161** – Clarified discussion for Primary Cavity Excavators.

**Pages 161 through 162** – Clarified discussions for Elk and Elk Security Habitat.

**Pages 163 through 166** – Clarified discussion for Neotropical Migratory Birds.

**Page 164** – Edited paragraph on Fire-fighter and public safety to remove an incorrect sentence left from an earlier project.

**MT. EMILY FUELS REDUCTION  
ENVIRONMENTAL ASSESSMENT**  
La Grande Ranger District  
Wallowa-Whitman National Forest

## **Chapter One: Purpose of and Need for Action**

### **A. Introduction**

The purpose of this Environmental Assessment (EA) is to evaluate the environmental impacts of proposed activities designed to reduce fuels and associated fire behavior in the stands of timber adjacent to the communities immediately adjacent to or within the wildland urban interface on Mt. Emily.

### **B. Proposed Action**

#### **Introduction**

The project area is a priority to treat due to its proximity to a community at risk and potential fire behavior from heavy fuel loadings. Proposed treatments and their priority for treatment in the project area are based on their proximity to private property and strategic locations for fire suppression activities (see map in Appendix A).

Treatment priorities within the project area are as follows:

**Priority one** areas include National Forest lands closest to the Mt. Emily Wildland Urban Interface (WUI) and Mt. Emily Electronic site (Electronic Towers, buildings, and microwave dishes).

**Priority two** is a ¼ mile corridor adjacent to forest roads 3120 (portion of) and 3120500. These roads provide access for fire suppression activities. The 500 road follows a ridge top for logical suppression operations in the event of a wildfire.

**Priority three** includes two ridge systems west of forest road 3120. These ridges are logical strategic locations for fire suppression activities and are accessed by forest roads 3120600 and 3120450.

#### **Priority One Areas**

**Fuels Treatment** - The treatment objectives are to reduce flame lengths, crown fire and spotting potential and improve forest health (i.e. reduce insects, disease, overstocking, fuel loadings, etc). The project proposes vegetation treatment along the north/south forest boundary along the east side of the project area, which is immediately adjacent to private land (see map in Appendix A). A corridor inside the forest boundary would receive fuel reduction treatments in forested stands that have high levels of crown density, ladder fuels and surface fuels.

Corridor treatments include a combination of thinning trees (HTH), fuels reduction work (HFU), and precommercial thinning and cleaning (SPC/RCN). Removal of forest products resulting from these treatments would occur on approximately 892 acres.

The description of these treatments is as follows:

- 1) (HTH) Thinning trees (up to 21 inches) to reduce crown and surface fuels. A thin from below would emphasize smaller diameter trees. Approximately 714 of the 892 acres will receive this treatment as part of the combined prescription.
- 2) (HFU) Removing dead standing and down trees to reduce fuel loadings; fuel tonnages over 25 tons per acre would be treated to bring levels to a range of 7-25 tons per acre. All 892 acres would receive this treatment.
- 3) (SPC/RCN) Cleaning (cutting or burning) to remove small suppressed trees to reduce ladder fuels. All 892 acres will also receive this treatment.

**Roadless area** - The treatment corridor would extend into the North Mt. Emily Inventoried Roadless area (IRA). Treatment within this corridor would be the same as described above under fuels treatment and no roads would be constructed within the IRA, temporary or otherwise. Helicopter and ground based equipment would be utilized for removal (depending on slope and accessibility), piling, and burning. Approximately 94 acres of thinning, fuels reduction, cleaning, and pile burning would occur within the priority one area portion of the roadless area.

**Bull Canyon Old-Growth** - A ¼ mile treatment corridor would extend into the allocated old-growth (MA - 15). Treatment within the allocated old growth is proposed because it meets the purpose and need of reducing fuels on National Forest lands adjacent to Wildland Urban-Interface. Approximately 188 acres of the Bull Canyon Old-Growth (portions closest to private lands) would receive similar treatment as described above, to include thinning, fuels reduction, cleaning and pile burning. Treatment would retain large trees and down logs and would retain the allocated old growth in a suitable old growth condition while reducing ground, ladder, and crown fuels.

The Forest Plan does not address entering allocated old growth to reduce fuels and modify fire behavior within WUIs. A site-specific non-significant Forest Plan amendment is recommended to treat within the Bull Canyon Old-Growth (more details about Forest Plan amendments are provided in Chapter Two).

**Treatment in Late/Old Structure (LOS) Below HRV** – Approximately 42 acres would be treated in LOS stands that are below the historic range of variability (HRV). These stands are within biophysical group G4. Treatment would retain larger trees and down logs for old-growth habitat while reducing stand density. Treatment activity would require a site-specific non-significant Forest Plan amendment.

**Mt. Emily Electronic Site Treatment** – Although this area is geographically closer to priority area two, it is included in priority area one in order to protect the electronic equipment on Mt. Emily. This equipment represents a large investment from several communication companies and is an important component of the communication infrastructure of the Grande Ronde Valley. Treatment would include approximately 31 acres within and adjacent to the communication site. Trees would be thinned from below to reduce crown density. Small trees and brush would be cut to remove ladder fuels. All thinning slash, brush, and ground fuels over 20 - 25 tons to the acre would be piled and burned. No commercial removal is expected, as these are smaller diameter trees (less than six inches diameter).

## **Priority Two Areas**

**Fuels Treatment** - Treatment objectives are to modify fire behavior and intensity, maintain access, and increase safe suppression options in the event of a wildfire. Fuel corridor areas are considered anchor points for suppression tactics should a wildfire occur. A treatment corridor would be established along two segments of forest roads 3120 and the entire length of forest road 3120500. The first segment of 3120 starts at the Forest boundary in T2S, R37E, section 12 and goes north to the southern junction of 3120500 in T1S, R37E, section 36. The second segment starts at the northern junction with 3120500 in T1S, R37E, section 29 and continues north to the Forest boundary.

Approximately 1/8-mile wide treatments would be applied on either side of the roads identified (approximately 683 acres). The 1/8 mile wide treatment corridor would vary slightly in location should a more logical topographic or vegetative break dictate a narrower or wider strip.

Treatment includes:

- 1) Removal of down and standing dead wood (HFU) to a range of 20-25 tons per acre on 683 acres.
- 2) Small-suppressed trees that contribute to ladder fuels would be cut, removed, or piled and burned (SPC/RCN/FHB) on 683 acres.
- 3) Thinning (HTH) would occur on 599 of the 683 acres to remove crown bulk density and ladder fuels.
- 4) Hand or mechanical piling and burning would occur as needed across the entire 683 acres. Hazard trees would be removed to prevent them from blocking vehicle access in the event of wildfire suppression activities.

**Roadless area** - The 1/8-mile treatment corridor extends into the southwest portion of the North Mt. Emily Inventoried Roadless area (IRA). Treatment would be the same as described above under priority area two, fuels treatment. No roads would be constructed with the IRA, temporary or otherwise. Helicopter and ground based removal, in addition to piling and burning would be the primary tools utilized to achieve the fuel reduction objectives in this area. Approximately 61 acres of thinning, fuels reduction, cleaning and pile burning would occur within the priority area two portion of the roadless area.

**Treatment in LOS Below HRV** – Approximately 85 acres would be treated in LOS stands that are below the HRV (biophysical group G4). Treatment would retain larger trees and down logs for old-growth habitat while reducing stand density to the lower management zone. Treatment activity would require a site-specific non-significant Forest Plan amendment (same as above in priority one).

**3120 Road Safety Corridor** - The 3120 road from the southern junction with 3120500 to the northern forest boundary is a main access route. Fire suppression vehicles would rely on this road for quick access to the top of Mt. Emily. Treatment along this section of the 3120 road would include snag removal (to Forest Plan guidelines), removal of down fuel accumulation, and cleaning (cutting, piling and burning of suppressed trees). Approximately 200 feet on either side of the road would be treated. The objective is to create a safe travel corridor in the event of a wildfire burning through the area. The concern is burning snags adjacent to the road would create a safety hazard should they fall across the road; possibly blocking the road or striking fire suppression equipment or personnel.

### **Priority Three Area**

**Fuels Treatment** - The treatment objectives are to modify fire behavior and intensity, and to increase suppression options in the event of a wildfire. The areas selected (two secondary ridge systems) are considered alternative anchor points to the 3120 and 3120500 roads (priority area two). These ridges are furthest away from the Mt. Emily WUI and are secondary ridges to the ridgetop of Mt. Emily; therefore, this area is lower in priority than the previous two.

However, these two ridges have topographic significance, as alternative options are required in fire suppression tactics. The strategic value increases due to the relative easy access made possible by the 3120600 and 3120450 road systems. One ridge is located above (east of) the 3120600 road while the other is a mile to the north, above (east of) the 3120450 road (see map). Both ridges are located in the western portion of the project area.

Fuel corridors would be created on the ridges using treatments similar to priority areas one and two. Total treatment area for both ridges is approximately 394 acres. These areas have particularly high down fuel loadings.

Treatments include:

- 1) Removal of down and standing dead wood (HFU). Fuel tonnages would be reduced to 20-25 tons per acre on all 394 acres.
- 2) Small-suppressed trees that contribute to ladder fuels would be cut, removed, or piled and burned (SPC/RCN/FHB) on all 394 acres.
- 3) Thinning would occur on 356 of the 394 acres to remove crown bulk density and ladder fuels.
- 4) Hand or mechanical piling and burning would occur as needed on the entire 394 acres. Hazard trees would be removed to prevent them from blocking vehicle access in the event of wildfire suppression activities.

**Roadless area** – No mechanical treatment is proposed within the North Mt. Emily IRA. Mechanical treatment and prescribed fire is proposed in the Mt. Emily IRA (see more below under Prescribed Burning).

**Treatment in LOS Below HRV** – Approximately 114 acres would be treated in LOS stands that are below the HRV (biophysical group G4). Treatment would retain larger trees and down logs for old-growth habitat while reducing stand density to the lower management zone. Treatment activity would require a site-specific non-significant Forest Plan amendment.

### **Common Activities to All Three Priority Treatment Areas**

**Removal methods** - Ground-based removal of trees would typically occur on slopes less than 35% that have current road access or could be accessed with temporary spur roads. On areas over 35% slopes, or with inadequate road access, removal would likely occur via helicopter or skyline. Total acres planned for removal is 1,021 ground-based acres and 762 helicopter acres.

**Road Construction and Reconstruction** - Approximately 1.0 mile of temporary spur roads are needed to facilitate removal of the materials (priority area one only). No new permanent road construction is proposed. Approximately 2.5 miles of reconstruction of Forest Road 3120500 is proposed to improve drainage, reduce erosion and sedimentation, and reinforce the subgrade (priority area two only). Reconstruction would install drainage devices such as dips, culverts, diverters and geotextile cloth in needed areas. Ditches would be reconditioned and/or installed and road portions would be resurfaced with crushed aggregate.

**Riparian areas** - Riparian areas would not receive harvest removal. Cleaning and non-commercial thinning of small diameter trees (less than 7 inches) would occur, but only if riparian management objectives (RMOs) for shading and future log recruitment were retained. Cleaning/thinning would be done using chain saws, no ground-based equipment would be allowed inside riparian areas. Slash would be lopped and scattered or piled and burned.

**Prescribed Burning** – Approximately 1,622 acres of prescribed burning is proposed across all three priority areas. Fire would be re-introduced over periodic intervals in fire-adapted forested plant communities and natural openings, using low-intensity prescribed fire. Burning would reduce litter, duff, and 0-3 inch fuels. Burning would also reduce stocking and fir encroachment, promote development of seral species, and enhance forage and browse for domestic and wildlife species. Reintroduction of fire would help restore more historic conditions. Prescribed burning is proposed in 1,059 acres of priority area one, 146 acres in priority area two and 417 acres in priority area three.

Of the acres treated above, approximately 270 acres of burning would occur in North Mt. Emily IRA and 16 acres in Mt. Emily IRA. Prescribed fire would also be allowed to back in to riparian habitat conservation areas (RHCAs).

**Lynx Amendment** - The Canada lynx was listed as a threatened species under the Endangered Species Act by the US Fish and Wildlife Service in March 2000. To protect lynx and lynx habitat, the Forest implemented the Canada Lynx Conservation Assessment and Strategy (LCAS; Ruediger et al.

2000). This project would adoption of the standards and guidelines of the Canada Lynx Conservation Assessment and Strategy, August 2000, as the third section of the non-significant, project-specific Forest Plan amendment for the action alternatives.

## **C. Purpose and Need**

### **1. Introduction**

#### **National Fire Plan, 10-year Comprehensive Strategy, and Healthy Forest Initiative**

In April 1999, the General Accounting Office (GAO) published a report entitled, "Western National Forests: A Cohesive Strategy is needed to Address Catastrophic Wildfire Threats" (GAO/RCED -99-65). In this report, the GAO asserts, "The most extensive and serious problem related to the health of national forests in the Interior West is the over-accumulation of vegetation." In October 2000, the Forest Service responded with a report entitled, "Protecting People and Sustaining Resources in Fire-adapted Ecosystems: a Cohesive Strategy to Reduce Over-Accumulated Vegetation."

In August 2000, the President directed the Secretaries of Agriculture and the Interior to develop a report of recommendations to respond to severe ongoing fire activity, reduce fire impacts on rural communities and the environment, and ensure effective firefighting capacity in the future. This report resulted in what is known as the National Fire Plan, which Congress later supported through appropriations language in 2001. The National Fire Plan laid the foundation for a long-term program of work to reduce fire risk and restore healthy fire-adapted ecosystems. As part of its direction, Congress mandated several reporting requirements including the creation of a coordinated strategy which emphasizes a commitment over time, based upon cooperation among federal agencies, states, local governments, tribes and interested parties.

What followed was a 10-year comprehensive strategy plan developed to implement the National Fire Plan through reducing the risk of wildland fire to communities and the environment. The goals and guiding principles of the strategy include:

Goals:

- 1) Improve Fire Prevention and Suppression
- 2) Reduce Hazardous Fuels
- 3) Restore Fire-Adapted Ecosystems

The National Fire Plan process identified the rural community adjacent to Mt. Emily as high risk and high priority for treatment due to the intermingling of homes and vegetation, potential fire behavior and existing fire protection capabilities. A local collaborative group comprised of government agencies and interested publics recommended treatment under the guidelines of the National Fire Plan. A common theme for all landowners in the area is vegetation modification to effect fire behavior and ultimately the reduction of the risk of damage to or loss of property. The Mt. Emily Fuels Reduction Project on Forest Service public land was initiated to complement all National Fire Plan work, either accomplished or in progress, on the adjacent state or private land within the wildland fire interface area.

Oregon Department of Forestry (ODF) is working with private and industrial landowners under the National Fire Plan (NFP) in the Mt. Emily area to reduce wildland fuels. ODF is providing technical as well as cost-share assistance to these landowners. Currently, ODF provides two different forms of cost-share assistance to landowners in the NFP area. A flat rebate is awarded to landowners who choose to treat the 1-acre home site. Additional cost-share is provided at a 75% rate for acreages outside the home site, or to landowners with no structure on the property. These projects include precommercial thinning, pruning, brush reduction and slash treatment. ODF has advocated for large parcels of fuels to be treated in the Mt. Emily area in order to create community fuel breaks that adjoin the Mt. Emily project boundary.

To date, approximately 80 of the 215 homes within the Mt. Emily analysis area boundary have been assessed. In addition, an estimated 1,000 acres have been slated for treatment.

In the summer of 2002, the Healthy Forest Initiative was released. The initiative recognizes fuel treatments as being a solution to large destructive fires. This initiative supports the 10-Year Comprehensive Strategy and emphasizes procedural improvements, enhancing management effectiveness, and research to improve and accelerate forest management.

**Summary** – This project is proposed under the direction of the above national programs, reports and strategies. The purpose of the project is to respond to fire risk by modifying fire behavior potential on public lands and to respond to ecological risk with active management to restore fire-adapted ecosystems. The need for the project is due to urban development adjacent to public lands (protection of life and property), hazardous fuels build-up (reduce fuels) and ecological systems out of balance (restore fire-adapted ecosystems).

There is also a need for this project to modify the Wallowa-Whitman National Forest Plan through a non-significant Forest Plan amendment for fuel reduction treatments in allocated and non-allocated old growth, and in Canada lynx habitat. The Wallowa-Whitman National Forest Plan was signed in 1990. Over the ensuing years, new information has come out of a variety of sources such as those cited above, which have not been studied and integrated with the resource protection and objectives of the outdated Forest plan. In order to integrate these other resource needs with the fuels objectives and needs within a WUI, a non-significant forest plan amendment would be needed as part of this decision to deal with fuel treatment needs within this wildland urban interface (WUI).

## **2. Current and Desired Conditions, Purpose and Need**

### **a) Fire Behavior Potential**

#### ***Current condition / Fire Occurrence –***

Northeast Oregon has a high wildfire occurrence rate, primarily due to lightning activity that occurs during the summer and fall months. The Mt. Emily modeling area (40,360 acres) had 129 documented ignitions that occurred on National Forest and private lands from 1970 through 2000. This equates to approximately 43 fires per decade, or .10 fires per 1,000 acres per year. The Mt. Emily project area (7,295 acres) has 24 documented ignitions that occurred on National Forest system lands on the La Grande Ranger District from 1970 through 2000; approximately 8 fires per decade, or .11 per 1,000 acres per year. The project area has a fire occurrence rate 83% higher than the Wallowa-Whitman National Forest occurrence rate (see table, page 3 of existing condition report for fire/fuels).

Of the total 24 fires occurring within the Mt. Emily project area, 63% were lightning caused and 37% human-caused. The human caused fire risk within the Mt. Emily project area exists due to proximity to private land and homes, and the area is approximately 8 miles north of La Grande and experiences a high level of use from hunters, berry pickers, hikers, horseback riders, and other recreationists.

Within the project area, sixty three percent of the documented ignitions occurred in the months of July and August. The Frizzell fire is the only fire greater than 100 acres within the project area over the past 31 years. However, there have been nine fires greater than 100 acres within 10 air miles of the project boundary (reference fire history map).

**Summary:** The fire occurrence rate for the Mt. Emily project area is high (83% higher than the entire Wallowa-Whitman National Forest), sixty three percent of the fires occurred in July and August (hottest driest time of the year), most of the fires were lightning caused (ignition cause not preventable), and approximately forty-five percent of the fires that occurred on the Forest

occurred on days with multiple fire starts (limited suppression resources or delayed initial attack times).

### ***Current condition / Fuel Conditions –***

Past management actions (limited vegetation management and aggressive wildfire suppression) combined with insects and disease (reference silvicultural existing condition report) within the project area have influenced existing fuel conditions. Fuel build-up is accumulating in the form of dead and down trees, small diameter trees growing into the overstory, and dense crown conditions. These conditions have increased the potential for a ground fire to transition into a crown fire. Heavy accumulations of surface fuels and/or crown fires increase the potential for spotting to occur (spotting occurs when sparks or embers are carried by convection columns and/or wind or gravity starting new fires beyond the main fire).

*Surface Fuels:* In the absence of wildfire or active management surface fuel loading is accumulating. The fuel loading ranges from 15 - 80 tons per acre. There are areas with heavy dead and down material (30 – 60 tons per acre) within priority areas one, two, and three.

*Ladder Fuels:* Ladder fuels are intermediate shrubs, bushes, and trees that bridge the vegetation gap between surface fuels and tree crowns; thus the term ladder fuels. The presence of ladder fuels is another measure to help determine a surface fire's potential to spread into crowns. Crown fires can be more difficult to control. Canopy base height is the average height of the base of the tree crowns from the surface and would be used as a tool to measure ladder fuels. Flame length (related to surface fuels) and canopy base height can be used to estimate whether fire can travel into the crowns.

*Crown Fuels:* Canopy bulk density has increased in the project area. Canopy bulk density is key for determining if a fire reaching into the canopy has sufficient fuel to support a crown fire. Neither crown nor canopy bulk density can be directly measured. Instead they are mathematically estimated based on individual tree characteristics such as tree height and crown ratio. Overstocked conditions can be an indication of high canopy bulk density.

***Summary*** – There are high levels of surface, ladder, and crown fuels within the project area.

*Surface fuel loadings, canopy base height, and canopy bulk densities* contribute to fire behavior. The transition to a crown fire is dependent on surface fire intensity and flame lengths and canopy base height (see definition below for canopy base height).

### ***Desired condition – vegetation and fuel conditions***

Desired future vegetation and fuel conditions adjacent to the urban community of Mt. Emily and electronic site (priority one area) are those that reduce spotting potential, crown fire hazards, and detrimental fire effects, and improve opportunities to safely attack a wildfire. Desired levels of surface fuel loadings are from 5 to 25 tons per acre, with five tons or less in material 3 inches or less in diameter. It is desired to maintain fuel models 1, 2, 8, and 9 and to move fuel model 5 and 10 acres to fuel model 8 or 9. Desired crown base heights are 10 feet high or greater (based on foliar moisture content of 100% and four foot or less flame lengths). Desired fire behavior includes flame lengths four foot or less, torching and crowning indices less than 20 (20' level wind speeds less than 20 mph), and reduced spotting potential with 97th percentile fire danger conditions (worst case conditions).

Desired future fuel conditions along the ridges to the west and above the community (priority areas two and three) are those that reduce flame lengths to four feet or less, reduce spotting and crown fire hazards, and improve fire fighter safety, access, and options for suppression actions along these strategic ridges. Desired levels of surface fuel loadings are from 20 to 25 tons per acre with five tons or less in material three inches or less in diameter (desired fuel

models are 8 and 9). Desired crown base heights are between 10–20 feet high (based on foliar moisture content of 100% and four foot or less flame lengths).

**The following summarizes desired fire and fuel conditions:**

Desired fuel surface and crown fuel conditions and fire regime condition for each of the priority areas include:

- Crown Base heights > 10 feet
- Crown Bulk Densities < 0.037 kg/m<sup>3</sup>
- Fuel loading < 3" diameter in size at < 5 tons per acre
- Total fuel loading for priority areas between 7 – 25 tons per acre
- Fuel Model 10 acres converted to Fuel Model 8
- Return or maintain fire regimes 1, 2, and 3 in a condition class 1

Desired Fire behavior outputs for all the priority areas include:

- Flame lengths < four feet
- Torching and crowning indices < 20 mph
- Potential mortality in trees > 12 inches diameter breast height (DBH) < 10%
- Potential spotting less than .25 miles

***Purpose and Need of Modifying Fire Behavior –***

There is a need to actively manage crown densities, ladder fuels, and surface fuels in order to reduce the potential of crown fire ignition and spread. Thinning would alter stand canopy characteristics. Canopy bulk density would be reduced, providing separation between tree crowns. Thinning would remove ladder fuels that could carry ground fire into the crowns of trees. Thinning would reduce stand densities that can result in insect and disease mortality, resulting in increased fuel loads.

Without treatment, crown canopies would continue to overlap until a natural disturbance (insects, disease, fire, etc.) alters the condition. Current canopy densities have a greater potential for individual tree torching to spread to adjacent trees and perpetuate crown fires. Without treatment, ladder fuels would increase, providing fuel for ground fires to reach crowns. Without treatment, stand densities would increase tree competition, leading to tree mortality and fuel build-up from insects and disease.

There is a need to manage surface fuels to acceptable levels. At managed levels, surface fuels would contribute to fewer crown fires and would allow a foothold for suppression activities. Mechanical removal or cleaning, hand piling and burning would reduce surface fuels to manageable and safe levels. Reduced fuel loading combined with the reduction of ladder and crown fuels, would reduce flame heights as well as spotting and crown fire potential.

There is a need to provide treatment, which with proper maintenance would modify crown fire potential for ten to twenty years. Treatment modifying crown fire potential for a longer period of time would offer more security to the Mt. Emily WUI and provide more management options for the Forest. A longer period of reducing crown fire potential also suggest more open stand conditions in fire-adapted ecosystems, which would allow an opportunity to re-introduce fire on the sites. Without a treatment that would provide five to twenty years of modifying crown fire potential, repeated entries every 5-10 years would be necessary to reduce crown fire potential. This type of maintenance would be costly and difficult to implement as the Forest continues to operate under limited budgets and resources. Without a long-term treatment that would open stand conditions on fire-adapted ecosystems, opportunities to re-introduce fire within historic range of conditions on these sites would likely be forgone.

There is a need to provide defensible space for fire-fighting crews to safely approach a wildfire. Modifying fire behavior would provide fire suppression resources an opportunity to directly attack a wildfire. Often, a reduction of surface and ladder fuels combined with ridge top locations, or near ridge top roads, provides an area that can alter fire behavior of an oncoming wildfire and provide a strategic location to safely anchor suppression activities. Mechanical removal and/or burning to reduce fuel loadings at these locations would provide options to fire suppression managers during wildfire operations.

Without mechanical removal, cleaning, or burning of fuels, flame heights would be higher with increased probability of ground fires moving into crowns. Without mechanical removal, cleaning or burning of fuels there would be fewer firefighting options for safely attacking a wildfire.

## **b) Fire Adapted Ecosystems**

### ***Current Condition – Fire Return Intervals and Regimes***

A majority of the project area is outside historic fire return intervals as described by condition classes. Condition classes represent a range of departure from historic conditions. Condition class three represents the highest departure from historic conditions, while condition class one represents near historic conditions. High canopy closure, multiple layers of stand structure, and high numbers of trees are indicators of deviation from historic conditions in fire-adapted ecosystems.

Forty-four percent of the project area is classified as fire regimes one and three that are fire-adapted ecosystems. The fire regime classification system is based upon vegetation development with fire as a disturbance. The Mt. Emily project area contains 372 acres (5% of the area) of fire regime one (located mostly on lower elevation south slopes). These sites have historic fire return intervals of 0-35 years. All 372 acres are outside historic fire return intervals. The majority (319 acres) of fire regime one is significantly altered from the historic range due to a departure from historic fire frequencies (condition class three). The remaining 53 acres are moderately altered from their historic range (condition class two).

The area also contains 2,817 acres of fire regime three (39% of the area; interspersed throughout the project area). These sites have historic fire return intervals of 35-100 years. Fires associated with this fire regime result in a mixture of fire effects, but the majority of effects are associated with low to moderate severity. The majority (2,698 acres) of fire regime three is classified as condition class three which has the potential to burn more intensely. The remaining 119 acres fall under condition class two.

Historically, in fire regimes one and three, fuel accumulation was prevented and regeneration was limited, so surface fires tended to be of low to moderate severity, with small patches of high severity, and did not result in large crown fires. However, the project area has not experienced natural fire frequencies for the past half-century or more due to suppression activities.

Fire suppression has led to a change in species composition and structure, and an increase in fuel loadings. These changes are especially prevalent on the lower slopes of Mt. Emily (closest to the urban-interface) and increase the potential for large stand replacing fires.

### ***Desired Condition – Fire Return Intervals and Regimes***

The desired future condition class within fire regimes 1, 2, and 3 within the Mt. Emily project area is condition class one. Fire return intervals within the analysis area were primarily low and mixed severity, and played an important role in shaping and maintaining the vegetative communities and wildlife habitat. Maintaining these low and mixed severity fire regimes over

time will minimize the loss of Late and Old Structure and wildlife habitat for the vast majority of species that evolved within the historic fire regimes.

### ***Purpose and Need of Restoring Fire Adapted Ecosystems –***

There is a need to manage towards returning landscape conditions closer to historic levels. Fire regimes one and three historically burned with low to moderate severity. Mechanical treatments such as thinning and cleaning would reduce canopy bulk densities, ladder fuel conditions, and tree densities. Stands would be opened up to allow for the re-introduction of beneficial ground fire.

Without treatments, condition classes two and three would continue to dominate the landscape with increased canopy densities, multiple layers of stand structure and high numbers of trees. This would result in an increased probability of stand replacing crown fires. Without treatment, a management option to re-introduce fire using low-intensity prescribed burning is extremely limited.

There is a need to manage for fire resistant tree species. Thinning would reduce numbers of less fire resistant species (true fir), and promote fire resistant species such as pine, larch and some Douglas-fir. Thinning would also reduce the risk of insect infestations, which can reach epidemic levels in overpopulated stands, increase tree mortality and fuel loadings.

Without treatment, less fire resistant tree species would continue to occupy growing space, increasing the probability of stand replacement fire in fire regimes one and three that were historically maintained by low and mixed intensity fires. Without treatment, dense stands would be at higher risk of insect mortality, adding to surface fuel loadings and increased fire hazards.

There is a need to reintroduce fire as a disturbance factor and to move toward a more historic fire frequency, and there is a need to reduce surface and ladder fuels to modify flame lengths and potential of ground fire reaching crowns.

Without re-introduction of fire, fire regimes one and three would continue their departure from historic conditions. Condition class three acres (greatest departure from historic conditions) would increase, with greater risk of damaging crown fires adjacent to the Mt. Emily Urban-Interface community.

## **c) Old Growth Management Within WUI**

### ***Current Condition – Old Growth***

The Forest Plan does not consider in detail safety and protection of private property in areas of wildland urban interface (WUI). Recent National direction has stressed reducing the risk of wildland fire to communities, to include reducing hazardous fuels. A balance of the two management directions should be applied to this project.

### **Allocated old growth (MA-15) –**

Forest Plan management allocations within the Mt. Emily WUI include two allocated old-growth (MA -15) areas, Bull Canyon and Emily. Bull Canyon adjoins the Forest boundary at the east edge of the project and Emily is within one mile of the Forest boundary. The Forest Plan restricts scheduling timber harvest in healthy, functioning MA -15. The Forest Plan does not consider treatments in MA -15 to reduce the risk of wildland fire to communities and reduce hazardous fuels.

The question has been raised, should fuels reduction in this project occur within allocated

old growth, and if so, how does one retain old growth features while meeting fuels objectives? There is a concern that deferred treatment in allocated old growth within the Mt. Emily WUI would compromise the effectiveness of adjacent fuel reduction treatments. There is also a concern that treatment in allocated old growth would compromise old growth habitat (i.e. – there would be loss of valuable wildlife habitat).

The Forest Plan provides direction for defining old growth and old growth habitat. Old growth habitat is measured by levels of down wood, snags, number of canopy layers and large trees (See Forest Plan at 4-89 and 4-90 and Regional Foresters amendment #2, known as Screens; see also Wallowa-Whitman National Forest Recommended Definitions for New Structure Stages per Amendment #2, November 9, 1995).

#### **Mapped old growth –**

The project area includes approximately 1,837 acres of multi-strata mapped old growth (MSLT), of which 49 percent is in biophysical group G4. Typical characteristics present in this ecoclass are multi-layer canopies, very high fuel loadings (often well over 20 tons per acre), and high levels of mortality due to disease and insects. Over 90 percent mapped old growth is outside of allocated old growth (see discussion of managing old growth under key issues, later in this chapter). Biogroup G4 is associated with fire regimes 3 and 4 (see fire regime discussion under key issues, later in this chapter). Fire frequencies can occur between 35-200 years (long-term intervals).

Biogroup G4 is below the HRV (see HRV analysis later in this EA under key issues). The Forest Plan restricts treatment in biogroups that are below the HRV. Because of this restriction, there is a need to amend the Forest Plan with this project for mechanical treatment of old growth below HRV to reduce the risk of fire and hazardous fuels.

#### ***Desired Condition – Old Growth***

Snags, down wood and large tree structure would be retained to Forest Plan levels while reducing crown, surface and near surface fuels within the wildland urban interface. Crown fuels would be reduced to slow crown fire development. Surface and near surface fuels would be reduced to sustain ground fires, and retard development of ground fires to sustained crown fires. Multi-structure would be retained in biophysical groups according to historic ranges.

#### ***Purpose and Need of Managing Old Growth Adjacent to WUI –***

There is a need to manage old growth stands adjacent to private land in order to effectively manage vegetation for fuels reduction and fire behavior modification. National policies are increasingly directing the Forest Service to manage Forest lands in order to protect communities from wildland fire. Commitment to retaining and promoting old growth structure may weigh in against the commitment to protect communities.

#### **Allocated old growth (MA-15) –**

There is a need to treat allocated old growth within the Mt. Emily WUI in order to assure effectiveness of adjacent fuel reduction treatments. Treatment of allocated old growth would provide continuity of fuels reduction treatments within the Mt. Emily WUI. Fire behavior would be evenly modified across the Forest boundary landscape.

However, due to lack of direction from the Forest Plan on fuels reduction treatment in healthy allocated old growth adjacent to WUI, a non-significant Forest Plan amendment is recommended to treat in allocated old growth under this project. There is a need to amend the Forest Plan with this project for mechanical fuels reduction treatment in the Bull

Canyon allocated old growth.

Without treatments, a large area of high density crown and ground fuels would be retained within the WUI. The effectiveness of fuel reduction treatments would be compromised as a result of no treatment in the allocated old growth. Fire behavior and crown fire potential would not be reduced in the untreated allocated old growth, providing potential avenues for crown fire spread from private to public or public to private lands.

There is a need to maintain existing levels of allocated old growth in suitable condition, while considering treatment needs adjacent to communities. Such treatment should retain old growth habitat as measured by snags, down wood, large trees and structure or canopy layers (reference Forest Plan, Region 6 Interim Old Growth Definition, June 1993, USFS, and Recommended Definitions for New Structural Stages per Amendment #2, November 9, 1995 for old growth definitions). Treatment in healthy allocated old growth for fuels reduction objectives would be similar to treatment in mapped old growth for the same objectives. It is expected that treatment of healthy allocated old growth applying Forest Plan guidelines for retaining snags, logs and large diameter trees would maintain the old growth habitat in a condition suitable as MA -15.

#### **Mapped old growth –**

There is a need to reduce high fire severity and stand replacing events in biogroup G4. Although in some portions of G4 these are considered normal occurrences, the consequences of high fire severity adjacent to the Mt. Emily Community may be unacceptable. The integrity of all fuels reduction efforts may be compromised should the entire interface area not be treated equally for modification of fire behavior.

There is a need to actively manage crown densities, ladder fuels, and surface fuels within mapped old growth adjacent to WUIs. Thinning would alter stand canopy characteristics. Canopy bulk density would be reduced, providing separation between tree crowns. Thinning would remove ladder fuels that could carry ground fire into the crowns of trees. Thinning would reduce stand densities that can result in insect and disease mortality, resulting in increased fuel loads.

Without treatment, crown canopies would continue to overlap until a natural disturbance (insects, disease, fire, etc.) alters the condition. Current canopy densities have a greater potential for individual tree torching to spread to adjacent trees and perpetuate crown fires. Without treatment, ladder fuels would increase, providing fuel for ground fires to reach crowns. Without treatment, stand densities would increase tree competition, leading to tree mortality and fuel build-up from insects and disease.

**Both old growth categories –** There is a need to maintain the integrity of fuel reduction efforts in the Mt. Emily WUI by including treatment of old growth stands. Treatment in both classes of old growth would provide continuity with adjoining treatments along the Mt. Emily interface (see purpose and need of Fire Behavior Potential). Treatment in both categories of old growth would require separate non-significant site-specific Forest Plan amendments.

Without treatment, spatial gaps would occur that may diminish the effectiveness of fuels reduction efforts.

Without treatment, crown canopies would continue to overlap until a natural disturbance (insects, disease, fire, etc.) alters the condition. Current canopy densities have a greater potential for individual tree torching to spread to adjacent trees and perpetuate crown fires. Without treatment, ladder fuels would increase, providing fuel for ground fires to reach crowns.

Without mechanical removal, cleaning, or burning of fuels, flame heights would be higher with increased probability of ground fires moving into crowns. Without mechanical removal, including cleaning or burning of fuels, there would be fewer firefighting options for safely attacking a wildfire.

There is a need to maintain existing levels of old growth in suitable condition, while considering treatment needs adjacent to communities. Such treatment should retain old growth habitat as measured by snags, down wood, large trees and structure (reference Forest Plan, Region 6 Interim Old Growth Definition, June 1993, USFS, and Recommended Definitions for New Structural Stages per Amendment #2, November 9, 1995 for old growth definitions).

#### **D. Decisions to be Made**

The Forest Supervisor of the Wallowa-Whitman National Forest is the official responsible for deciding the type and extent of management activities in the Mt. Emily analysis area. The responsible official can decide on several courses of action ranging from no action, to one of many possible combinations for treating the area, while deferring treatment of others.

The responsible official would decide on whether or not to amend the Wallowa-Whitman Forest Plan. This project proposes three separate non-significant Forest Plan amendments under both action alternatives; the amendments to be decided on include 1) mechanical treatment in MA15; 2) mechanical treatment in LOS below HRV; and, 3) mechanical harvesting/removal and prescribed/jackpot burning treatment in lynx habitat. Amendment specifics are provided in Chapter Two, Elements Common to the Action Alternatives.

The decision will also determine if the proposed action or alternatives to the proposed action might cause significant effects requiring analysis in an Environmental Impact Statement.

#### **E. Project Area Description**

The Mt. Emily project analysis area is in the geographical province of the Blue Mountains, including sections within T.1 and 2S, R. 37, and 38E, Willamette Meridian. The 7,295-acre project planning area is located in three watersheds; primarily in the Grande Ronde River - Hilgard watershed 87 (sub-watershed 87C) and Phillips-Willow Creeks watershed 84 (subwatersheds 84G and 84H), with a smaller portion resting in Grande Ronde River – Imbler watershed 17 (subwatershed 17E).

The 7,295 acre project area is part of a large analysis area (approximately 40,360 acres) which includes Umatilla National Forest, private, and state lands.

The project area lies approximately 8 miles North of La Grande, Oregon and is adjacent to approximately 15,760 acres of private and industrial land, including 209 homes. Major drainages in the area include Lyons Canyon, Frizzel Creek and Bull Canyon. The elevation ranges from 3,400 feet along the east side of the project area (adjacent to most homes) to 6,000 feet (along Forest Road 3120 and 3120500).

The Mt. Emily Fuels Reduction project is being coordinated with fuel reduction and "FIREWISE" projects and education efforts occurring on adjoining private and state lands and the Umatilla National Forest.

**Roadless** - The project area enters portions of the 5,400 acre North Mt. Emily Inventoried Roadless Area (IRA). While the majority of the IRA area lies on the adjacent Umatilla National Forest, approximately 744 acres on the Wallowa-Whitman are within the Mt. Emily Fuels Reduction project area.

The project area also enters approximately 84 acres of the Mt. Emily IRA. The Mt. Emily IRA is approximately 8,822 acres and lies entirely on the La Grande Ranger District. The Hell Hole IRA lies NW of the project area and is adjacent to the N. Mt. Emily IRA and the Mt. Emily IRA (see maps in Appendix A and B).

## **F. Desired Condition**

The desired condition includes a range of structural stages that approximates the historical range of structural stages by biophysical group. These ranges tier to the Forest Plan, Regional Forester's Amendment #2.

Stands of varying structure and age, dispersed on a landscape level will provide a mixture of forage and thermal cover for big game, and LOS for old-growth dependent species. It is desirable for structural stages to be consistent with historical disturbance patterns, in terms of species composition and stocking levels.

It is desired to maintain tree stocking at acceptable levels and species composition within the historic ranges that are sustainable. Sustainability suggests stocking levels and species composition less prone to high intensity fires, epidemic insect and disease outbreaks.

It is desired to maintain fire adapted forest communities through natural or prescribed fire. A fire disturbance would promote seral species composition of ponderosa pine, western larch, and Douglas-fir and tree densities and crown canopy closures within a range of historic conditions found in fire regimes one and three. Fewer ladder fuels and ground fuels would accumulate, incrementally reducing the risk of a high intensity, damaging crown fire.

It is desired to maintain low severity fire return intervals (1 to 35 years) in fire regime one. In fire regime three, it is desired to maintain vegetation conditions that provide mixed severity effects, with low to moderate severity dominating. Maintaining these low to moderate severity fire intervals will minimize fuel accumulation, limit tree regeneration, and promote fire tolerant species such as ponderosa pine, larch, and some Douglas-fir.

For fire regime groups three and four (Biophysical Groups G3 – lodgepole pine, and G4 – mesic grand fir), the desired conditions are fuel profiles which support fire return intervals within a range of 35 to 100 years of mixed severity, and that minimize the extent of losses. Preferred fuel loadings are based on retaining adequate duff and coarse woody debris (CWD) required to minimize soil exposure and maintain a healthy soil profile.

It is desired to maintain water quality to a degree that provides for stable and productive riparian and aquatic ecosystems. Riparian management objectives and properly functioning conditions help determine the degree to which high water quality and riparian habitat is maintained.

## **G. Management Direction**

This EA tiers to the Environmental Impact Statement for the Wallowa-Whitman Land and Resource Management Plan (Forest Plan) and its amendments including, 1) The Regional Forester's Eastside Forest Plans Amendment Number 2 which incorporates interim ecosystem and wildlife standards, 2) The Regional Forester's Eastside Forest Plans Amendment Number 3 which incorporates PACFISH and provides interim strategies for managing anadromous fish-producing watersheds and, 3) The Regional Forester's Eastside Forest Plans Amendment Number 4 which incorporates INFISH and provides interim strategies for managing inland native fish-producing watersheds.

The analysis area is allocated under the Wallowa-Whitman Forest Plan and its Environmental Impact Statement to: Management area (MA) 3A – 4,150 acres, MA 3 – 2,564 acres, and MA 15 – 581. Management directions specific to the individual management areas in this analysis area are:

MA-3/3A – Similar to MA 1, this management area provide a broad array of Forest uses and outputs with emphasis on timber production. However, timber management is designed to provide near-optimum cover and forage conditions on big game winter ranges (MA 3) and selected summer ranges (MA 3A);

MA-15 - These areas are intended to maintain habitat diversity, preserve aesthetic values, and to provide old growth habitat for wildlife. Evidence of human activities may be present but does not significantly alter the other characteristics and would be a subordinate factor in a description of such a stand.

## H. Key Issues

This section identifies the issues associated with the proposed action. In addition, concerns related to the proposed decision are also discussed. The interdisciplinary team of Forest Service resource specialists developed this list of issues with input from public scoping. The issues and concerns are the basis for subsequent steps of the analysis in formulating alternatives or developing constraints and mitigation measures.

- **Manage Wildfire Risk on National Forest Lands Within the Mt. Emily Urban-Interface**
- **Manage Old-Growth Component Within the WUI; Old-Growth Currently Outside Historic Range**
- **Maintain Mt. Emily Scenic Quality**

Key issues were identified and subsequently used to develop a range of alternatives. The following section describes the key issues identified for this analysis and the key indicators used to evaluate each key issue. In all cases, other measurable aspects may be tracked throughout the analysis, however, they are supportive in nature and not considered key to the decision making process.

### Issue: Manage Wildfire Risk on National Forest Lands within the Mt. Emily Wildland Urban-Interface

Wildfire risk is critical to evaluating treatment needs in the Mt. Emily WUI. Is there a need to treat (reduce fuels), and if so, to what level? What is the potential of wildfires to occur and spread; and how do ecological conditions affect wildfire intensity? Wildfire risk will be analyzed in terms of Fire Behavior Potential and Ecological Risk. Both processes are used to determine fuel and fire conditions and evaluate risk.

#### A) Fire Behavior Potential–

Two areas were analyzed, fire occurrence and hazardous fuel conditions. In addition, modeling groups were developed to predict fire behavior potential.

##### I) Fire Occurrence:

An analysis of historic fire starts is one element of determining fire behavior potential. The question was raised, how often do wildfires start near or within the Mt. Emily project area, and how does this compare to other areas on the Forest?

Historic fire records from the Forest Geographical Information System (GIS) and Forest Oracle tables were analyzed. The following table (Table One) displays fire occurrence rates for the Wallowa-Whitman NF, the Upper Grande Ronde 4<sup>th</sup> field HUC Watershed, Mt. Emily Modeling area, and the Mt. Emily project area.

**Table 1. Fire Occurrence Rates**

	<b>Total Fires 1970 – 2000 (31 Years)</b>	<b>Average Annual Fire Frequency (1 Year)</b>	<b>Total Fires per Decade (10 Years)</b>	<b>Fire Occurrence Rate per Thousand Acres Per Year</b>
<b>Wallowa-Whitman NF</b> (2,521,280 acres)	4,793	154.61	1,598	.06
<b>Upper Grande Ronde Watershed</b> (472,268 acres)	688	22.19	229	.05
<b>Mt. Emily Modeling Area</b> (40,360 acres)	129	4.16	43	.10
<b>Mt. Emily Project Area</b> (7,295 acres)	24	.77	8	.11

The Mt. Emily project area has a fire occurrence rate 83% higher than the Wallowa-Whitman National Forest fire occurrence rate. Most of the fires were lightning caused although 37% were human caused. Human caused fire risk within the project area exists due to proximity to private lands, homes, and the community of La Grande only 8 miles away. The area receives frequent recreational visitors.

### ***II) Hazardous Fuel Conditions:***

A second part of analyzing fire behavior potential requires analysis of vegetation and fuel conditions. Vegetation conditions for this analysis are expressed as surface and crown fuels. These were quantified through field inventory and GIS and Oracle data tables.

The following discussion of surface and crown fuels was obtained from “Assessing Crown Fire Potential by Linking Models of Surface and Crown Fire Behavior “(Scott and Reinhardt, 2001); and, “Fire and Fuels Analysis to Support Project Planning “(Langowski et al. 2002).

Surface Fuels: The amount of surface fuel is a measure to help determine a ground fire's potential to spread into tree crowns. Surface fuels include grasses, shrubs and fallen trees, and have also been described as surface fuel loading. Surface fuel loading is used to predict if the intensity and flame length of a ground fire is sufficient to reach into crowns. Surface fuel loadings within the project area range from 15 – 80 tons per acre. There are areas with heavy dead and down material (30 – 60 tons per acre) within priority areas one, two and three. The following pictures are examples of ground and surface fuel loadings within the Mt. Emily project area.



Ground Fuels



Surface Fuels

Crown Fuels: Ladder fuels are intermediate shrubs, bushes, and trees that bridge the vegetation gap between surface fuels and tree crowns; thus the term ladder fuels. The presence of ladder fuels is

another measure to help determine a surface fire's potential to spread into crowns. Crown fires can be more difficult to control. Canopy base height is the average height of the base of the tree crowns from the surface and would be used as a tool to measure ladder fuels. Flame length (related to surface fuels) and canopy base height can be used to estimate whether fire can travel into the crowns. The following pictures are examples of crown fuel conditions within the Mt. Emily project area.



LADDER FUELS

Canopy bulk density has increased in the project area. Canopy bulk density is key for determining if a fire reaching into the canopy has sufficient fuel to support a crown fire. Neither crown nor canopy bulk density can be directly measured. Instead they are mathematically estimated based on individual tree characteristics such as tree height and crown ratio (Fire and Fuels Analysis to Support Project Planning, Plangowski, May 2002). Overstocked conditions can be an indication of high canopy bulk density.

### ***III) Potential as Rated by Modeling Groups:***

Modeling groups are used to help determine wildfire potential. Each of the stands within the project area is grouped into broad categories based on fire regime, condition class, ecoclass, and field inventory. Field inventory was completed on representative stands within each of the modeling groups to gather surface and crown fuel data. These data were then extrapolated to all the stands within each of the modeling groups to run visual and fire behavior models. A description of modeling groups, baseline (current) conditions, and how these models were used is in Appendix C. Groups were analyzed (using current fuel conditions) for fire behavior using the 90<sup>th</sup> and 97th percentile conditions.

Modeling outputs will be analyzed to compare the relative difference between alternatives, including no action. Outputs that will be measured include crown fire potential, torching and crowning index, and flame length. This would give a relative measure of fire behavior potential.

Desired surface and crown fuel conditions that will be measured include those listed earlier in this EA under purpose and need. They include:

- Crown Base heights > 10 feet
- Crown Bulk Densities < 0.037 kg/m<sup>3</sup>
- Fuel loading < 3" diameter in size at < 5 tons per acre
- Total fuel loading for priority areas between 7 – 25 tons per acre
- Fuel Model 10 acres converted to Fuel Model 8
- Return or maintain fire regimes 1, 2, and 3 in a condition class 1

Desired Fire behavior outputs for all the priority areas include:

- Flame lengths < four feet
- Torching and crowning indices < 20 mph
- Potential mortality in trees > 12 inches diameter breast height (DBH) < 10%
- Potential spotting less than .25 miles

## B) Ecological Risk

The Forest determined and ranked all fire regimes based on the current ecological condition in terms of departure from the historic fire regime based on "[Protecting People and Sustaining Resources in Fire-Adapted Ecosystems; A Cohesive Strategy; The Forest Service Management Response to The General Accounting Office Report GAO/RCED-99-65, October 13, 2000](#)", and the local expertise of the Forest Ecologist, Silviculturist, and Fuels Specialist.

**Fire Regime:** A fire regime is described as the potential of a fire over time for particular ecosystems. Five fire regime groups with different combinations of fire frequency and severity are used in the Pacific Northwest to describe different ecosystems, (reference the Wallowa-Whitman Fire Management Plan). Table 2 describes fire regime groups found in northeast Oregon:

**Table 2. Fire Regime Groups**

Fire Regime Group	Vegetation Types	Historical Frequency (Fire Return Interval)	Historical Severity
1	<b>Includes lower and mid-elevation forested plant associations</b> - All ponderosa pine types; Dry-Douglas-fir/ pine grass; and grand fir/pinegrass.	0 – 35 years	Low severity. Large stand replacing fires can occur under certain weather conditions, but are very rare (200+ years).
2	<b>Includes low and mid elevation grassland plant associations</b> - True grasslands; juniper/grass; juniper/big sage; Mt. big sage/grass; and Mt. shrub/grass.	0 – 35 years <ul style="list-style-type: none"> <li>▪ True grasslands and savannahs with FRI (fire return intervals) of less than 10 years.</li> <li>▪ Mesic sagebrush communities with FRI of 25 – 35 years and occasionally up to 50 years.</li> <li>▪ Mountain shrub communities with FRI of 25-35 years</li> </ul>	Stand replacing.
3	<b>Consists of Forest Plant associations found at mid elevation, more mesic sites than fire regime 1</b>  3a - Mixed conifer 3b - mesic grand fir;  3c - white bark pine below 45 degrees latitude; cool, mesic grand fir and Douglas-fir	<b>35 – 100+ years</b>  3a - < 50 years  3b - 50 - 100 years  3c - 100 - 200 years	<b>Mixed Severity</b>  3a - Low severity tends to dominate.  3b - Mixed severity  3c - High severity tends to dominate.
4	Forested species found at	35 – 100+ years	Stand replacing

Fire Regime Group	Vegetation Types	Historical Frequency (Fire Return Interval)	Historical Severity
	mid to high elevation – Lodgepole, subalpine fir, spruce  4a - Lodgepole pine above ponderosa pine; aspen embedded in dry grand fir ;  4b - Subalpine fir ; white bark pine above 45 degrees latitude; and mountain hemlock;  4c - Spruce-fir; western larch; western white pine.	4a - 35 – 100+ years  4b - 100 + years  4c - 100 – 200 years	4a - stand replacing  4b - stand replacing, patchy arrangement  4c - stand replacing
5	Black sagebrush; salt desert scrub; alpine communities; subalpine heath	Greater than 200 years	Stand replacing, or no fire

Within the Mt. Emily project area there are approximately:

- 372 acres of fire regime 1 (5% of project area)
- 990 acres of fire regime 2 (14% of project area)
- 2,817 acres of fire regime 3 (39% of project area)
- 2,922 acres of fire regime 4 (40% of project area)
- 45 acres of fire regime 5 (< 1% of the project area)
- 149 acres of administrative sites, other non-burnable areas (< 1% of project area)

**Condition Class:** Each fire regime has three condition classes that have been developed to categorize the current ecological condition as defined in terms of departure from the historic fire regime. This has been defined in the Cohesive Strategy as the number of missed fire return intervals (or deviation from historic fire free period); the current structure and composition; and the relative risk of fire-caused losses of key components that define the group. As the condition class number increases a greater deviation is indicated with an associated risk of loss of biological elements found within the system (reference the Wallowa-Whitman National Forest Fire Management Plan). Table 3 describes each condition class.

**Table 3. Condition Classes**

Condition Class	Description
1	Fire regimes are within or near historical ranges, and the risk of losing key ecosystem components is low. Vegetation conditions in terms of species composition and structural stage are in tact and functioning within the historical range.
2	Fire regimes have been moderately altered from their historical range. The risk of losing key ecosystem components is moderate. Fire frequencies have departed from historical frequencies by one or more return intervals (increased or decreased). This results in moderate changes to one or more of the following: <ul style="list-style-type: none"> <li>• Fire size</li> <li>• Intensity and Severity, and</li> <li>• Landscape patterns</li> </ul>

	<ul style="list-style-type: none"> <li>Vegetation conditions in terms of species composition and structural stage have been moderately altered from historical conditions.</li> </ul>
3	<p>Fire regimes have significantly altered from their historical range. The risk of losing key ecosystem components is high. Fire frequencies have departed from historical frequencies by multiple return intervals. This results in dramatic changes to one or more of the following:</p> <ul style="list-style-type: none"> <li>Fire size</li> <li>Intensity and Severity, and</li> <li>Landscape patterns</li> <li>Vegetation conditions in terms of species composition and structural stage have been significantly altered from historical conditions.</li> </ul>

The following table is a break down of condition class 2 and 3 acres by fire regime for the project area.

**Table 4. Condition Class 2 and 3 by Fire Regime.**

Fire Regime	Acres Of Condition Class 3	Acres Of Condition Class 2	Acres Of Condition Class 1	Acres Not Rated	Total Acres By Fire Regime
1	319	53			372
2		938	52		990
3	2,698	119			2,817
4	1,879		1,043		2,922
5			45		45
Not Rated (Won't Burn)				149	149
<b>TOTAL</b>	<b>4,896</b>	<b>1,110</b>	<b>1,140</b>	<b>149</b>	<b>7,295</b>

The following pictures are examples of stands in a condition class 3 and 2 within the project area.



Condition Class 3



Condition Class 2

**Key Indicators:**

- Fire Behavior Potential – Measured by crown fire potential and flame length.
- Fire Regime Departure – Number of acres treated within fire regimes one, two, or three that are in a condition class two or three.

**Issue: Manage Old Growth Component within the WUI; Old-Growth Currently Outside Historic Range**

Old growth habitat is managed as allocated old growth (MA -15), which is a land allocation in the Wallowa-Whitman Forest Plan, and mapped old growth, which is one of the structural classifications (large structure) used to implement direction in Forest Plan Amendment #2 (Screens). Management of old growth by either definition should provide habitat for old growth associated wildlife species; however, the two terms have different administrative implications.

**Allocated Old Growth Areas (MA-15) within the Mt. Emily WUI** - There are 2 MA -15 (allocated old growth) areas located in the analysis area totaling 581 acres that lie adjacent to the Mt. Emily Urban-Interface community; Emily old growth is 138 acres and Bull Canyon is 443 acres. Surveys in allocated old growth areas, conducted in 1994, revealed high quality old growth habitat containing large live trees, large snags and large logs. No timber harvesting has occurred within these MA -15 areas.

The Bull Canyon allocated old growth is immediately adjacent to a more heavily populated portion of the Mt. Emily WUI. The Forest Plan provides little direction for managing National Forest lands (including allocated old growth) adjacent to WUI. Recent national direction emphasizes taking action to reduce the risk of wildland fire to communities and the environment (see introduction under Purpose and Need of this EA), including management to reduce fuel levels. This project proposes to blend Forest Plan guidelines for managing old growth with recent national direction. The proposed action would reduce fuels in the Bull Canyon allocated old growth. Management activities should retain structure sufficient to provide habitat for old growth associated wildlife species. Treatment within MA15 would suggest the need for a site specific, non-significant Forest Plan amendment. See Purpose and Need of treating in MA15, earlier in this chapter.

**Structural Stages** – Dispersed stands of different structural stages provide a mix of cover and forage for elk and large structure for old growth associated wildlife species. Currently, the Mt. Emily analysis area contains approximately 34% old growth (includes allocated and mapped old growth). This suggests old growth is well represented in the analysis area.

To meet the direction in the Forest Plan concerning Historical Range of Variability (HRV), the amount of late and old structural habitat must be analyzed and compared to an HRV standard established by the Forest for

various biophysical environments (biogroups). HRV's for multi-strata large trees are met or exceeded in all biogroups except in biogroup 4 (cool, dry-wet, grand fir; biogroup 6 is below HRV, however, this biogroup is poorly represented in the Mt. Emily area). Because MSLT structure stage falls below HRV in biogroup 4, no net loss of old growth is to occur (Forest Plan Amendment #2, Screens, Scenario "A" Wildlife Standard). Approximately 66% of the analysis area falls in biogroup 4, the other biogroups are poorly represented.

Any treatment in MSLT biogroup 4 would require a Forest Plan amendment, because MSLT G4 structure falls below HRV. See purpose and need of treating in biogroup 4, earlier in this chapter.

Single stratum large trees structure is normally found in the drier biogroup types 5 through 8 (Douglas -fir, ponderosa pine) but not associated with biogroups 2 through 4 (subalpine fir). However, as the table below indicates deficiencies in single stratum occur in biogroups 5-8 in this project area. See table below for old growth structural stages within the project area:

**Table 5. Old Growth Structure by Biophysical Group and HRV Analysis; Existing Condition**

	<b>G1 831 ac</b>	<b>G2 101 ac</b>	<b>G4 3,637 ac</b>	<b>G5 323 ac</b>	<b>G6 54 ac</b>	<b>G7 540 ac</b>	<b>G8 34 ac</b>	
<b>Structural Stage</b>	<b>Cold,Dry Saf</b>	<b>Cool,Wet Saf</b>	<b>Cool,Dry- Wet Gf</b>	<b>Warm,Dry- Moist, Gf</b>	<b>Warm, Moist Df</b>	<b>Warm, Dry Pp</b>	<b>Hot, Dry Pp</b>	<b>TOTAL ACRES</b>
MSLT	673 ac	22 ac	898ac	155 ac	5 ac	84 ac	0 ac	1837
HRV %	1-10	5-25	30-60	5-25	10-30	5-25	2-15	
Existing%	81	22	25	48	9	16	0	
SSLT	0 ac	0 ac	0 ac	0 ac	0 ac	0 ac	0 ac	0
HRV %	1-10	0	0	15-25	15-55	15-55	20-70	
Existing%	0	0	0	0	0	0	0	

**Minimizing old growth loss** - Old growth in the project area should continue to function within the realm of normal disturbance factors (insects, disease, and fire). However, fire suppression success has impacted the development of old growth and there is concern that large amounts of old growth habit at may be lost on the slopes of Mt. Emily in the event of a large stand replacing fire.

As the analysis of condition classes indicate (see discussion above under the key issue "Manage Wildfire Risk"), 82% of the project area is outside historic levels, with 67% in condition class three (significantly altered from their historical range). The concern with being outside of historic levels applies to old growth discussion particularly in fire regimes one and three where fire played a natural role, creating and maintaining single stratum (stories) of old growth. There are currently about 250 acres of old growth in fire regimes one and three within the project area. Mechanical treatment followed by frequent fire intervals of prescribed fire in these areas could return structure to single stratum and maintain habitat for species associated with open large structured stands.

Almost half of the old growth in the project area is biogroup G4 (49%), associated with fire regimes 3 and 4. Typical characteristics present in this ecoclass are multi-layered canopies, very high fuel loadings (often well

over 20 tons per acre), and high levels of mortality due to disease and insects. Fire frequencies can occur between 35-200 years (long-term intervals) with severity ranging from mixed to stand replacement. High fire severity and stand replacing events are expected in some of fire regime 3 and in all of fire regimes 4 and 5. The opportunity exists to minimize old growth loss in the mixed fire severity portions of fire regime three.

Management proposed in all old growth stands must retain the old growth structure and characteristics and consider fuels reduction treatments with following relevant issues to this project area: 1) To protect the stands themselves from a stand replacing event that would destroy valuable old growth habitat; or, 2) To help avoid unacceptable consequences of the natural return of a stand replacing fire in high severity ecosystems (see purpose and need of managing old growth within WUIs). The unacceptable consequences in this project area would be the destruction of life and property in the Mt. Emily WUI.

**Key Indicators:**

- Old Growth Acres Treated.
- Acres converted from multi-strata with large trees (MSLT) to single strata with large trees (SSLT).

## **Issue: Maintain Mt. Emily Scenic Quality**

### **The Valued Landscape Character of Mt. Emily**

The valued landscape character is a description of the attributes and qualities that the area provides to people.

The Mt. Emily area is a landscape that provides many benefits to the residents of the Grande Ronde Valley. The area encompasses the face of Mt. Emily and the mountain plateau landscape west of the rim. The steep sloped face of Mt. Emily, with its prominent rock outcrops on the rim provides a readily recognized Grande Ronde Valley landmark. The vertical face is a dramatic backdrop that compliments the rural valley landscape with a natural forest landscape. The face is a composition of steep grassy open mid slopes, and stringers of timber. The lower slopes are contiguously covered with timber, creating a strong edge to the valley floor. This contiguous cover provides habitat for many wildlife species that cohabitate with people at the edge of the rural landscape. Small streams with pools and riffles add the soothing sound of water and opportunity to experience the riparian vegetation and inhabitants. This forested edge also provides a sheltered landscape adjacent to the rural farmland. It is a peaceful, quiet retreat near but separated from the populated areas of the valley.



View from End Road of Frizzel Canyon

The upper slope is a visual mosaic of timber and pockets of grass escarpments and rock scabs and outcrops. Small fire openings are visible on the slope but do not dominate the background or middleground views. The rim of Mt. Emily is the western horizon of the Grande Ronde Valley. The sunset is seen at the rim of Mt. Emily, and the first rays of the sun hit the Mt. Emily rim and slide down its face to the valley floor.



View of Mt. Emily from End Road

On top of the rim and to the west Mt. Emily is a Grande Ronde forest playground. The 3120 RD provides access to this area for many residents pursuing many different activities. In the spring, mushroom hunters are found scouring the area. Summer brings out the huckleberry pickers and day use and dispersed campers, and in the fall big game hunters come here. The winter months are reserved for snowmobilers, cross-country skiers and snowshoers. Many users enjoy this landscape in every season.

The scenic resource of this project area is experienced in a number of ways. The experience from five differing perspectives is summarized in the scenery resources existing condition report, in the analysis file. The five perspectives include adjacent forest landowners, residents of the Grande Ronde Valley, travelers who are passing through the valley, forest users who go into the area to recreate and off-site persons who do not physically experience the scenic resource. The five perspectives are a summary of the comments and concerns made by constituents throughout the scoping process.

#### **Forest Direction for Managing Scenic Resources**

Currently there is direction to use two systems of scenery management. The Visual Management System that was used in the Land and Resource Management Plan for the Wallowa-Whitman N.F. and the Scenery Management System which is currently the newest system for scenery resources. The project area will be analyzed using both systems.

#### **Visual Management System**

The Visual Management System establishes acceptable levels of alteration from the natural appearing landscape based on the importance of aesthetics. The degree of alteration is measured in terms of visual contrast with the surrounding natural landscape. The system evaluates the scenic resource from viewpoints and travel corridors that are most heavily used by constituents.

Much of the face of Mt. Emily is a background view (4 miles +) seen from Hwy 82 and has a visual quality objective of retention. The retention objective requires that management activities are not visually evident from the distance the area is classified. Classified as a background distance zone, any management activity that has or will occur in this area should not be visible from a distance of four miles away. Currently, the scenic resources of the face of Mt. Emily meet the retention objective.

There are areas with VQO's of partial retention and modification to the west of the 3120 RD. (See map) Partial retention requires that management activities remain visually subordinate to the naturally appearing landscape. Currently, there are areas along the 3120 RD that are not meeting the partial retention VQO. There are areas where blowdown occurrences have increased the visible impact of shelterwood treatments, leaving areas where management activities are visibly dominant. The lack of

any middlestory vegetation in these units creates an unnatural appearance. The edges of these units are very apparent because the vegetation at the edges creates a thick wall surrounding the open unit. The combination of lack of middlestory vegetation and the wall surrounding the unit make the treatment dominate the natural appearing landscape. There are units of previous treatment along the 500 RD that are currently not meeting a VQO of partial retention or retention.



View looking south on the 3120 RD

Modification allows for management activities in the foreground and middleground to be dominant but appear natural. Currently, the VQO of modification is being met.

## Scenery Management System

The new scenery management system... ***“encourages integration throughout the entire systematic approach from inventory, analysis, planning, design and implementation to monitoring.”*** Through the integration of physical, biological, and cultural/social information in an interdisciplinary atmosphere we strive to better understand ecological principles and their relationships (such as landscape pattern with components, structures, functions and processes of our ecosystem), to prescribe management which promotes sustainability.” (Agricultural Handbook Number 701, Landscape Aesthetics, A Handbook for Scenery Management, 1995, pg. 23.)

Evaluation of the Mt. Emily scenic resource is based on the existing condition of the valued landscape character (see valued landscape character above). The valued landscape character is the sum of all the valued attributes of the area measured against the negative attributes that detract from the valued landscape character. There are two scales of measure that address the existing condition: 1) the measure of scenic integrity that indicates the degree of visual deviation from the valued landscape character; and, 2) the measure of ecological integrity that indicates the condition of resources that make up and perpetuate the scenic qualities or valued attributes of the area.

### Existing Scenic Integrity

The existing scenic integrity for the face of Mt. Emily is *high*. The visual resource is intact with no negative attributes detracting from the landscape character.

The existing scenic integrity for the area on top of the rim and to the west is *low to very low*. The occurrence of previous harvest and windthrow has left an excessive accumulation of dead down woody material that detracts from the landscape character. Past harvest treatments are evident. In areas where shelterwood treatments were done, many of the trees have been lost to blowdown occurrences, which makes the units more evident, detracting from the valued forest attributes. Much of this area is viewed from a foreground to middle ground distance from the 3120 RD and the 500 RD. The viewshed from these roads is 70 to 80 % impacted by these conditions.



View from along 3120 Road

#### **Existing Ecological Integrity**

The existing ecological integrity for the face of Mt. Emily is *low to moderate*. There is a concern regarding the sustainability of visual resources due to the high number of lightening strikes in this area and the stand conditions that exist. The exclusion of fire has heightened the hazard of experiencing a large stand replacement fire across the face of Mt. Emily. If this were to occur, many of the valued attributes that make up the desired landscape character of Mt. Emily would be lost. In areas where there are accumulations of dead, down woody debris, duff and litter, ladder fuels, dense canopy cover and/or understory brush, the integrity is low. In other areas, the hazard is less because the understory is more open with less fuel for fire to consume. There are also areas that are heavily infested with mistletoe and balsam wooly adelgid. These are stands that are decadent and are beginning to fall apart. Without the presence of frequent fire running through this landscape, the conditions are continuing to deteriorate. For further discussion, see the fuels and silvicultural reports.



View of area SW of Wagoner Lane

The area on top of the ridge and to the west has large areas of blowdown that can contribute to a high hazard of stand replacement fires. This area is rated at *low* existing ecological integrity.

## Summary

The scenery resources for the Mt. Emily project area show some need for concern. The Visual Quality Objectives for this area are not being met in all areas. The scenic integrity and ecological integrity are lower in some areas than they should be for this area.

In areas where retention is being met, such as the face of Mt. Emily, there are ecological issues that threaten the sustainability of the scenic resources. Where past treatments have addressed the ecological issues, the negative impacts to scenic integrity are very apparent and in some cases are visually dominant.

### Key indicators:

- Has retention/foreground been met? i.e. – Are unnatural appearing impacts (disturbance) less than 10% of viewshed? Yes or No?
- Has partial retention and retention midground been met? i.e. – Are unnatural appearing impacts (disturbance) less than 14% of viewshed? Yes or No?

## I. Other Issues

Some issues, concerns, and opportunities raised during the scoping process were not considered to be significant in relation to the proposed action. They are, however, considered important in achieving the goals and objectives of the proposed action and in meeting the intent of its purpose and need.

Unless otherwise noted in the following narratives, the issues, concerns, and opportunities outlined below will be addressed in Chapter Two, under Management Direction Common to All Action Alternatives, Management Requirements, Constraints, and Mitigation Measures, and/or in management direction for each action alternative. Potential environmental consequences will be disclosed in Chapter Two.

## 1) Indian Treaty Rights and Trust Responsibilities

The Forest Service manages ceded tribal lands under trust responsibilities as described in tribal treaties. Forest Service policy includes the establishment and maintenance of government-to-government relationships with the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) for the purpose of building stable, long-term relationships, which result in positive, mutually understood, and beneficial solutions to common situations.

The CTUIR maintains usual and accustomed fishing grounds in the Upper Grande Ronde River. Treaties provide that Native Americans continue to have the right to erect suitable buildings for fish curing, privileges of hunting, gathering roots and berries, and pasturing stock on un-claimed lands.

The Nez Perce Tribe maintains usual and accustomed fishing rights for fish in the Lower Grande Ronde River. However, they have the right to take fish, which are destined for the Upper Grande Ronde River.

Consultation between the La Grande Ranger District and the CTUIR for this project should maintain the trust responsibilities established through public law and treaties and provide for mutual understanding of resource management objectives.

## 2) Inventoried Roadless Areas (IRAs)

The project area contains portions of two IRAs: The North Mt. Emily IRA and the Mt. Emily IRA (W-W Forest Plan, Appendix C). The majority of the 5,400 acre North Mt. Emily IRA lies on the adjacent Umatilla National Forest. The 772 acres on the Wallowa-Whitman are within the Mt. Emily Fuels Reduction project analysis area.

The project area enters approximately 84 acres of the 8,822 acre Mt. Emily IRA, which lies entirely on the La Grande Ranger District. The Hell Hole IRA lies NW of the project area and is adjacent to the project area and the N. Mt. Emily and Mt. Emily IRAs. See maps in appendices A and B.

Roadless Interim Directive 1920-2001-1 expired on June 14, 2003. At that time, Forest Service direction for management in IRAs following June 14, 2003 was to be in full conformance with the prohibitions and exceptions specified in the Roadless Area Conservation Rule (36 CFR part 294). IRAs are those identified in Volume 2 of the Roadless Rule FEIS, November 2000. The North Mt. Emily and Mt. Emily IRAs are identified as IRAs in Volume 2.

During the late summer of 2003, the Roadless Area Conservation Rule, January 2001, was enjoined by the District Court in Wyoming. Following the injunction, Forest direction concerning roadless areas was to follow the Forest Plan(s) for guidelines on managing IRAs. The Wallowa-Whitman Forest Plan identifies both North Mt. Emily and the Mt. Emily IRAs as managed roadless areas (i.e. – allows for management), FEIS, IV page 59, appendix C-5. Both portions of the IRAs within the project boundary are allocated to Wildlife –summer range (MA3a). The IRAs would be managed according to the standards and guide lines provided for MA3a under the Forest Plan.

The Umatilla Forest Plan has designated the North Mt. Emily Roadless area to Management Area A5 (see Umatilla Land and Resource Management Plan, page 3-5). Management area A5 is described as Roadless Natural with a goal to “provide dispersed recreation opportunities in an area characterized by a predominantly natural to near natural appearing environment with moderate evidences of the sights and sounds of man.” (Forest Plan, 4-111). There are very few restrictions on vegetation management or road construction. However, the Mt. Emily Fuels Reduction project is not proposing activity on the Umatilla portion of the North Mt. Emily IRA.

While enjoined, The Roadless Area Conservation Rule is being deferred to as the most current direction. However, as a study it provides recent public input with definitions of roadless characteristics. The project effects will be analyzed using these recent definitions of Roadless Characteristics. Should the injunction on the Roadless Area Conservation Rule be lifted prior to the decision signing of this project, the decision

maker should reference Appendix A of the Roadless Effects Document (analysis file) for further analysis that would address direction from the Rule.

Roadless Characteristics as defined in 294.11 of the Roadless Area Conservation Final Rule (January 12, 2001) that apply to the N. Mt. Emily and Mt. Emily IRAs include:

- 1) High quality or undisturbed soil, water, air
- 2) Diversity of plant and animal communities
- 3) Habitat for PETS species and for those species dependent on large undisturbed areas of land
- 4) Reference landscapes
- 5) Natural appearing landscapes with high scenic quality

Roadless characteristics should be maintained/enhanced by management activities within the IRA.

Under Interim Directive 1920-2002-1 which recently expired, certain decisions were reserved to both the Chief and Regional Forester. As part of implementation of this directive, projects proposing activities in Inventoried Roadless Areas were to be reviewed by the Regional Office for consistency with the Interim Directive. A checkpoint letter was sent to the Forest Service Regional Office (Portland, OR) by the Wallowa-Whitman Forest Supervisor in April, 2003. A copy of this letter resides in the analysis file. The letter follows direction from the Regional Office to submit for review projects planned within IRAs.

This letter discussed proposed activity within the IRAs, introduced what type of NEPA document is being prepared, and explained the rationale for treating vegetation within IRAs. A follow-up response letter from the Regional Office was sent to the Forest. The response letter resides in the analysis file and concurred with the Forest's determination that "the authority and responsibility to approve process steps and sign decision documents related to the Mt. Emily Fuels Reduction Project remains with the Forest Supervisor of the Wallowa-Whitman National Forest."

### **3) Water Quality, Fisheries, and Riparian Habitat**

The primary streams within the project area include Conley Creek, Slide Creek, and Frizzel Creek. Dry drainages include Indian Trail Canyon, Bull Canyon, Lyons Canyon, and Rail Canyon.

The analysis area lies within the following Watersheds of the Upper Grande Ronde River Section 7 Major Drainage: Grande Ronde River - Imbler (17060104-17), Phillips-Willow Creeks (17060104-84), and Grande Ronde River - Hilgard (17060104-87). An additional 6 acres of the project area is located in the Meacham Creek Watershed (17070103-89) of the Umatilla River Drainage. The specific subwatersheds are Wright Slough (17E), South Fork Willow Creek (84G), Upper Willow Creek (84H), Upper Five Points Creek (87C), and Pot Creek (89H). Table 6 displays the acres of the Mt. Emily project area managed by the Forest Service or other entity, and total acres per subwatershed and watershed. Due to the limited number of project acres within Watershed 89, analysis will focus on watersheds 17, 84, and 87.

Watershed and fisheries analysis for this project incorporate the watershed analysis, water quality databases, field surveys, and professional judgment.

**Table 6. Acres of Mt. Emily project area managed by the Forest Service (FS) or other entity and total acres per subwatershed (SWS) and Watershed (WS) (\* - Data unavailable)**

SWS/WS	Acres			
	FS	Other	Total	Project Area
17E	659	20,465	21,124	659
84G	2,685	9,390	12,075	2,685
84H	933	10,276	11,209	933
87C	2,831	11,683	14,514	2,831
89H	6	7,949	7,955	6
WS 17	659	*	*	659
WS 84	3,618	*	*	3,618
WS 87	56,972	35,876	92,848	2,831
WS 89	*	*	*	6

**Water Quality** – No streams within the project area boundary are included on the Oregon 303(d) List as water quality limited. McCoy Creek, which is outside but near the project area boundary, is on the 303(d) list. A TMDL Water Quality Management Plan (WQMP) has been prepared and approved by the Environmental Protection Agency (EPA) for the Upper Grande Ronde Subbasin (UGRS). All management activities on federal lands managed by the USDA Forest Service in the UGRS must follow standards and guidelines (S&Gs) as listed in LRMP, as amended by PACFISH (USFS 1995), Best Management Practices (BMPs) as defined in various Federal and State laws such as the Implementation Plan for 208 (Water Pollution Control Act, PL 92-500, as amended), and Specific Stand Management Unit (SMU) Constraints and Mitigation Measures identified in the Wallowa Whitman NF Watershed Management Handbook.

**Fisheries** - Federally listed Snake River summer steelhead (*Oncorhynchus mykiss*) Snake River spring/summer chinook salmon (*O. tshawytscha*) and bull trout (*Salvelinus confluentes*) listed fish species, and USDA Forest Service Regional Forester's (Region 6) candidate 2 sensitive species redband trout (*O. mykiss gibbsi*) are found on the La Grande Ranger District. Little is known of the distribution and life history of redband trout within these subwatersheds, however their distribution is estimated to be similar to that of steelhead as spawning times are similar. There are no listed fish species within the project area.

All species utilize the Grande Ronde River in Watersheds 17, 84 and 87, downstream of the Mt. Emily project area, for rearing and migration, respectfully.

**Riparian Habitat** – All reaches of the above-named streams are in good riparian condition (including instream condition). The existing frequencies of pools/mile meet the PACFISH RMO of 96. Existing levels of LWD meet the PACFISH RMO for pieces of large woody debris per mile. See Fisheries and Water existing condition report for additional information.

**Overall Fish and Watershed Condition** - The overall condition of fisheries and water resources within the Mt. Emily project area is good. All primary streams contain sufficient instream habitat. Total road densities are at or below desired levels in all subwatersheds although there are roads within RHCAs.

**Specific Project Constraints as Related to Fisheries and Watershed Concerns** - This project must be designed in such a way that there will be a very low probability that there will be an adverse effect on TES fish located down stream of the project area. There must not be a measurable increase in stream sediment delivery in this watershed and efforts should be made to reduce the existing sources of non - natural sediment. Large woody material must not be removed from stream channels. New roads that cross streams or enter RHCAs should not be constructed unless absolutely necessary. If they must be

constructed, then they must be designed with restrictive mitigation to protect water quality. Existing protection measures should protect other instream habitat needs such as stream cover, bank stability, and water temperature.

**Erosion and Sedimentation** - Roads provide a substantial source of sediment and a mechanism for delivering sediment to the stream systems. The District uses the NOAA Fisheries conservation recommendation from the 1998 BO for LRMPs for open and closed road density for steelhead and chinook salmon habitat of less than 2 miles per square mile and no valley bottom roads. Valley bottom roads in this analysis are considered to be roads within 150' of the stream.

**Road Density and Location** - There are approximately 92 miles of road within the entire subwatersheds (17E, 84G, 84H, 87G), including the Mt. Emily project area. Approximately 26 miles of Forest Service roads are currently open to vehicle travel, and 15 miles are closed. Fifteen miles of all roads are located within RHCAs. Table 7 displays the existing miles of open and closed roads and total road density for the entire subwatersheds on Forest Service (FS) and non-FS lands including the Mt. Emily project area. Table 8 displays the miles of all roads within RHCAs by stream class for the entire subwatersheds on FS and non-FS lands. In 17E and 86G and H, private roads are mostly closed with a gate and private lock with limited use (Note: Information on 34 miles of non-FS roads within the GIS database is 10 or more years old).

**Table 7. Drainage area, existing miles of open and closed roads, and total road density by full subwatershed on FS and non-FS lands.**

SWS	FS & NON-FS Area (mi <sup>2</sup> )	FS Existing Open Road Miles	FS Existing Closed Road Miles	NON-FS Existing Road Miles*	FS & NON-FS Total Road Density (mi/mi <sup>2</sup> )
17E	32.5	2.0	0.7	26.4	1.2
84G	18.9	2.1	0.9	12.2	1.9
84H	17.5	0.3	0.0	8.8	0.7
87C	22.7	21.5	13.4	3.2	2.1

\* All Non-FS roads are considered open

**Table 8. Existing miles of all roads (open and closed) within RHCAs by stream class per full subwatershed on FS and non-FS lands.**

SWS	Miles of Road in Class I RHCAs*	Miles of Road in Class III RHCAs	Miles of Road in Class IV RHCAs	Total Miles in RHCAs
17E	0.0	3.7	1.8	5.5
84G	0.0	2.3	0.3	2.6
84H	0.0	3.3	0.1	3.4
87C	0.0	1.4	1.8	3.2

\* La Grande Ranger District considers all fish bearing streams Class I streams.

All subwatersheds have total (open and closed) road densities of near or less than 2.0 miles per square mile but do contain roads within RHCAs (Tables 7 and 8).

**Stream Crossings and Fish Passage** – There are no fish bearing stream road crossings within the project area. There are potentially two culverts, identified at this time, that cross Conley Creek that may be unable to handle a 100-year flood event. The culverts are located at:

- 3120500 road at mile post 2.98 (22" x 24')
- 3120530 road at mile post 0.06 (size unknown)

**Streamflow Regime** - Streamflow discharges in subwatersheds 17E, 84G, 84H, and 87C are

characteristic of a snowmelt hydrograph, with late spring and fall rains contributing to the annual average flows. Peak flows usually occur in March and April with flows gradually decreasing to minimum discharges in August and September.

**Equivalent Clearcut Acres (ECA)** calculated for subwatersheds 17E, 84G, 84H, and 87C are reported in Table 9. These ECA values are below 15% except 17E that still falls within the La Grande Ranger District management range of 28% to 32%. These ECA values do not include adjacent private land harvests. ECA will be used only as an indicator of overall disturbance in the Mt. Emily Analysis Area, and will not be used to describe hydrologic response.

**Table 9. Percent of forested acres in Equivalent Clearcut Acres (ECA) for each FS subwatershed in Mt. Emily project area.**

SWS	Existing ECA %
17E	22.1 %
84G	5.5 %
84H	5.6 %
87C	5.9 %

**Past Timber Harvest** - The Mt. Emily project area encompasses 7,114 acres of NFS lands within four subwatersheds. Of that acreage approximately 15% has been logged in subwatershed 17E, 84G, and 87C with a timber harvest projects Face (1976), Grande Salvage (1984-1986), Big Valley (1987-1990), Fiddler (1989-1991), Moon Salvage (1993) and Hazard Tree III (1997) utilizing the following prescriptions (Table 10):

- HCC = Clearcut
- HPR = Partial Cut (First cut of an even aged mature stand)
- HSH = Shelterwood Cut (Second cut of an even aged stand)
- HSV = Salvage Cut

**Table 10. Summary of Timber Harvest Activities by subwatershed and prescription in the Mt. Emily project area from 1976 to 1997.**

SWS	Prescription	Acres
17E	HCC	8.2
17E	HPR	0.0
17E	HSH	84.3
17E	HSV	4.1
84G	HCC	1.4
84G	HPR	93.3
84G	HSH	10.7
84G	HSV	0.1
87C	HCC	103.3
87C	HPR	0.0
87C	HSH	540.2
87C	HSV	188.6
17E		96.6
84G		105.5
87C		832.1
	HCC	112.9
	HPR	93.3
	HSH	635.2
	HSV	192.8
<b>Total Treated Acres</b>		<b>1,034.2</b>

### **Present Management Activities:**

Fish Passage/Drainage Improvements - There is no fish passage improvements currently planned within the project area. A drainage improvement project and a culvert improvement on the 3120500 road at the 550 road would provide effective passage of a 100-year flood event. This is proposed for implementation during the 2004 field season. The 3120500 road is proposed to be brought back up to its designated maintenance level (with the Mt. Emily Fuels Reduction project) to address drainage problems dispersed along the entire stretch of road.

Livestock Grazing - There is one livestock grazing allotment within the project area – Tie Creek Cattle Allotment. The allotment is currently active. Tie Creek Allotment includes approximately 200 acres of the Upper Five Points Creek Subwatershed (87C) within the project area.

Road Closure/Relocation/Reconstruction/Decommission - A road closure is planned for the 3120550 road and attached woodcutter roads to improve and reestablish the natural drainage. This is proposed for implementation during the 2004 field season.

Water Rights - Water rights in the project area need to be identified and protected. The National Forest System has reserved water rights on certain portions of their proclaimed lands. A map showing proclaimed and acquired lands is available at LAG RD.

### **Proposed Fisheries and Watershed Restoration Activities:**

Road Closure/Relocation/Reconstruction/Decommission - A separate project will address proposed roads for closure, relocation/reconstruction, or decommissioning in the Mt. Emily project area. This project would be planned in 2004 or 2005.

## **4) Soil Quality and Productivity**

Soils within the analysis area have developed primarily from volcanic ash, and residual parent material. Soil factors which influence productivity, such as total depth, effective rooting depth, ash thickness, and coarse fragment content vary across the landscape by topographic position. In general, the deeper, more productive soils are found on north and east aspects, toe slopes, and in swales. Shallower, less productive soils are found on south and west aspects, steeper slopes, and on the noses of ridges.

Soils information was gathered from the Forest Service EUI (Ecological Unit Inventory) within the analysis area. The soils within the analysis area can be placed into five groups: cold and cool basalt, cool granitic, cold soft clay producing tuffs, and basalt rock outcrops. Cold and cool upland soils developed from basalt are the dominant type within the analysis area. The existing condition soils report classifies soils of all areas proposed for management activity in this project.

In order to determine the status of proposed treatment units in relation to Forest Plan standards and guidelines for detrimental soil conditions, field visits were conducted according to the soils assessment protocol (USDA 2002). Soil surveys were conducted in units where mechanical treatments (ground-based harvest and grapple piling) are proposed and contain higher levels of previous soil disturbance. Table 5 of the soils existing condition summarizes soil conditions in all units where mechanical treatments are proposed. All units are well below the 20% detrimental soil condition standard set by the Forest Plan. All proposed treatment units are estimated to be below 5% detrimental condition (page 25, soils existing condition report). Hand piling, and prescribed burn units were not surveyed because proposed treatments would not be expected to cause detrimental soil conditions.

To ensure protection of long-term soil productivity, Region 6 has established soil quality standards and guidelines (USFS 1998) for compaction, puddling, displacement, burning, erosion and mass wasting. Soil management efforts should concentrate on controlling erosion (surface erosion and mass movement), minimizing damage to the soil (compaction, displacement, puddling, severe burning), and minimizing road building and other developments, which remove land from the productive base.

## **5) Air Quality and Smoke Management**

The analysis area is located 8 miles north of the city of La Grande. The City of La Grande is monitored by the Oregon Department of Environmental Quality for federal air quality standard compliance. The Eagle Cap Wilderness is 15 miles east of the project area. The concern is to maintain air quality standards for this type I wilderness and the City of La Grande.

Other sensitive areas located in or near the analysis area include: I-84, Highways 82, 203, 204, and 237, forest roads 3100 and 3120 and the Grande Ronde Valley Communities of Elgin, Union, Cove, Imbler and Summerville.

The analysis area has a high risk of affecting air quality because of its location. Prescribed burning should be carefully coordinated with the Department of Environmental Quality to prevent smoke related problems.

## **6) Noxious Weeds**

The introduction and proliferation of noxious weeds through project activities is a concern. The analysis for vegetation management is conducted in accordance with the 1990 Forest Plan Standards and Guidelines, and the Integrated Noxious Weed Management Plan - Wallowa Whitman National Forest (INWMP, 1992). Management activities will give consideration and evaluation of prevention strategies during the planning process (INWMP, Chapter V. Prevention Strategies, Section B).

There are known noxious weed locations within the planning area, primarily along roadways. Diffuse knapweed is found in scattered patches in T1S, R38E, sections 8, 17, 20, and 29 and T2S, R38E, section 5 (refer to the GIS Noxious Weed layer for locations and the noxious weed existing condition report in the analysis file). These documented sites occur along trail 1846, forest roads 1400100, 123, 130, and 140. Experience has proven that motor vehicles have been a vector for seed dispersal; therefore, noxious weed spread is more concentrated along roads and trail ways. In addition to diffuse knapweed, sulfur cinquefoil is beginning to be established on National Forest lands near the southern part of the project area boundary (T2S R38E, sections 5 and 6) in areas adjacent to private lands. There is a concern that both of these weed types could continue to spread with project activities. Initial site assessments have been completed for all sites on National Forest lands. The known sites within the project area are being treated by hand pulling methods.

Known sites are also located south and east of the project area boundary on private lands. Treatments of these sites are under the jurisdiction of the Union County Weed Master. Cooperation by local landowners to treat sites would help reduce potential of noxious weed spread.

Diffuse knapweed and sulfur cinquefoil are rated as high priority weeds because they are invasive, persistent, and prolific reproducers. They displace desirable vegetation, and presently occur in infestations at scales that are feasible to treat.

## **7) Forest Health / Ecological Integrity**

There are several factors in the analysis area that affect overall ecological integrity as described by the Wallowa-Whitman's Watershed Restoration and Prioritization Process (WRAPPS - 1999). Stressors indicated by WRAPPS include fire, insect and diseases, noxious weeds, and roads. The risks of uncharacteristic wildfire and insect outbreaks and tree diseases are major silvicultural concerns to implementing the Wallowa-Whitman Forest Plan and ecosystem management.

Within the assessment area there are nearly a thousand acres of Warm/Dry Biophysical environments that have fuel loadings higher than what occurred under historic conditions of frequent periodic fire. Overstocking of Douglas-fir and grand fir understory trees are now common due to fire suppression. Fires that once burned with relatively short fire return intervals and low intensity in pine dominated plant

communities are now often stand replacing events (Scott, 1996). Appropriate stand composition, structures, and fuel loading can help return low intensity, frequent intervals of fire, which are more sustainable in pine dominated plant communities.

Tree densities exceed recommended levels on 3,738 acres across all bio physical groups in the planning area. Overstocking can lead to an increase in crown differentiation and suppressed trees. This can predispose stands to increases in beetle populations, reduced stand health, decreased growth of both the overstory and understory, and alter stand structures and composition. In many instances, stress, particularly drought stress is compounded by overstocking (Fiddler, et al., 1995). This stress can lead to losses in tree growth and increases in insect and disease caused mortality. Appropriate stocking levels would increase tree growth and vigor, which could lead to healthier stands (Lambert, 1994). The number of acres of stands treated would roughly measure the effectiveness of each alternative towards reducing overstocking and associated stand problems.

The Forest Service is attempting to manage many stands within a range of densities. The lower range or lower level of the management zone (LMZ) would maintain stocking at a point where a significant portion of the site resources are still captured in tree growth. The LMZ is set at 67% of the UMZ. The upper range of density or upper level of the management zone (UMZ) prevents the establishment of a suppressed crown class. Stands near or above the UMZ are more likely to be stressed, less vigorous, and subject to increased mortality. An important factor in some stands is that thinning from below to the LMZ will not be possible due to the predominance of greater than 21 inch diameter trees.

**Blow down risk** – The potential for blow down in treatment areas was evaluated for the project area. The potential for blow down is higher in stands that are adjacent to previous clear cuts from the Fiddler and Big Valley Timber Sales. Units affected are located in the south half of the project area primarily in priority treatment areas two and three. This determination is based on field observations and documented in a memo to the analysis file under silviculture.

The blow down potential is based on exposure to winds (including observations that Mt. Emily is prone to high wind events), occurrence of Englemann Spruce (a shallow rooted species), evidence of tomentosa root and butt rot in Englemann Spruce and Sub-Alpine fir mortality due primarily to Balsam Woolley Adelgid (an aphid).

Potential risk of blow down from project activities is displayed by alternative in Chapter Three.

## **8) Range and Livestock Management**

There is one livestock grazing allotment within the project area – Tie Creek Cattle Allotment. The allotment is currently active. Tie Creek Allotment includes approximately 200 acres of the Upper Five Points Creek Subwatershed (87C) within the project area.

Activities that may damage existing range improvements (fences, gates, and water developments) need protection measures, which maintain their integrity throughout project implementation. Improvements and trails must be restored to their original condition to facilitate movement of livestock within the pastures.

## **9) Cultural Resources**

Public law requires federal agencies to identify and protect natural, cultural, historical, and archeological resources and sites and to consult with interested parties on the effect of proposed actions.

Cultural sites located within and adjacent to the analysis area should be protected throughout project implementation to prevent damage to these resources.

## 10. Management Indicator Species (MIS) and Proposed, Endangered, Threatened, and Sensitive Species (PETS) - Wildlife and Plants

Management indicator species (MIS) serve as indicators of the effects of management activities by representing a broad range of other indigenous wildlife species. The management indicator species that may be impacted by this project include: the primary cavity excavators (including pileated woodpecker), elk, American marten, and northern goshawk.

**Pileated Woodpeckers** - Optimum habitat for pileated woodpeckers is typically multi-strata large trees and multi-strata large trees uncommon in cool, dry-wet grand fir plant communities (biogroup 4). At least 20% of the Mt. Emily analysis area provides this optimum habitat.

**Elk** - An analysis of elk habitat, Habitat Effectiveness Index (HEI) was conducted for the area using a model developed by Thomas et al. 1988. The table below is a summary of the HEI results.

**Table 11. HEI Results**

Habitat Effectiveness Variable	Habitat Effectiveness Value	LRMP Minimum Standard
HE cover	0.78	≥30% of forested acres in a cover condition
HE size and spacing	0.80	
HE roads (roads open to full sized vehicles, using density)	0.54	MA-3, 3A 1.5mi/mi <sup>2</sup>
HE forage	0.50	
HE total	0.64	MA-3, 3A average 0.74

The 0.64 HEI is below the 0.74 HEI identified in the Forest Plan, however, absence of actual forage quality data, that motorized access occurs on closed roads and cross country, and because cover quality data is not current, utility of the model is limited. The overall HEI would likely be below 0.64 if the roads variable considered the actual amount of motorized access that occurs in the Mt. Emily ridge top area.

Cover:Forage Ratio - The optimal ratio of cover to forage is 40:60 for summer range (Thomas 1979). The existing cover:forage ratio in the analysis area is 42:58, indicating a near optimal ratio. The effectiveness of cover is compromised in the ridge top portion of the analysis area due to unrestricted motorized use on closed roads and cross country.

Cover Quality - Forested stands with relatively closed canopies function as thermal and security cover, providing a visual barrier from predators and reducing the difference between an animal's body temperature and ambient air temperature. Cover exists on 35% of the analysis area, 34% satisfactory and 24% marginal, resulting in a cover quality value of 0.78. The HEc value only reflects the amount of satisfactory cover relative to marginal cover, and does not relate to abundance of cover across the landscape.

The Wallowa-Whitman LRMP establishes a minimum standard for big game thermal cover (marginal and satisfactory combined). At least 30% of the forested land should be maintained in a thermal cover condition, which is currently being exceeded (approximately 90%) in the Mt. Emily analysis area. Note that the cover:forage ratio considers the total amount of cover and forage in an analysis area, whereas the LRMP standard of 30% cover only considers those forested acres that have the potential to provide cover.

Size and Spacing of Cover - A mosaic of forage and cover patches is desirable on elk ranges. Size and spacing of cover is optimal (HEI value of 1.0) when all satisfactory cover is within 600 feet of forage, and all forage areas are within 600 feet of satisfactory cover. An HE size and spacing value of 0.80 indicates a high degree of cover and forage interspersed.

**Road Densities** - Excessive open road densities have deleterious effects on habitat effectiveness by taking land out of production (1 mile = 4 acres of land), reducing the effectiveness of cover and increasing disturbance to elk. The HE roads value is 0.54. The HE roads value was calculated using open road densities within the analysis area. Unregulated use of off highway vehicles continues to have a deleterious effect on elk distribution. Impacts of off highway vehicle use on closed roads and cross country travel are not considered in the HEI analysis. As a result, the HEI variable cannot be considered an accurate measure of habitat effectiveness for elk. An analysis of road densities by subwatershed is located in Engineering. Some roads that are no longer needed for administration or general access should be completely obliterated to prevent continued use by motorized vehicles.

**Total Habitat Effectiveness** - The total HEI is currently 0.64. This HEI value was calculated using a forage quality value of 0.50 since actual forage quality data does not exist. This HEI model is intended to monitor long-term trends in elk habitat quality on a landscape scale. A total HEI of 0.64 represents marginal habitat conditions. The limiting factor for big game habitat is motorized access and security habitat in summer range habitat (MA -3A).

**Northern Goshawk** - Preliminary goshawk surveys were conducted during 2002; although no nests were located, suitable habitat is available. Some stands within the western portion of the analysis (3120 Forest Road system) do not support goshawk habitat as they are often too small and surrounded by created openings reducing habitat suitability for nesting forest raptors. Sites discovered during project activity will be protected and post-fledging areas identified.

**American marten** - The Mt. Emily analysis area and the adjacent roadless areas to the west and north (Umatilla National Forest) provides suitable habitat for marten. Winter track surveys, within the Mt. Emily analysis area, were conducted along the 3120 road from 1991 through 1993 and located the presence of marten.

PETS species and their habitat must be considered and protected during all proposed activities.

#### **Wildlife PETS**

The following are Federal listed endangered and threatened wildlife species. They were selected for discussion because they are known to exist within the Mt. Emily analysis area, have population viability concerns, or have potential habitat. Federally listed species are addressed in the biological evaluation and assessment for this project.

#### **Federally Listed Species**

**Lynx** - The Canada lynx is listed as endangered under the Endangered Species Act. The analysis area provides habitat for the Canada lynx (Grande Ronde River/Hilgard Lynx Analysis Unit). There are over 8,000 acres of lynx habitat; approximately 86% is in suitable habitat which exceeds the 70% standard and 47% is denning habitat which exceeds the 20% standard (see more discussion on standards in Chapter Two – Elements Common to the Action Alternatives). This species will be addressed in a biological assessment for this project and the effects determination is based on the Lynx Conservation Assessment and Strategy (Ruediger et al. 2000).

**Lynx** - The Lynx Conservation Assessment and Strategy 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 management recommendations regarding lynx are 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 first iteration of lynx maps (late 1999, early 2000) did not differentiate between "primary" and "secondary" vegetation types; critical criteria that form the basis for subsequent mapping decisions. The important point involving primary and secondary vegetation is that secondary vegetation types cannot be considered lynx habitat unless spatially associated with primary vegetation types. Since this spatial relationship was not considered in the first iteration of maps, many areas containing only secondary vegetation were depicted as containing lynx habitat, when in fact none existed due to the absence of primary vegetation. This first version of lynx maps contained relatively large areas of secondary vegetation types and erroneously identified them as lynx habitat.

The Lynx Steering Committee prepared a letter dated August 22, 2000 for the Forest Service 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 some points from 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 (November 6&7, 2000) accepted by Mark Robertson, United States Fish and Wildlife Service (USFWS) level I consultation contact.

The Mt. Emily project area was analysed for lynx using the lynx habitat map (2000) accepted by the USFWS. Field verification during project design (summer of 2003) confirmed the accuracy of the mapping according to the criteria of the LCAS 2000.

**Bald Eagle** - The bald eagle is classified as threatened under the Endangered Species Act. The Pacific States bald eagle recovery plan (U.S. Fish and Wildlife Service 1986) identified a minimum of 800 nesting pairs in the 7 state recovery area as a recovery goal. The Mt. Emily analysis area provides potential Northern bald eagle winter feeding and roosting habitat, but low quality nesting habitat.

**Gray Wolf** – The gray wolf has been added to the species list for the Forest by the US Fish and Wildlife Service, Snake River Basin Office, and Columbia River Basin Ecoregion (April 4, 2000). The Service's rationale for including the species includes forest lands that fall within the historic range of the gray wolf and sightings of wolves from Central Idaho's experimental, non-essential population that were tracked in the past years throughout various locations in Northeast Oregon. This would indicate there is suitable habitat in the area.

### **Sensitive Species**

The following are the Regional Forester's sensitive species that occur or have potential habitat within the Mt. Emily analysis area: American peregrine falcon (there are several rims and cliffs that provide suitable nesting habitat and an active eyrie lies adjacent to the analysis area), spotted bat and California wolverine. Sensitive species are addressed in the biological evaluation for this project.

## Plants PETS

There are no known occurrences or habitat for any of the five (*Howellia aquatilis*, *Mirabilis macfarlanei*, *Silene spaldingii*, *Spiranthes diluvialis* or *Thelypodium howellii* ssp. *Spectabilis*) Threatened, Endangered, or Proposed plant species that may possibly occur on the Wallowa-Whitman National Forest, within or in close proximity to the Mt. Emily project area.

There are no documented, currently -listed R-6 Sensitive plant species (from the U.S. Forest Service Region-6 Sensitive Plant List of May 1999) within the perimeter of the project area.

There are two occurrences for *Trifolium douglassi* (approximately 12 acres) known to exist within an adjacent subwatershed (87B) which is within the logical resource unit used for the Botanical analysis. These sites are approximately two miles to the west, at the far south end, but outside of the project area.

Plant surveys have been completed within the project area (reference Plants Biological Evaluation, p. 4). No threatened, endangered, proposed, or candidate plant species were discovered during these surveys. No additional sites for any currently listed Region 6 Sensitive species were discovered. No areas were identified as potential habitat or needing follow -up surveys.

PETS fish species are discussed previously in the fisheries section.

### 11) Prescribed Burning and Big Game/Migratory Birds

Experience on the District indicates the greatest potential for impacting calving habitat occurs during slash treatment activities. Calving and fawning typically occurs in elevations less than 4,000 feet, areas of low disturbance, gentle topography, and near water sources. The majority of calves and fawns are born between May 15 and June 15.

In 1990, the National Fish and Wildlife Foundation proposed an initiative for the conservation of migratory land birds that breed in North America and winter in neotropical countries. Recent analyses of local and regional bird population counts, radar migration data, and capture data from banding stations show that forest-dwelling bird species, many of which are neotropical migrants, have experienced population declines in many areas of North America (Finch 1991). Factors contributing to population declines include forest fragmentation on the breeding grounds, deforestation of wintering habitats, pesticide poisoning, or the cumulative effects of habitat changes.

U.S. Fish and Wildlife Breeding Bird Surveys have been conducted in two locations on La Grande Ranger District since 1992 (Ladd Canyon and West Eagle areas). Between 42 and 48 bird species were identified representing a diversity of habitat types ranging from mixed-conifer old growth to created and natural openings. A bird species list is on file at La Grande Ranger District.

### 12) Access and Travel Management (A&TM) and Roads Analysis

The La Grande District has a District Access and Travel Management Plan (A&TM) which is a reflection of previous decisions focused on reducing forest road densities to within Forest Plan guidelines and meeting desired condition for road management (a desired condition statement is provided in the Mt. Emily Roads Analysis, 2003).

To update ongoing A&TM management in the project area, and to follow recent direction, a roads analysis (September 25, 2003) was conducted by the Interdisciplinary team (ID team) for the Mt. Emily project area. The results are documented in the analysis file. In summary, the analysis recommended some changes in maintenance levels, resulting in proposals for some road decommissioning and/or closures. Currently road densities within the four subwatersheds affected by the project are within or very near Forest Plan guidelines. The need to decommission and/or close the few roads proposed was

viewed by the team as outside the scope of this project. The team chose to keep the focus of the project on fuels reduction and activities directly associated.

Therefore, the ID team, with support from the District Ranger, opted to propose changes to road maintenance levels (to include proposing road closures) in a separate project in fiscal year 2004 or 2005. The Mt. Emily roads analysis would be the guiding document for initiating these changes.

The following table shows open road densities in the four subwatersheds affected by the project area boundary.

**Table 12. Road Densities by Subwatershed.**

Subwatershed	Management Area(s)	Acres	Open Road Density (mi./sq. mi.)	Forest Plan Road Density Guideline
17E	3/3A	809	1.58	1.5
84G	3/3A	2,243	.60	1.5
	15	440	0.0	N/A
84H	3/3A	1,103	.19	1.5
87C	1	1,493	1.25	2.5
	3/3A	11,376	1.04	1.5

Five road segments in the project area have been identified as ineffectively closed (portions of 3120600, 610, 620, 810, and 812), for an estimated 3.57 miles. These roads would be effectively closed following project activities. This does not result in a proposed change to the access and travel management plan as these road segments are considered closed in the A&TM plan. For estimated costs of reconstruction and creating effective closures see the analysis file, Access and Travel Management Summary.

Transportation system management is important because in addition to big game disturbance, roads can be a source of sediment, intercept groundwater flow, increase the drainage network, reduce large shade-producing trees, and confine stream channels preventing lateral stream movement. The roads analysis determined the 3120500 road to be in extremely poor maintenance, and not up to standard that a level two maintenance road should be. Portions of the 500 road are in poor condition, and runoff is channeled down the road leading to severe erosion, rutting, and deposition of sediment into stream channels. This is a concern not only because the project is planning to use the 500 road for fuels reduction activity, but also because the road receives fairly high use from forest users.

### 13) Safety

Standing dead trees near areas of concentrated public use, such as recreation sites or main traveled roads, represent a public safety hazard. Log haul on high recreation use roads could create conflicts with public users and a potential safety hazard.

Standing dead trees near the main travel route of 3120 present a safety problem to suppression efforts in the event of a wildfire that would burn through the area causing burning snags to fall across the road .

Aerially yarded logs over road open to vehicular traffic with either skyline or helicopter creates a concern for public safety.

### 14) Water Rights

The Wallowa-Whitman National Forest has reserved water rights within the Mt. Emily project area with a priority date of 1906. Concerns relating to water rights include how much water can be used during project implementation for uses such as road construction and reconstruction and at what time of year can the water resources be used.

## **15) Standing and Down Woody Materials**

Snags and down wood are not distributed uniformly throughout the Mt. Emily analysis area. Insect events, root rot and blow down have created snags and down wood in a clumped distribution. Heavy woodcutting activity in the roaded portion of the Mt. Emily analysis area has reduced western larch snag habitat.

Western larch and ponderosa pine snags and down wood are lacking. Sub-alpine fir community types are prevalent on western portion of the analysis area and these types generally provide poor cavity nesting and foraging habitat for woodpecker species.

Snag and down wood information is lacking, especially along the face of Mt. Emily (eastern portion of the analysis area), however, it is likely that the unmanaged stands of Douglas-fir, mixed-conifer, and grand fir plant associations provide suitable habitat.

## **J. Summary of Scoping Process**

Public scoping for the Mt. Emily Fuels reduction project was initiated in the spring, 2002, Wallowa-Whitman Forest Schedule of Proposed Actions (SOPA), and has appeared in each quarterly SOPA since then. This mailing is distributed to over 150 individuals, organizations, and agencies. Five letters of interest were received.

Two public forums were held on February 25 and 26 2003 to discuss the Mt. Emily project and accept public comments. The forums were conducted in cooperation with the Oregon Department of Forestry with hour long presentations by both agencies, followed by questions and answers. Local land owners and valley residents were encouraged to attend with over 150 notifications mailed and advertisement in the local newspaper. Approximately 25 people attended each meeting. Several verbal and written comments were offered and incorporated into the proposed action letter.

A description of the proposed action was mailed on March 21, 2003 (letter dated March 10, 2003) to approximately 280 forest users and concerned publics soliciting comments and concerns related to this project. Seven comment letters were received and reside in Appendix D of the EA.

On April 25, 2003, an overview of the project was presented to the Union County Community Forestry Board. On July 11, 2003 the Forestry Board was given a presentation in the field on the current status and alternatives being developed for the project.

On December 12, 2003, a summary presentation to the Union County Community Forestry Board discussed the project preferred alternative and fire modeling results.

Several field trips to the Mt. Emily project area were organized to discuss proposed actions on the ground and incorporate feed back. On July 1, 2003 interdisciplinary team members and representatives from Hells Canyon Preservation Council (HCPC) toured portions of the project area. Field trips were organized for Forest Service officials from the Regional office in Portland and the Forest Supervisors office in Baker City, OR.

In April of 2003, an overview of the project was presented to the Level 1 Streamlining Consultation Team from the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife (USF&W). More site-specific project information was provided to the Level 1 Team in July of 2003. A draft of the Mt. Emily Biological Assessment for Bull Trout, Steelhead and Spring Summer Chinook Salmon (part of the Upper Grande Ronde Assessment Area Biological Assessment (BA), January 2004) was sent to the regulatory agencies in October 2003. A final BA was submitted in February 2004. A letter of concurrence or Biological Opinion is expected in April of 2004.

Scoping and consultation for the project was initiated and is ongoing with the CTUIR and ODF&W.

This project has been submitted to The State Historical Preservation Officer (SHPO) for review.

#### **K. Availability and Location of the Analysis File**

An analysis file for this project is available for public review at the La Grande Ranger District. The analysis file includes specialist's reports, data specific to the project, public notifications and their responses, meeting notes, and miscellaneous documentation.

## Chapter Two: Alternatives, Including the Proposed Action

### A. Introduction

This section describes a reasonable range of alternatives as they address the purpose and need for action and as they respond to the issues.

### B. Alternative Development Process

The National Environmental Policy Act (NEPA) directs the Forest Service to use an interdisciplinary approach which will ensure the integrated use of natural and social sciences and the environmental design arts [NEPA, section 102(2)(A)].

An ID team developed alternatives based on the purpose and need of the project and the key issues and other concerns identified in Chapter 1 of this assessment. Forest Service management objectives are incorporated into alternatives by following standards and guidelines of the Wallowa-Whitman National Forest Plan as amended.

### C. Alternatives Considered, but Eliminated from Detailed Study

The following alternative options were considered during the development of this analysis but were eliminated from detailed study as described below.

**Alternative Four: Modified Treatment Prescriptions** – This alternative would treat the same acres proposed in Alternative Two (the proposed action) with modified prescriptions. This alternative would treat down and standing fuels with clean ing and pruning only. There would be no management of crown fuels through stand density reduction. There would be no prescribed burning. This alternative would treat surface and near surfaces fuels as described under “Elements Common to the Action Alter natives” below.

Under this alternative, small diameter trees six inches or less that contribute to ladder fuels would be removed. Trees would be hand-felled, lopped and scattered, or piled and burned. Larger diameter trees (over six inches dbh) would be pruned to approximately 8-10 feet from the ground up where feasible along the 3120500 and 3120. Slash would be lopped and scattered or piled and burned. Existing down fuels would be mechanically treated on gentler slopes and hand-treated on slopes over 35%. Fuel levels would be reduced to 20-25 tons per acre. Disposal methods would include piling and burning, crushing (mastication), or slash buster.

This alternative, as modeled, would modify crown fire behavior for approximately five years. Under the 97<sup>th</sup> percentile fire danger day, fires that would normally reach the crowns would remain as surface fires. Removal of surface and near surface fuels under this alternative would require repeated maintenance every five to ten years in order for crown fires to remain as surface fires, particularly in fire regimes one and three.

This alternative was eliminated from detailed study because it minimally meets the purpose and need. The short-term nature of fuel reduction and crown fire behavior modification would not meet the purpose and need of modifying fire behavior for ten to twenty years. The cost and effort of repeated maintenance every five to ten years may exceed the Forest capabilities under limited budgets and resources. The minimal fuels reduction (surface and near surface fuels) of Alternative Four does not meet the purpose and need of reducing stand densities in order to decrease tree competition, mortality from insects and disease, and resulting fuel load build-up. This alternative does the least for reducing fuel loading, fire behavior potential, and the risk of insects and disease over time, when compared to Alternatives Two and Three.

Without reducing crown fuels through stand density reduction, prescribed burning opportunities on many fire regime one and three sites would be forgone. Prescribed burning without mechanical pre-treatment on many of these sites would be too risky. Crown fire and stand replacement fire potential would be high, resulting in loss of wildlife habitat, soil, air and scenic values. The opportunity to return fire to fire-adapted ecosystems closer to historic return intervals would be lost.

**Alternative Five: Prescribed Burning Only** - This alternative would apply prescribed fire in fire regimes one and three, condition classes two and three to reduce surface, near surface and some crown fuels. The purpose would be to return fire-adapted ecosystems closer to historic fire return intervals. Prescribed burning would occur on approximately 4,000 acres. This alternative would defer all other treatment methods.

This alternative was considered very risky to implement. Many areas have fuels loadings that prohibit safe prescribed burning conditions. Without mechanical pre-treatment, prescribed burning in these areas would likely result in undesirable crown fire and stand replacement conditions. The risk of escape due to fuel loading, lack of control points and steeper terrain on the slopes of Mt. Emily was also considered very high; the risk would not be acceptable either to the Forest or to the neighboring community of Mt. Emily given these known issues.

Because of high-intensity crown fire potential and risk of escape, this alternative has a high potential for damaging adjacent landowners property and natural resources, including scenic quality, soils, water quality, old growth and wildlife habitat. Because of the escape potential and likelihood of high-intensity crown fire, this alternative has a higher potential for smoke impacting surrounding communities of the Grande Ronde Valley.

This alternative would likely meet the purpose and need of reducing surface fuel loading; however, the risk of unacceptable damaging results is very high. This alternative would not meet the purpose and need of managing crown densities, ladder fuels, and surface fuels in order to reduce the potential of crown fire ignition and spread because it likely would initiate crown fire and spread. This alternative would have mixed results in terms of restoring fire-adapted ecosystems. A majority of the acres burned would likely lose the overstory with the understory, not a desirable way to return low -intensity, frequent fires to these communities.

Because this alternative would only achieve the purpose and need under a high risk of unwanted results, and because it does not meet the intent of the National Fire Plan in terms of reducing risk to wildland urban interface communities due to the risk of escape and high potential for damaging adjacent landowner's property and natural resources, this alternative was eliminated from detailed study.

**Alternative Six: Treating Priority Area One Only** - This alternative would treat priority area one only as described in the proposed action (Alternative Two). Priority area's two and three would be deferred from treatment under this alternative.

Priority area one is closest to the Mt. Emily Community. Treatment under this alternative would reduce surface, near surface and crown fuels through commercial thinning, non-commercial thinning, cleaning, and pile burning and/or removal of surface fuels and slash. Prescribed burning would occur in priority area one only.

This alternative would compliment fuels reduction activity occurring on adjacent private lands in the Mt. Emily Community. It would help restore vegetative conditions closer to historic levels on close to 1,200 acres in fire regimes one and three, condition classes two or three, through mechanical treatment and prescribed fire. This treatment would benefit those lands closest to the Mt. Emily WUI.

This alternative was given consideration as an alternative to fully develop. However, upon further discussion, this alternative did not meet the desired condition of improving opportunities to safely attack a wildfire (see desired condition Chapter one). Similarly, this alternative did not meet the purpose and need to provide defensible space for fire-fighting crews to safely approach a wildfire.

As stated under desired condition, purpose and need, Chapter one, *“Desired future fuel conditions along the ridges to the west and above the community (priority areas two and three) are those that reduce flame lengths to four feet or less, reduce spotting and crown fire hazards, and improve fire fighter safety, access, and options for suppression actions along these strategic ridges.”* Treatments under Alternatives Two and Three would reduce flame lengths, spotting crown fire hazards, and improve safety and access (see chapter three). However, Alternative Six would defer treatment at strategic ridgetop locations in priority areas two and three. Deferred treatment would reduce the probability of firefighters using these locations as a foothold in the event of a wildfire, and decrease options of stopping a wildfire traveling west to east toward the Mt. Emily community.

As stated under purpose and need, Chapter one, *“A reduction of surface and ladder fuels combined with ridge top locations, or near ridge top roads, provides an area that can alter fire behavior of an oncoming wildfire and provide a strategic location to safely anchor suppression activities. Mechanical removal and/or burning to reduce fuel loadings at these locations would provide options to fire suppression managers during wildfire operations.”* Treatments under Alternatives Two and Three would provide defensible space to safely approach an oncoming wildfire. However, Alternative Six would bypass treatment of these locations making direct attack fire suppression along the 3120, 3120450, 500 and 650 roads more dangerous and less likely.

In order to provide footholds for firefighter access and safe direct suppression activity, and because it does not fully meet desired conditions or purpose and need, Alternative Six was eliminated from detailed study.

## **D. Alternatives Considered in Detail**

### **Elements Common to the Action Alternatives (Alternatives Two and Three)**

#### **1) Fuels Reduction Treatment Prescriptions/Objectives**

The following describes the treatment objectives, methods and anticipated outcomes of the fuel treatments. The prescriptions target basal area ranges based on plant associations, fire regimes, tree species selected for future management, and resource objectives.

In some situations the target basal areas are difficult or impossible to achieve due to: (1) high mortality levels; (2) the abundance of damaged and diseased trees; and (3) the abundance of trees greater than 21 inches in diameter. Where the stands are dominated by large trees which can not be removed, the basal areas will remain at a level above the targeted management zone, however, the understories will be treated for ladder fuels and surface fuels to ensure the integrity of the fuel management objectives.

In those stands where the management zones may be difficult to achieve due to mortality, damage or disease, the general goals will be to meet the fuels treatment needs by treating the surface, ladder, and crown fuels while accepting the best basal area level achievable based on current stand conditions, which may very well be lower than the initial target level.

The final prescription and the environmental consequences for each stand depends on existing stand conditions (refer to site specific stand diagnoses and specialist reports in the Analysis file).

#### **A) Surface and Near Surface Fuel Prescriptions:**

**Fuels Reduction (HFU)** - treatment of dead standing and down material and imminent mortality through removal, piling or slashbusting. Fuel Model 10 would be reduced to Fuel Models 8 or 9.

**Fuels Small Diameter Thinning (SPC)** – Hand or mechanically thin and remove standing trees less than or equal to four inches dbh and six feet in height. Fuel Model 5 acres would be moved to Fuel Model 8 or 9. This includes lopping, piling, crushing fuel beds with depths >12 inches high or fuel loadings > 25 tons per acre.

**Pile Burning (RMP)** – Burn piles resulting from hand piling or mechanical piling.

**Underburn (RX Fire)** – Prescribed fire to reduce < 3 inch diameter fuel loading. See more detailed description below.

**B) Crown Fuel Prescriptions:**

**Fuels Thin/Lower Management Zone (HTH/LMZ)** – Thinning to reduce tree densities and crown fuels to a lower management level (LMZ). This prescription targets multiple layers of trees while retaining large trees and fire adapted species. LMZ provides the highest level of treatment for reducing crown bulk densities (CBD) and future fuel loadings resulting from insect and disease mortality. Treatment would also raise Crown Base Height (CBH).

**Fuels Thin/Upper Management Zone (HTH/UMZ)** – Thinning to reduce tree densities and crown fuels to mid point between lower and upper management level (UMZ). UMZ provides a lower level of treatment for reducing CBD compared to LMZ while managing to retain large trees with a mix of fire adapted species and non-fire adapted species. This prescription targets the lower tree layer needed to raise canopy base heights to greater than fifteen feet in height.

**Fuels Thin and Clean (SPC/SCN)** – Hand or mechanically thin and remove standing trees less than or equal to six inches dbh; prune low live limbs of residual trees less than six inches dbh. Treatment would raise CBH at a lower level when compared to LMZ and UMZ.

**2) Prescribed Fire Treatments**

Both action alternatives include prescribed fire treatment on 1,622 acres. Alternative Two would mechanically treat 1,344 acres prior to prescribe burning. Alternative Three would mechanically treat 1,114 acres prior to prescribe burning.

Prescribed fire is proposed in fire regimes 1, 2, and 3 that historically are maintained by fire. Within the prescribed fire units there are areas that will receive mechanical cleaning and thinning treatments prior to applying prescribed fire. Fire would be re-introduced over periodic intervals in forested areas and natural openings using low to moderate intensity prescribed fire. Burning would reduce build up of litter, duff, and 0-3 inch fuels. Burning would also reduce stocking levels and fir encroachments, promote development of seral fire species, and enhance forage and browse for domestic and wildlife species. For burning prescriptions and guidelines, see constraints and mitigation section.

**3) Mt. Emily Forest Plan Amendment**

As a part of the Mt. Emily decision the Wallowa-Whitman National Forest Plan will be amended to include changes to the following three sections outlined below.

**Section 1: Treatment in Old-growth Below HRV – Forest Plan Amendment**

Forest Plan standards restrict harvest treatment in LOS that is below the average (midpoint) HRV. An HRV analysis of LOS, by biophysical grouping, is described in Chapter one of this EA. Biophysical group G4 is below the midpoint of HRV for MSLT (multi-strata large trees). In order to reduce fuels in the Wildland Urban-Interface and protect Old Growth stands in the project area, the following modification is made to the Wallowa-Whitman Forest Plan, Regional Forester Amendment #2, for the Mt. Emily Fuels Reduction Planning Area.

**Current Direction:** d. Scenario A If either one or both of the late and old structural (LOS) stages falls below HRV in a particular biophysical environment within a watershed, then there should be no net loss of LOS from that biophysical environment. Do not allow timber sale harvest activities to occur within LOS stages that are below HRV .

**Amended Direction:** Specific to the Mt. Emily project area, this amendment would allow timber sale activities within LOS stages that are below HRV in this project to meet the fuels treatment objectives in the WUI. Harvest within the MSLT LOS would result in either Single Stratum Large Trees (SSLT) or maintain the MSLT structure.

Both action alternatives propose treatment of LOS stands in this grouping within all three priority areas. This section of the amendment would allow fuels reduction prescription treatments as described under number one above in biophysical group G4 old growth that is below the midpoint of HRV for MSLT. Treatments include commercial thinning of trees under 21 inches, removing dead standing and down material, thinning and cleaning of small diameter trees, pile and prescribed burning. Treatments under this amendment would not result in a net loss of old growth, but the amendment would provide for treatments that would maintain old growth habitat as defined by Forest standards and definitions. Old growth habitat is measured by levels of down wood, snags, number of canopy layers and large trees (See Regional Forester's amendment #2 –screens- and Wallowa-Whitman National Forest Recommended Definitions for New Structure Stages per Amendment #2, November 9, 1995).

Treatment levels in G4 LOS vary by alternative. A brief description follows:

**Alternative Two** would treat 241 acres of MSLT in biogroup G4. Forty-two acres are in priority area one. All 42 acres would receive commercial thinning prescriptions to reduce crown fuels to the lower management zone. Trees > 21 inches diameter would not be cut. Treatment to the lower management zone would modify these multi-strata stands to single-strata stands. Follow-up treatment includes surface and near surface fuel reduction that meets Forest Plan guidelines for maintaining old growth habitat of logs, snags and structure.

Eighty-five acres are in priority area two and 114 acres are in priority area three. All 199 acres would receive commercial thinning prescriptions to reduce crown fuels to the lower management zone. Treatment to the lower management zone would remove these multi-strata stands to single-strata stands. Follow-up treatment includes surface and near surface fuel reduction that meets Forest Plan guidelines for maintaining old growth habitat of logs, snags and structure.

**Alternative Three** would treat 142 acres of MSLT in biogroup G4. Forty-two acres are in priority area one. Twenty-five acres of priority one (units 103, 106, 107, and 110) are in the N. Mt. Emily IRA. Eight acres (units 128 and 131) are in the Bull Canyon MA -15. These 33 acres would receive modified thinning prescriptions, reducing crown fuels to the upper management zone, followed by surface and near surface fuel reduction treatment (described under common elements above). Surface and near surface fuel reduction treatment would meet Forest plan guidelines for maintaining old growth levels of logs and snags. Trees > 21 inches diameter would not be cut.

The remaining nine acres (unit 146) are outside of the IRA and MA-15. They would be thinned to a range between the lower and upper management zone, also followed by similar treatment of surface and near surface fuels to meet Forest Plan guidelines for retaining old growth levels of logs and snags.

Eighty-four acres are in priority area two. Eleven acres (unit 208) are within the N. Mt. Emily IRA. Unit 208 would receive hand treatment only of surface and near surface fuel reduction. Fourteen acres (units 268 and 271) are within Mt. Emily IRA and would receive similar hand treatment only of surface and near surface fuels (no commercial thinning). Five acres along the 3120 road (unit 262) would also receive hand treatment only of surface and near surface fuels

reduction. Fifty-four acres along the 500 road (units 251 and 253) along the 3120 road (unit 262) would receive thinning to reduce crown fuels to a range between the lower and upper management zone, followed by surface and near surface fuel reduction. These prescription modifications would meet Forest Plan guidelines for maintaining old growth levels of logs, snags and structure.

Sixteen acres (unit 309) are in priority area three. Unit 309 would receive commercial thinning to reduce crown fuel to a range between the lower and upper management zone, followed by surface and near surface fuel reduction that meets Forest Plan guidelines for maintaining old growth.

## **Section 2: Treatment in Allocated Old Growth (MA15) - Forest Plan Amendment**

Treatment in the Bull Canyon allocated old growth is proposed in both alternatives to provide a continuous fuels reduction treatment along the Forest boundary. The Bull Canyon allocated old growth adjoins the Forest boundary at the east edge of the project and continues upslope to the ridgetop.

The Forest Plan does not address treatment needs that reduce fuels and modify fire behavior in old growth within WUIs. The Forest Plan does say under Timber at 4-90, "areas allocated to old-growth timber will have no scheduled timber harvest although salvage may occur following catastrophic destruction if a more suitable replacement stand exists." The exception to salvage following catastrophic destruction has little utility since Bull Canyon is healthy functioning old growth. The direction prohibiting scheduled timber harvest also has little utility since treatment objectives are fuels reduction and modifying fire behavior. These objectives give little consideration to timber harvest or commercial viability.

Due to the lack of direction from the Forest Plan to provide fuels reduction criteria for entering old growth within a WUI, the ID team with Forest support, recommended that a site specific non-significant Forest Plan amendment be included as a component of Alternatives Two and Three in order to reduce fuels and modify fire behavior in the Bull Canyon allocated old growth.

The following guideline is being added to clarify compatibility and use of fuels reduction treatments in Management Area 15 in the Mt. Emily Fuels Reduction planning area:

**Wildland Urban-Interface Guideline.** Mechanical and non-mechanical fuels reduction is permitted within stands of allocated old growth within the Mt. Emily WUI to meet fuels treatment objectives. Where treatments are applied they shall retain old-growth characteristics.

The amendment would allow fuels reduction prescription treatments as described under number one above within the Bull Canyon Allocated Old Growth. Treatments include commercial thinning of trees under 21 inches, removing dead standing and down material, thinning and cleaning of small diameter trees, pile and prescribed burning. Treatments under this amendment would not result in a net loss of old growth, but the amendment would provide for treatments that would maintain old growth habitat as defined by Forest standards and definitions. Old growth habitat is measured by levels of down wood, snags, number of canopy layers and large trees (See Regional Forester's amendment #2 –screens- and Wallowa-Whitman National Forest Recommended Definitions for New Structure Stages per A amendment #2, November 9, 1995).

Bull Canyon designation as allocated old growth would be retained. This amendment would not change allocation as designated under the Forest Plan.

Treatment levels in Bull Canyon vary by alternative. A brief description follows:

Alternative Two would treat 188 acres within the Bull Canyon MA15 with commercial thinning to the lower management zone, followed by fuels reduction of dead standing and down trees, cutting of small diameter ladder fuels (cleaning) piling, and prescribed burning.

Alternative Three would treat 158 acres within the Bull Canyon MA15 with commercial thinning to a mid-range between the lower and upper management zone, followed by fuels reduction of dead standing and down trees, cutting of small diameter ladder fuels (cleaning), piling and prescribed burning.

Under both alternatives, trees > 21 inches would not be cut.

### **Section 3: Treatment in Canada lynx habitat – Forest Plan Amendment**

The Canada lynx was listed as threatened species under the Endangered Species Act by the US Fish and Wildlife Service in March 2000. To engage a strategy for lynx and lynx habitat protection, the Forest turned to the Canada Lynx Conservation Assessment and Strategy (LCAS), August 2000.

The Mt. Emily analysis area provides habitat for the Canada lynx (Grande Ronde River/Hilgard Lynx Analysis Unit and Meacham Lynx Analysis Unit). There is over 7,000 acres of lynx habitat within the lynx analysis units (LAU) with denning and foraging habitat levels which exceed the minimum standard habitat requirements identified in the LCAS (Table 24; Ruediger et al. 2000).

This project is proposing adoption of the standards and guidelines of the Canada Lynx Conservation Assessment and Strategy (LCAS), August 2000, as the third section of the non-significant, project-specific Forest Plan amendment for the action alternatives. The LCAS was developed to provide a consistent and effective approach to conserve Canada lynx on federal lands in the conterminous United States and represents the best available science for conservation of Canada Lynx. The overall goals of the LCAS were to develop recommended lynx conservation measures, provide a basis for reviewing the adequacy of Forest Service land and resource management plans with regard to lynx conservation, and to facilitate Section 7 conferencing and consultation at the programmatic and project levels.

The standards and guidelines of the LCAS were designed to cover a wide variety of habitats spread over a range of thousands of miles, as well as a wide variety of management scenarios and circumstances. Therefore, not all of the standards and guidelines will be applicable to this project and the area. An analysis of the applicability of each LCAS standard and guideline for this project area was completed and resides in the Analysis file.

Both action alternatives propose to mechanically treat fuels and prescribe/jackpot burn in lynx habitat. Alternative Two converts 381 suitable acres, of which 300 acres are denning habitat and 81 acres are forage habitat. Alternative Three converts 290 suitable acres, of which 179 acres are denning habitat and 111 acres are forage habitat. This section of the amendment modifies the Wallowa-Whitman Forest Plan for the Mt. Emily Fuels Reduction Planning area and would only apply to lynx habitat within the project area.

Alternative 2 – Mechanical Treatments in Lynx Habitat		
Unit Numbers	Habitat Type	Prescription
150, 235, 240, 241, 244, 252, 317	Forage	Combination of all following treatments: HTH/HFU/SCN/RMP/RPB
207, 237, 238, 239, 242, 243, 245, 246, 248, 302, 303, 306, 309	Denning	Combination of all following treatments: HTH/HFU/SCN/RMP/RPB
301	Denning	Combination of all following treatments: HFU/SCN/RMP/RPB

Alternative 3 – Mechanical Treatments in Lynx Habitat		
Unit Numbers	Habitat Type	Prescription
150, 235, 240, 241, 244, 252, 268, 271, 317	Forage	Combination of all following treatments: HTH/HFU/SCN/RMP/RPB
237, 238, 239, 242, 243, 245, 246, 248, 262, 264, 265, 267, 309	Denning	Combination of all following treatments: HTH/HFU/SCN/RMP/RPB
207	Denning	Combination of all following treatments: HFU/SCN/RMP/RPB

#### 4) Treatment in Inventoried Roadless Areas (IRA)

Treatment is proposed in two Inventoried Roadless Areas (IRAs), the North Mt. Emily IRA and the Mt. Emily IRA. Treatment is designed to protect or enhance roadless characteristics. The most recent definition of roadless characteristics is provided in The Roadless Area Conservation Rule (currently enjoined by the District court in Wyoming). Following the injunction, Forest direction concerning roadless areas was to follow the Forest Plan(s) for guidelines on managing IRAs. The Wallowa-Whitman Forest Plan identifies both North Mt. Emily and the Mt. Emily IRAs as managed roadless areas (i.e. – allows for management), FEIS, IV page 59, appendix C-5. Both portions of the IRAs within the project boundary are allocated to Wildlife – winter and summer range (MA3/3a). The IRAs would be managed according to the standards and guidelines provided for MA3/3a. The Mt. Emily Fuels Reduction project is not proposing activity on the Umatilla portion of the North Mt. Emily IRA.

Should the injunction on the Roadless Area Conservation Rule be lifted prior to the decision signing of this project, the Roadless Rule direction would be followed. The Roadless Area Conservation Final Rule (January 12, 2001) allows timber harvesting for clearly defined purposes where necessary to meet ecological needs. Treatment purposes for this project, as defined in the Roadless Rule are: “To maintain or restore the characteristics of ecosystem composition and structure, such as to reduce the risk of uncharacteristic wildfire effects, within the range of variability that would be expected to occur under natural disturbance regimes of the current climatic period.”

**Alternative Two** would mechanically treat 155 acres in the North Mt. Emily IRA and six acres in the Mt. Emily IRA concentrating on generally small diameter trees due to the nature of the current conditions and the goals of the fuel reduction treatments. Treatment in both IRAs include commercial thinning (HTH) to lower management zone (LMZ) followed by fuels reduction harvest (HFU), fuels thinning (SPC), cleaning (FCN) and pile burning (FHB, FMB). Units affected include 101 – 108, 110, 111, 113 and 201 – 206, 208, 210, 211 (North Mt. Emily IRA) and 311 (Mt. Emily IRA).

Prescribed fire would occur in approximately 359 acres (units 101-108, 110, 111, 113, 201-206, 208, 210, 211, 601) in North Mt. Emily and on 16 acres (units, 311, 603) in Mt. Emily IRA. Mechanical treatment would occur prior to burning on approximately 145 of these acres.

**Alternative Three** would mechanically treat 155 acres within the North Mt. Emily IRA, also concentrating on generally small diameter trees due to the nature of the current conditions and the goals of the fuel reduction treatments. Treatment includes commercial thinning (HTH) to the mid range between lower and upper management zones followed by fuels reduction harvest (HFU), fuels thinning (SPC), cleaning (FCN) and pile burning (FHB, FMB). This would occur only in priority area one. Affected units include 101 – 108, 110, 111, and 113 (94 acres). Units 201 – 206, 208, 210, and 211 (61 acres) of the North Mt. Emily IRA would be mechanically treated for surface and near surface fuels, with no commercial thinning. This is a treatment modification from Alternative Two, although treatment units/acreages stay the same. Surface and near surface fuels treatment would include removal of dead standing and down material to <25 tons per acre by piling or slashbusting. Live trees less than seven inches diameter would be hand or mechanically thinned and piled, lopped, scattered, crushed or burned.

Alternative Three would mechanically treat 38 acres within the Mt. Emily IRA. This is an additional 32 acres that are not included in Alternative Two (unit 311 is the only Mt. Emily IRA treatment unit in both action alternatives). Units 263, 264, 267-269, 270, 271, and 311 would be treated for surface and near surface fuels, with no commercial thinning. Treatment would include removal of dead standing and down material to <25 tons per acre by piling or slashbusting. Live trees less than seven inches diameter would be hand or mechanically thinned and piled, lopped, scattered, crushed or burned.

Prescribed fire would occur in approximately 369 acres (units 101-108, 110, 111, 113, 201-206, 208, 210, 211, 601) in North Mt. Emily and on 48 acres (units 264, 267, 268, 271, 603) in Mt. Emily IRA. Mechanical treatment would occur prior to burning on approximately 187 of these acres. Prescribed burning prescriptions are the same as Alternative Two.

**Both action alternatives** propose fuel removal in the roadless area. Commercially thinned trees from all mechanical fuels reduction units would be hand-felled (chainsaw) or cut by low impact ground based equipment. No trees greater than 21 inches in diameter would be cut. Removal of trees from these areas would be by helicopter (see appendices A and B). Helicopter landings would be outside of the IRAs. No roads would be constructed in either IRA, temporary or otherwise. Treatment is being proposed in order to provide continuity of fuel reduction corridors in the Mt. Emily WUI.

## **5) Connective Corridor Treatments**

The face of Mt. Emily provides old growth habitat connected by riparian areas, primarily east to west. Old growth on the ridge is extensive and, therefore, provides a large block of connected old growth habitat. Fragmentation exists on the ridge due to past timber harvest; however, connectivity is provided from the ridge west to old growth patches in the Mt. Emily Inventoried Roadless area through several routes that cross over the 3120500 and 3120 roads.

An analysis of connectivity between patches of old growth was conducted. Project design and the nature of the prescriptions in the action alternatives will maintain wildlife connectivity qualities and meet the minimum levels as described in the Screens (Minimum widths of four hundred feet and canopy closures within the top one-third of site potential) except in stands where tree mortality is currently affecting canopy closure.

## **6) Riparian Habitat Conservation Areas (RHCAs)**

Approximately 79 units (344 acres) in Alternative Two and 67 units (307 acres) in Alternative Three would receive the modified prescriptions described below to treat within riparian habitat conservation areas (RHCAs). Mechanical equipment would not operate in nor would harvest removal occur in riparian areas in order to minimize ground disturbance and reduce the risk of sediment transport to adjacent streams. Hand tools (chain saws) would be used to clean and thin small diameter trees (less than 7 inches), pile and burn. Slash would be hand piled and/or burned.

### **Small diameter fuels reduction prescriptions:**

Treatment within RHCAs includes the following units: 101 – 108, 112 – 114, 117 – 125, 127 – 133, 135, 136, 138 – 140, 142 – 146, 147, 149, 202 – 206, 208, 210, 211, 215, 216, 218, 220, 221, 223, 225, 227, 230, 231, 237, 238, 240, 243 – 245, 248, 251 – 254, 256 – 259, 262, 264, 265, 268, 271, 301, 303, 306, 309, 315, 316, and 318. Small diameter trees less than seven inches will be thinned and cleaned. The following constraints and mitigations apply to these units:

1. No trees will be cut within 25 feet of any fish bearing and/or perennial stream (none have been identified within the project area).
2. No trees will be cut within 10 feet of any intermittent stream channel.
3. No live trees greater than seven inches dbh will be cut within RHCA.
4. Within RHCAs, all trees will be cut by hand, no ground-based equipment will be used, and no mechanical treatment or mechanical removal will occur.

Riparian Management Objectives (RMO) will be met or improved in all RHCAs (see PACFISH for objectives). To assure attainment of RMOs, no-cut buffers would be implemented on both sides of class III and IV streams. Class III streams would receive a 25 foot buffer and class IV streams would receive a 10 foot buffer. See constraints and mitigation measures for units affected.

Prescribed burning would occur within RHCAs of 79 units in Alternative Two and 67 units of Alternative Three. Ignition would not occur within PACFISH designated RHCA buffers. However, low and moderate intensity fires would be allowed to back into riparian area. See constraints and mitigation section for specifics.

## **7) Access and Travel Management**

Five road segments in the project area have been identified as ineffectively closed (portions of 3120600, 610, 620, 810, and 812), for an estimated 3.57 miles. These roads are planned for use under either action alternative and will be effectively closed following project activities. This does not result in a proposed change to the access and travel management plan as these road segments are considered closed in the A&TM plan. For estimated costs of reconstruction and creating effective closures see the analysis file, Access and Travel Management Summary.

Approximately 2.5 miles of Forest Road 3120500 would be reconstructed to improve drainage, reduce erosion and sedimentation, and reinforce the subgrade. Reconstruction would include road surfacing such as spot rocking to improve drainage. The proposed reconstruction involves the installation of seven culverts, and includes culverts on three Class IV streams, two class III streams, and two relief culverts. The two relief culverts are new installations. Relief culverts would improve drainage by transferring water from the ditch on the “inside” of the road to the “outside” of the road prism.

## Alternative Descriptions

### A) Alternative 1 - No Action

This alternative constitutes the "No Action" required by NEPA. Fuel reduction needs (activities) identified in the proposed action would be deferred. This alternative forms the baseline for comparison of the action alternatives.

### B) Alternative 2 – Proposed Action [Refer to map and data tables in Appendix A]

#### ***Proposed Action Modified:***

This alternative is the proposed action as described in chapter one of this EA. The proposed action includes modifications to the March 10, 2003 proposed action letter mailed to the public. Modifications are based on further improving fuels corridor integrity and discussion of methods to best manage allocated old growth within WUI.

Modifications are:

- 1) Enlarging the project boundary by approximately 137 acres near Indian Rock on the west side of forest road 3120. Treatment in this area is not included in Alternative Two; however, since Alternative Three treatments include portions of this area the project boundary is enlarged for both alternatives (more detail follows under Alternative Three description); and
- 2) Retaining Bull-Canyon allocated old-growth (MA -15) post fuels reduction treatments. The March 10 letter indicated a proposal to re-allocate treated portions of Bull-Canyon allocated old growth to wildlife/timber allocation (MA -3). In exchange, similar acres of MA -3 in the project area would be re-allocated to MA -15. Further discussion revealed the Forest Plan's lack of discussion or direction that would provide guidance for a potential conflict of objectives where allocated old growth lies adjacent to a WUI. Given recent National direction (see references, chapter one) to take action on lands adjacent to a WUI, the Mt. Emily planning team, with Forest support, felt that both objectives could be met in the Bull Canyon allocated old growth. That is, fuels reduction treatment proposed would meet both the purpose and need of reducing surface and crown fuels to modify fire behavior while retaining and more importantly sustaining old growth characteristics and habitat such as large trees, snags and log structure.

The Forest Plan lacks direction on reducing fuels and modifying fire behavior in old growth within WUIs. The Forest Plan does say under Timber at 4-90, "areas allocated to old-growth timber will have no scheduled timber harvest although salvage may occur following catastrophic destruction if a more suitable replacement stand exists." This direction from the Forest Plan has little utility as the project is not timber driven and there is no catastrophic destruction within the Bull Canyon allocated old-growth.

The Mt. Emily project is a fuels-driven project as stated by the purpose and need, and not a scheduled timber harvest that may enter old growth under certain conditions. Due to the lack of direction from the Forest Plan to provide fuels reduction criteria for entering old growth within a WUI, the ID team with Forest support, recommended that a site specific non-significant Forest Plan amendment would be needed to reduce fuels in the Bull Canyon allocated old growth.

#### ***Alternative theme:***

Alternative Two is designed to address the purpose and need by optimizing fuel reduction within identified priority areas. Fuel reduction is optimized by thinning to the lower management zone.

Strategies and treatments to modify fire behavior and intensity on public lands adjacent to the Mt. Emily WUI are emphasized above other issues. Strategies and treatments to create fuel corridors at strategic geographic locations and to increase safety and suppression options in the event of a wildfire are strong

secondary objectives. While consideration is given to other resource areas in the alternative design, greater emphasis is placed on key issue number one (see below).

Alternative Two is driven by the following key issues: 1) Manage Wildfire Risk on Forest Lands within the Mt. Emily WUI; 2) Manage Old-Growth Component Within the Mt. Emily WUI; Old-Growth Currently Outside Historic Range; and, 3) Maintain Mt. Emily Scenic Quality.

#### ***Mechanical Fuel Reduction Treatments:***

##### **Priority Area One**

Proposed mechanical harvest treatment would occur on approximately 892 acres in priority area one. Treatments include commercial thinning (HTH) to LMZ, fuels reduction harvest (HFU), fuels thinning (SPC), cleaning (SCN) and mastication or pile burning (FHB, FMB) (refer to prescription descriptions in Common Elements section above). These treatments are proposed to reduce down and dead standing fuels, raise live tree limb heights (from ground to crown), and reduce crown bulk density. Table One summarizes mechanical treatment acres in priority area one:

**Table 1. Priority Area One Mechanical Treatment Acres.**

HTH/LMZ	HFU	SPC	SCN	RMP
714	892	178	714	892

**Note:** Maximum acres treated are 892. Some acres receive more than one type of treatment – see data tables in appendices A and B.

Commercial thinning (HTH) includes thinning smaller diameter trees (thinning from below) to the lower management zone (LMZ) in this alternative. LMZ is a silvicultural tool used to optimize growing space, and is being adapted to meet fuels reduction and fire management objectives. Objectives include raising crown base height and reducing crown bulk density and future fuel loadings.

##### **Priority Area Two**

Proposed mechanical harvest treatment would occur on approximately 683 acres in priority area two. Treatments include commercial thinning (HTH) to LMZ, fuels reduction harvest (HFU), fuels thinning (SPC), cleaning (SCN) and mastication or pile burning (FHB, FMB) (refer to prescription descriptions in Common Elements section above).

The following table summarizes treatment acres in priority area two:

**Table 2. Priority Area Two Mechanical Treatment Acres.**

HTH/LMZ	HFU	SPC	SCN	RMP
599	683	84	599	683

**Note:** Maximum acres treated are 683. Some acres receive more than one type of treatment – see data tables in appendices A and B.

##### **Priority Area Three**

Proposed mechanical harvest treatment would occur on approximately 394 acres in priority area three. Treatments include commercial thinning (HTH) to LMZ, fuels reduction harvest (HFU), fuels thinning (SPC), cleaning (SCN) and mastication or pile burning (FHB, FMB) (refer to prescription descriptions in Common Elements section above).

The following table summarizes treatment acres in priority area three:

**Table 3. Priority Area Three Mechanical Treatment Acres.**

HTH/LMZ	HFU	SPC	SCN	RMP
356	394	38	356	394

**Note:** Maximum acres treated are 394. Some acres receive more than one type of treatment – see data tables in appendices A and B.

#### **Summary of Mechanical Treatment in Priority Areas One, Two, and Three**

The following table summarizes mechanical treatment acres in priority areas one, two and three:

**Table 4. Alternative Two Mechanical Treatment Acres (All Priority Areas)**

HTH/LMZ	HFU	SPC	SCN	RMP
1,669	1,969	300	1,669	1,969

**Note:** Maximum acres treated are 1,969. Some acres receive more than one type of treatment – see data tables in appendices A and B.

#### **Removal Systems Summary:**

Where treatments result in commercial products, they would be removed by tractor or ground based systems (1,021 acres) and helicopter systems (762 acres). An estimated 186 acres would not require removal and would be treated by lop and scatter or pile and burn. Approximately 55,426 CCF of wood fiber products is expected to be recovered from the proposed action.

Approximately 2.5 miles of reconstruction of Forest Road 3120500 will improve drainage, reduce erosion and sedimentation, and reinforce the subgrade. Approximately 1.0 miles of temporary spur roads are needed to facilitate removal of the materials. No new permanent road construction is proposed.

#### **Prescribed Fire Fuel Reduction Treatments:**

The following table displays prescribed fire treatment acres by priority areas for Alternative Two:

**Table 5. Alternative Two Prescribed Fire Treatment Acres by Priority Area.**

Priority Area	Acres
One	1,059
Two	146
Three	417
<b>Total</b>	<b>1,622</b>

Prescribed burning will reduce surface fuels in the form of litter, duff, and 0-3 inch woody material. In areas that do not have mechanical pre-treatment, burning will target trees less than four inches in diameter.

Eighty-seven percent of prescribed burning under this alternative occurs within fire regimes one, two or three, condition classes two or three. Prescribed burning would help restore these fire-adapted ecosystems closer to historic fire return intervals.

### C) **Alternative 3** – Preferred Alternative [Refer to map and data tables in Appendix B]

#### **Alternative theme:**

Alternative Three was designed to address the purpose and need of reducing fuels and modifying fire behavior with further consideration given to wildlife, roadless and scenic resources in priority areas two and three. Changes to Alternative Two include deferring treatment of fuels at the western end of the Bull Canyon MA -15, deferring treatment of lynx habitat above the 3120450 road, modifying prescriptions in North Mt. Emily Roadless area, deferring treatment east of the 3120 road that may have unwanted visual impacts as seen from the valley floor.

Alternative Three is driven by the following key issues with further consideration given to key issues two and three and lynx habitat, an issue of wildlife concern: 1) Manage Wildfire Risk on Forest Lands within the Mt. Emily WUI; 2) Manage Old-Growth Component Within the Mt. Emily WUI; Old-Growth Currently Outside Historic Range; and, 3) Maintain Mt. Emily Scenic Quality.

#### **Mechanical Fuel Reduction Treatments:**

##### **Priority Area One**

This alternative would retain the integrity of fuel reduction treatments in the highest priority area. Modeling analysis shows objectives for modifying fire behavior would still be met with the prescription changes described below.

**Prescription changes** – Fuel treatment modifications are based on eco-class and fire regime. In fire regime one and the dryer portions of fire regime three, commercial thinning to reduce tree densities and crown fuels would remain at the LMZ level (as in Alternative Two). This would occur on approximately 39 percent of the treatment areas in priority one.

In cooler, moister portions of fire regime three, commercial thinning to reduce tree densities and crown fuels would occur to a mid-point level between the lower and upper management level. (Approximately 47 percent of treatment areas in priority one).

In fire regime four, commercial thinning to reduce tree densities and crown fuels would be to the upper management zone (UMZ) in approximately one third of fire regime four units, while the rest would be thinned to the mid-point between the lower and upper management zone (approximately 14 percent of the treatment areas in priority one). Any old growth stand in fire regime four, biophysical group 4 would be thinned to the upper management zone.

**Old Growth:** While these prescription changes meet fuels and fire behavior objectives, old-growth areas treated would retain more structure characteristics by thinning to the upper management level. Old-growth wildlife habitat would be retained at higher levels when compared to Alternative Two.

**Roadless:** Alternative Three would treat the same 94 acres within priority area one of the North Mt. Emily IRA, however, commercial thinning prescriptions will be modified to the mid range between the lower and upper management zone (affected units: 101-108, 110, 111, and 113).

**Priority One Summary** - proposed mechanical harvest treatment would occur on approximately 829 acres in priority area one. Treatments include commercial thinning (HTH) to LMZ, commercial thinning (HTH) to a mid-point between LMZ and UMZ, commercial thinning (HTH) to UMZ, fuels reduction harvest (HFU), fuels thinning (SPC), cleaning (SCN) and mastication or pile burning (FHB, FMB) (refer to prescription descriptions in Common Elements section above). These treatments are proposed to reduce down and dead standing fuels, raise live tree limb heights (from ground to crown), and reduce crown bulk density. The following table summarizes treatment acres in priority area one:

**Table 6. Priority One Mechanical Treatment Acres.**

HTH/LMZ	HTH/MID	HTH/UMZ	HFU	SPC	SCN	RMP
273	333	102	829	121	708	829

**Note:** Maximum acres treated are 829. Some acres receive more than one type of treatment – see data tables in appendices A and B.

Commercial thinning includes thinning smaller diameter trees (thinning from below) to the LMZ, UMZ and a range between the two in this alternative. LMZ/UMZ are silvicultural tools used to optimize growing space, and are being adapted to meet fuels reduction and fire management objectives. Objectives include raising crown base height and reducing crown bulk density and future fuel loadings.

### **Priority Area Two**

In priority area two, which is further from the WUI, the following modifications to Alternative Two to create Alternative Three have been made to address scenery, old growth and roadless concerns.

**Scenery** - Twenty-two units were deferred treatment east of the 3120 road near Indian Rock, North of Mt. Emily. These units are at the top of the mountain, on the east-facing slope toward the valley floor. They are highly visible from the valley below. Harvest yarding systems may include skyline logging under Alternative Two. There is a concern that visual corridors created from the skyline logging would conflict with scenery objectives.

**Old growth** - These twenty-two units are also located at the west edge of Bull Canyon MA -15. Because this is priority area two, further from the boundary with the Mt. Emily Community, consideration was given to retaining the MA -15 in its current condition, and deferring treatment in this allocated old growth. This is a fuels reduction trade-off to maintain old growth habitat to a higher standard than what was incorporated into Alternative Two.

**Change of strategic ridgetop location** - Treatment of the above twenty-two units would provide connectivity of a fuel corridor along the 3120 road, at a strategic ridgetop location. Because dropping these units diminishes the integrity of the fuel corridor, Alternative Three proposes treatment of six stands on the same ridgetop location, however, on the west side of the 3120 road. Treatment in these stands/units would not be visible from the valley floor, would be outside of the Bull Canyon allocated old growth, and would be limited to hand work. Handwork includes thinning and cleaning trees six inches diameter or less and removing ground fuels, piling and burning treated slash. Treatment would maintain the integrity of the ridgetop fuel corridor along the 3120 road. To facilitate treatment of stands west of the 3120 road at this location, the project area boundary was enlarged by 137 acres.

**Treatment in Inventoried Roadless Area** – Approximately 84 acres of the 137 acres identified above enter the Mt. Emily roadless area and are within priority area two. Four of the six stands (32 acres) proposed for treatments are just within the boundary of the Mt. Emily IRA. Units 263, 264, 267-269, 270, and 271 would be treated for surface and near surface fuels, with no commercial thinning. Treatment would include removal of dead standing and down material to <25 tons per acre by piling or slashbusting. Live trees less than seven inches diameter would be hand or mechanically thinned, cleaned, piled, lopped, scattered, crushed or burned.

Units 201 – 206, 208, 210, 211 (61 acres) of the North Mt. Emily IRA would be treated for surface and near surface fuels, with no commercial thinning. This is a prescription change from Alternative Two, although treatment units/acreages stay the same. Treatment would include removal of dead standing and down material to <25 tons per acre by piling or slashbusting.

Live trees less than seven inches diameter would be hand or mechanically thinned, cleaned, piled, lopped, scattered, crushed or burned.

**Other prescription changes** - Other prescription changes occur in priority area two that are similar to changes in priority area one. In cooler, moist portions of fire regime three, thinning to reduce tree densities and crown fuels would occur to a mid-point level between the lower and upper management level. (Approximately 17 percent of treatment areas in priority two).

In fire regime four, thinning to reduce tree densities and crown fuels would be obtained to the upper management zone.

**Priority Two Summary** - proposed mechanical harvest treatments would occur on approximately 659 acres in priority area two. Treatments include commercial thinning (HTH) to a range between LMZ and UMZ, commercial thinning (HTH) to UMZ, fuels reduction harvest (HFU), fuels thinning (SPC), cleaning (SCN) and mastication or pile burning (FHB, FMB) (refer to prescription descriptions in Common Elements section above).

The following table summarizes treatment acres in priority area two:

**Table 7. Priority Two Mechanical Treatment Acres.**

HTH/MID	HTH/UMZ	HFU	SPC	SCN	RMP
92	287	659	66	593	659

**Note:** Maximum acres treated are 659. Some acres receive more than one type of treatment – see data tables in appendices A and B.

### Priority Area Three

In priority area three, which is furthest from the WUI, modifications to Alternative Two to create Alternative Three include deferring treatment in six units, totaling 143 acres.

**Lynx habitat** – The deferred units are located on a secondary ridge system to the Mt. Emily ridgetop (located above the 3120450 road). These units are in lynx habitat and treatment deferment would maintain these stands as suitable denning habitat.

**Old Growth** - While these prescription changes meet fuels and fire behavior objectives, old-growth areas treated would retain more structure characteristics by thinning to the upper management level. Old-growth wildlife habitat would be retained at higher levels when compared to Alternative Two.

**Roadless** – No change from Alternative Two. Unit 311 would be mechanically treated for surface and near surface fuels, with no commercial thinning. Unit 603 and 311 would be treated with prescribed fire.

**Other prescription changes** - Other prescription changes occur in priority area three that are similar to changes in priority areas one and two. There are no acres proposed for commercial thinning in fire regime one or dryer portions of fire regime three. In cooler, moist portions of fire regime three, thinning to reduce tree densities and crown fuels would occur to a mid-point level between the lower and upper management level. (Approximately 39 percent of treatment areas in priority three).

In fire regime four, thinning to reduce tree densities and crown fuels would be obtained to the upper management zone.

**Priority Three Summary** - proposed mechanical harvest treatments would occur on approximately 251 acres in priority area three. Treatments include commercial thinning (HTH)

to a range between LMZ and UMZ, commercial thinning (HTH) to UMZ, fuels reduction harvest (HFU), fuels thinning (SPC), cleaning (FCN) and mastication or pile burning (FHB, FMB) (refer to prescription descriptions in Common Elements section above).

The following table summarizes treatment acres in priority area three:

**Table 8. Priority Three Mechanical Treatment Acres.**

HTH/MID	HTH/UMZ	HFU	SPC	SCN	RMP
98	153	251	0	251	251

Note: Maximum acres treated are 251. Some acres receive more than one type of treatment – see data tables in appendices A and B.

***Mechanical Fuel Reduction Summary for Alternative Three:***

The following units were deferred from treatment consideration in this alternative to retain higher levels of roadless and scenic quality, and to retain portions of Bull Canyon allocated old growth in its current condition (priority area two): Units 213, 215, 216, 218, 220, 221, 223-225, 227, 228, 230, 231, and 233, totaling 75 acres. The following units were deferred from treatment consideration in this alternative to retain lynx denning habitat in priority area three: Units 301 – 303, and 306 totaling 143 acres. The following units were deferred treatment consideration in this alternative because further field reconnaissance determined no need for fuels reduction treatments: Units 121, 125, 126, 128 and 129 totaling 66 acres. The following units were added in this alternative to provide continuity of ridgetop fuel reduction treatments along the 3120 road: Units 262, 264, 265, 267, 268 and 271, totaling 52 acres. Total difference in mechanical treatment is 232 fewer acres.

The following table summarizes treatment acres in priority areas one, two and three for Alternative Three:

**Table 9. Alternative Three Mechanical Treatment Acres (All Priority Areas)**

HTH/LMZ	HTH/MID	HTH/UMZ	HFU	SPC	SCN	RMP
273	523	542	1,739	187	1,552	1,739

**Note:** Maximum acres treated are 1,739. Some acres receive more than one type of treatment – see data tables in appendices A and B.

***Removal Systems Summary:***

Where treatments result in commercial products, they would be removed by tractor or ground based systems (878 acres) and helicopter systems (622 acres). An estimated 239 acres would not require removal and would be treated by lop and scatter or pile and burn. Approximately 24,696 CCF of saw and wood fiber is expected to be recovered from the proposed action.

Approximately 2.5 miles of reconstruction of Forest Road 3120500 is anticipated to improve drainage, reduce erosion and sedimentation, and reinforce the subgrade. Approximately 1.0 miles of temporary spur roads are needed to facilitate removal of the materials. No new road construction is proposed.

***Prescribed Fire Fuel Reduction Treatments:***

The following table displays prescribed fire treatment acres by priority areas for Alternative Three:

**Table 10. Alternative Three Prescribed Fire Treatment by Priority Area.**

Priority Area	Acres
One	1,059
Two	146
Three	417
<b>Total</b>	<b>1,622</b>

Prescribed burning will remove surface fuels in the form of litter, duff, and 0-3 inch woody material. In areas that do not have mechanical pre-treatment, burning will target trees less than four inches in diameter.

Eighty-seven percent of percent of prescribed burning under this alternative occurs within fire regimes one, two or three, condition classes two or three. Prescribed burning would help restore these fire-adapted ecosystems closer to historic fire return intervals.

## **Management Requirements, Constraints and Mitigation Measures**

The following items are included in all action alternatives, unless otherwise noted, and provide the measures necessary to keep project impacts at acceptable levels. These items would be applied to the proposal as it is implemented on the ground.

### **A) Soil Quality**

Mass stability will be maintained (Forest Plan Soils S&G #1; FSM 2521.03.1.b R6 Supplement 2500-98-1), including stability of any existing landslides.

Soil productivity will be maintained by complying with Regional standards and guidelines in FSM 2521.03, R6 Supplement 2500-98-1. The standard is to "leave at least 80% of an activity area in acceptable soil quality condition." Specific standards are defined for soil compaction, puddling, displacement, burning, surface erosion and mass wasting. Guidelines are defined for organic matter and soil moisture regime.

Compliance with soil quality standards in FSM 2521.03, R6 Supplement 2500-98-1, will be determined through use of protocols described in "Interim Protocol for Assessment and Management of Soil Quality Conditions," Wallowa-Whitman National Forest, Version 3.3, September 2001 or subsequent version. Burn conditions will be monitored using "fire severity" (burn intensity) and "severity burn" (burn area) concepts in *Fire's Effects on Ecosystems*, by DeBano, Neary & Folliott, 1998, p. 63, as required by the current BAER manual, or appropriate modifications thereof to address thresholds in soil standards or hydrologic models.

The following soil guidelines from the Wallowa-Whitman National Forest publication, *Watershed Management Practices - Guide for Achieving Soil and Water Objectives*, (BMP's) are applicable to this project:

**Existing infrastructure:** Existing landings and skid trails will be used as much as reasonable and practical.

**Soil Moisture:** Under saturated soil conditions no off-trail skidding or machine falling is allowed. Skidding on designated trails may be allowed as long as such use does not cause deep rutting or high erosion potential. Allowing skidding under these conditions makes mitigation by subsoiling less effective and should be avoided both on and off trails. Existing skid trails will be used as much as reasonable and practical. (Sale Design H3)

**Subsoiling:** Evaluate activity areas for the need for subsoiling following use by the sale. (Site

## Preparation and Watershed Restoration E1)

Approved skid trails, maximizing use of existing skid trails and landings, logging over snow or frozen ground, or some equivalent system for limiting the impact and aerial extent of skid trails and landings will be used to limit cumulative increases from multiple entries in tractor logging areas.

Recommended tons per acre of coarse woody material for long-term soil productivity are listed with Wildlife constraints under "Snags and Down Woody Material" for wildlife and soils.

To minimize accelerated erosion and to provide for long-term soil productivity, 85-100% ground cover will be maintained in forestlands and 65-85% ground cover will be maintained in rangelands, except for short-term reductions associated with management activities, or where natural potential is different. Standards for minimum percent effective ground cover during the first and second years following major disturbance are described in FSM 2521.03, R6 Supplement 2500-98-1. Erosion control methods are listed under the Water Quality and the Logging and Sale Design sections.

### **B) Water Quality**

#### **1. *Water Quality Standards***

Meet (or show progress toward meeting) water quality standards for Waters of the State of Oregon (Oregon Administrative Rules, Chapter 340-41) through project design, application and monitoring of best management practices (BMPs) as defined in the Code of Federal Regulations [40CFR 130.2(m)]. BMPs are used for various situations encountered during layout and administration of the project contract and other activities. BMPs are listed in several sections of these constraints, including the "Logging and Sale Design" section, and in other documents, including the Wallowa-Whitman Watershed Management Practices Handbook, which is on file at the La Grande Ranger District.

#### **2. *Erosion Control Methods***

Highly disturbed areas (which may include: skid trails, roads, skyline corridors, landings, road cuts and fills, etc.) will be seeded. The seed mix to be used will consist of native species, or a non-native species mix, to be approved by the District Diverse Species Program (contact program coordinator for the exact species mix and seeding schedule). This may include one fast germinating annual grass species to provide immediate ground cover. Seed application rates will be adjusted, as needed, to compensate for the broadcast method of application, and to generate vegetation densities adequate to provide a deterrent to noxious weed invasion.

Seed will be certified weed free, per the Wallowa-Whitman Integrated Noxious Weed Management Plan protocol.

Erosion control measures will be taken on all skid trails and temporary roads as needed. Spacing of waterbars will be determined by on the ground conditions and guidelines stated in the Sale Administration Handbook.

Slash and soil material may be left in the trail to divert water, or the subsoiling can be done to provide lead-off drainage from the trails.

### **C) Riparian Habitat and Fisheries**

RHCAs were delineated along all riparian corridors, wetlands, intermittent streams, and other areas that help maintain the integrity of aquatic ecosystems. RHCAs 1) influence the delivery of sediment, organic matter, and woody debris to streams, 2) provide root strength for bank and channel stability, 3) shade the stream, and 4) protect floodplains and water quality.

The RHCA widths described below are minimum widths to be applied in all treatment units with the

exception of site specific RHCA modifications described under alternative common elements:

- 1) Fish Bearing Streams – No harvest 300 feet on either side of the flood plain.
- 2) Permanently Flowing Non-Fish Bearing Streams – No harvest 150 feet on either side of the flood plain.
- 3) Ponds, Lakes, Reservoirs, and Wetlands greater than 1 acre – No harvest 150 feet from the edge of the wet area.
- 4) Seasonally Flowing or Intermittent Streams, Wetlands less than 1 acre, landslide, and landslide-prone areas - No harvest 100 feet on either side of the flood plain, no harvest within the extent of landslides and landslide-prone areas.

In ephemeral draws, trees will be left at a minimum of two large trees per 100 feet of draw bottom for future down woody material recruitment. All bank stabilizing, hardwood, and non-merchantable trees will be left.

#### **Small diameter fuels reduction**

Treatment within RHCAs includes the following units: 101 – 108, 112 – 114, 117 – 125, 127 – 133, 135, 136, 138 – 140, 142 – 146, 147, 149, 202 – 206, 208, 210, 211, 215, 216, 218, 220, 221, 223, 225, 227, 230, 231, 237, 238, 240, 243 – 245, 248, 251 – 254, 256 – 259, 262, 264, 265, 268, 271, 301, 303, 306, 309, 315, 316, and 318. Small diameter trees less than seven inches will be thinned and cleaned. The following constraints and mitigations apply to these units:

5. No trees will be cut within 25 feet of any fish bearing and/or perennial stream (none have been identified within the project area).
6. No trees will be cut within 10 feet of any intermittent stream channel.
7. No live trees greater than seven inches dbh will be cut within RHCA.
8. Within RHCAs, all trees will be cut by hand, no ground-based equipment will be used, and no mechanical treatment or mechanical removal will occur.

#### **Prescribed Burning**

9. Prescribed fire ignition will not occur within 150 feet of any perennial and/or fish bearing stream (none identified) and within 100 feet of any intermittent stream, unless otherwise defined for specific projects through the NEPA and consultation process. Low and moderate intensity backing fires will be allowed within the no ignition buffers. Approximately 50% of prescribed burn areas will be of moderate intensity and 50% low intensity. No more than 10% of the prescribed burn areas will be of a moderate severity.
10. The use of wet line (water wetted soil and vegetation) to provide secure control lines will be allowed within 150 feet of any perennial and/or fish bearing stream and within 100 feet of any intermittent stream, to secure control lines where fire has a risk of escaping defined unit boundaries due to vegetation moisture or type, presence of heavy concentrations of down fuels, topography, or weather conditions.
11. The use of hand constructed fireline (up to 12 inch wide down to mineral soil) will be allowed within 150 feet of any perennial and/or fish bearing stream and within 100 feet of any intermittent stream where wet line is not a viable option to secure control lines where fire has a risk of escaping defined unit boundaries due to vegetation moisture or type, presence of heavy concentrations of down fuels, topography, or weather conditions.

12. All hand-constructed fireline within RHCAs will have waterbars installed at appropriate spacing determined by slope. Mineral soil will be restored to pre-disturbance contours and available woody material will be placed on rehabilitated fireline.
13. In areas of high erosion hazard ratings (EHRs), burning will be restricted to ridgetops and slopes less than 35 percent. (No EHRs have been identified in the project area).
14. Use of hand constructed brushline firelines will be utilized within RHCAs. Unless use of hand constructed fireline is necessary to keep prescribed fire within defined unit boundaries. Areas where hand constructed fireline could be used include areas of heavy concentrations of dead and down or live vegetation adjacent to control lines where fire could easily escape confinement boundaries. Where possible brushline or blackline methods will be utilized in lieu of hand line construction to bare mineral soil.
15. Fuel moisture content, primarily of down large woody material, will be monitored prior to prescribe fire projects to minimize consumption. Fuel moisture contents will be 5–15 percent for fine fuels (grasses, and dead material less than ¼ inch in diameter), and 5–20 percent for fuels ranging from ¼ inch to one inch in diameter, as described in specific burn plans.

#### **Chemical Contamination/Nutrients**

16. If pickup fuel tanks in trucks are used they are contained in the bed of the truck and secured.
17. If fuel trucks are used the trucks are parked in designated industrial sites located at least 150 feet from a stream channel or flood prone area, or as far as possible from water bodies where local site conditions do not allow a 150-foot setback. This will minimize the potential for a fuel spill to reach a fish bearing stream.
18. A Fuel Spill Prevention Plan will be required for each commercial operation. This is incorporated into all project contracts.

Layout and marking of treatment units will be done in conjunction with the watershed specialist identified for the project.

#### **D) Wildlife**

##### **1) *Snags and Down Woody Material (for wildlife and soils)***

A District policy for the management of snags has been adopted that is consistent with Forest Plan guidelines and based on work done at the Interior Columbia Basin Ecosystem Management Project. Snag retention is based on plant association groupings and is summarized as follows:

- Dry biophysical environments – retain 2 snags per acre.
- Moist biophysical environments – retain 4-6 snags per acre.
- Cold biophysical environments – retain 6-8 snags per acre.

Further discussion of snag distribution, size, species priority, type, and biophysical environments is provided in the analysis file, Policy for the Management of Snags – La Grande Ranger District.

Where material is available, all treatment units (harvest and prescribed burn) will exceed the minimum levels for down woody material described in the table below for each species. The pieces per acre are the minimums required by the Forest Plan for wildlife and would be used in the appropriate contract provision:

**Table 11. Minimum Levels for Down Woody Material.**

SPECIES	PIECES PER AC	PIECE LENGTH AND DIAMETER SMALL END		TOTAL LINEAL LENGTH	Approximate TONS PER ACRE
		Diameter	MinLength		
Ponderosa Pine	3-6	12"	6ft	20-40 ft	0.2 - 0.4
Mixed Conifer	15-20	12"	6ft	100-140 ft	1.0 – 1.5
Lodgepole pine	15-20	8"	6ft	120-160 ft	0.5 – 0.8

The above pieces per acre are the minimums required by the Forest Plan for wildlife and would be used in the appropriate contract provision; it is desirable to meet the following tons/acre of coarse woody material for soil productivity after harvest/burn operations:

**Table 12. Soil Productivity Levels for Coarse Woody Material**

TONS PER ACRE	PLANT ASSOCIATION
5-10	Douglas-fir/spirea, Douglas-fir/elk sedge, Douglas-fir/pinegrass, Grand fir/pinegrass, Ponderosa pine/pinegrass, ponderosa pine/elk sedge, ponderosa pine/snowberry
7-15	Grand fir/twinflower, grand fir/huckleberry, grand fir/spirea, sub-alpine fir, and lodgepole pine

Coarse wood material includes all diameter classes. The large (>12") snags and logs should be protected during any prescribed burning.

## 2) Sensitive Habitats

Plant communities adjacent to sensitive/unique habitats will be protected by maintaining vegetative structure characteristic of the edge inherent to these areas. These areas include cliffs, caves, talus, natural openings, and meadows. Wildlife values will be protected in these transition zones by either retaining or developing adequate vegetation.

Buffer widths for sensitive habitats will be at least 100 feet, possibly more on some habitats. The degree of activity allowed within these buffers will vary depending on the type of sensitive habitat. Natural openings will generally not receive a buffer but will have prescription modifications to the upper management zone to maintain the integrity of the inherent edge for these areas.

Grassy scabs and meadows will not be used as locations for landings or skid trails unless no other location is practical. In those situations where landings are necessary, using the edge of these openings is preferred.

## 3) Big Game Calving and Fawning

The Mt. Emily project area is used by elk and deer for calving and fawning, therefore, prescribed burning may have some restrictions during the birthing period of May 15 to June 30 to minimize harassment and displacement of animals. Units in likely birthing areas will be identified and a deliberate attempt will be made to observe evidence of fawning/calving. If evidence of calving/fawning is found, burning may be delayed for one week and a resurvey done to determine if the animals are still in the area. A decision to burn or delay further can be made at that time. Coordination between wildlife and fire personnel will be accomplished to meet these goals.

## 4) Big Game Winter Range

Project operations will be conducted outside the period between December 15 through April 30. Waivers to operate during this time period may be requested of the District Wildlife Biologist.

Affected Units: All of priority area one

## 5) **Management Indicator and Neotropical Migratory Species**

Should the presence of management indicator species, other than those protected by the calving specifications above or the stream buffers discussed earlier, be discovered in any units programmed for prescribed burning the following protective measures could be applied either separately or in combination to reduce possible impacts to snags with nest cavities, protect other nest sites during burning: a) reduce fuel distribution around snags, b) varied lighting techniques, c) avoid spring burning, d) deferred burning until after the unit is no longer being used during the reproductive period (May 20<sup>th</sup> – July 1).

## 6) **Peregrine Falcons**

A seasonal restriction from February 1 through August 15 should apply to potentially disturbing activities within a mile of a known eyrie. Units most likely to be affected by this restriction are 146, 147, 148 and 149. This restriction may be waived if nesting has not occurred or has failed by June 15 (see Wildlife Biologist).

## E) **Fuels and Smoke Management**

### **Prescribed Fire Prescriptions:**

- Low intensity burning (2 – 4 foot flame lengths with occasional torching) to further reduce fuels to the following levels:

**Table 13. Desired Post Treatment Tons Per Acre by Diameter Class**

<b>Fuel Size Class/ Down logs</b>	<b>Desired Post Treatment Tons Per Acre</b>	<b>Lineal feet</b>
<b>0 – 3" Diameter</b>	<3	
<b>3 – 9" Diameter</b>	3	
<b>12" plus Diameter</b>	5 - 15	120 - 140

- Eliminate trees 5" diameter and less that are mistletoe infested, suppressed, and invasive species in dry forest types.
- Thin overstocked pine regeneration to promote growth and vigor.
- Promote fire resistant species in dry biophysical groups.
- Enhance winter range forage conditions for big game.
- Enhance forage for livestock.

Prescribed burning would occur when weather and fuel conditions are appropriate to meet the objectives and prescription for each unit. Burning would be accomplished over the next 10 years. Existing plantations will be avoided and burning within areas that have been non commercially thinned (TSI) will be coordinated with the District TSI Forester during burn layout and implementation.

Control lines would include roads, natural barriers, brush removal and bare mineral soil line construction where needed. All treatment units calling for the use of prescribed fire would not permit direct ignition within 150' of any Class I and III stream channels and 100' of Class IV stream channels. Low intensity fire would be allowed to back into all RHCAs. Reducing these fuels will enhance forage habitat and increase overstory growth rates by making nutrients readily available after burning is completed.

### **Project Generated Slash:**

Trees (5-7 inch DBH) that are dead, diseased, damaged, or not required for future stand structure will be felled and removed to reduce heavy fuel loadings, fire risk, and stocking densities.

Landing slash will be pile burned in landing areas or scattered when amounts do not warrant piling.

Road Construction/Reconstruction Slash – Disposal of all created slash is based on “least cost” method. Where a road traverses through a harvest unit the fuel treatment should closely correspond to the treatment of slash in the unit.

***Smoke Management:***

A voluntary Smoke Protection Zone has been established around the City of La Grande. Northeast Oregon Inter-agency Dispatch Center (NOIDC) will be contacted prior to any prescribed burning on National Forest Lands.

Prescribed burning activities are coordinated with the Oregon Department of Environmental Quality by NOIDC to assure that burning conditions will meet with air quality standards for personal health in the City of La Grande. Visual quality standards will be protected in the Eagle Cap Wilderness area during the peak recreational use period of July 1 through September 15. These actions respond to the non-key issue of air quality.

***RHCA Burning Procedures:***

See Riparian Habitat and Fisheries section C above, under constraints and mitigations. In summary, direct ignition will be prohibited within 100' of class IV streams, which are all streams identified in the project area. Special mitigation measures apply for handlines and brushlines within RHCA's. See above for specifics.

Fisheries and watershed personnel will be notified prior to burning near RHCA's, and will be on site when burning near RHCA's occurs.

***Prescribed Burn Units:***

Prescriptions on Warm/Dry sites (open pine with grass understory) will limit burn effects to the low - severity burn class which means less than 17% high severity plus moderate severity will be allowed on treated grounds.

Prescriptions on Cool/Moist sites will limit burn effects to the moderate-severity burn class with no more than 40% high severity plus moderate severity will be allowed on treated grounds.

Water sources needed during prescribed fire operations will consist of temporary sumps. Sites to be identified at a later date will be constrained by the following:

- a) Seed disturbed ground following operations with a mix recommended by the District Diverse Species Coordinator if appropriate.
- b) Locate site to minimize washout and erosion potential.
- c) Springs and elk wallows will be avoided.
- d) Avoidance of potential habitat of PETS plant species.

**F) Project Design**

The project area boundary is as described under Project Area Description, section I of this EA and identified on alternative maps in appendices A & B.

All units with ponderosa pine listed as one of the principal conifer species shall be cut between July 1<sup>st</sup> and December 1<sup>st</sup>.

Trees selected for retention under the Tree Improvement Program will be protected during project activities.

### **General Soil and Water Mitigations:**

Generally, ground-based yarding will not occur on ground steeper than 35%. Ground-based yarding on slopes over 35% and greater than 200 feet distance will be identified during pre-project activity (layout and marking) and approved by the Forest Service Representative/Sale Administrator and district hydrologist/fisheries biologist.

Short, steep areas in tractor ground (up to 200 feet and 50% slope) should require winch lines on all skidding equipment operating on those slopes or use of forwarders which provide full suspension of logs during skidding/yarding.

Skid trails will not be located in ephemeral drainage bottoms and will not cross ephemeral draws on an average of more than once every 200 feet of linear distance.

Designated skid trails will be pre-approved in advance of felling operations by the Forest Service Representative or Sale Administrator to minimize detrimental soil impacts. A unit-by-unit evaluation of detrimental soil conditions will be made in sensitive units upon completion of logging activities. Where detrimental soil impacts exceed twenty percent (20%) of the total acreage within the project area, including landings and system roads, restoration treatments will be considered. Detrimental soil conditions include compaction, puddling, displacement, and severe burning, surface erosion and mass wasting.

Recommended average minimum skid trail spacing for ground-based equipment is 60 feet, center to center for mechanized harvesting, and 80-100 feet for conventional hand felled trees. Require directional felling to minimize soil disturbance during skidding operations. Recommended minimum skyline corridor spacing is 150 feet, center to center, to minimize ground disturbance and protect residual trees. See Soil Quality section.

The normal operating season for the project area is July 1 to October 31.

To prevent road damage and maintain water quality, road use will be restricted to dry or frozen conditions. If road use is approved outside the normal operating season, drainage structures (waterbars, Utah dips) will be kept in a functional condition, and daily operations will be managed to minimize sediment transport from roads. Operations will cease when roads turn muddy and/or rutting occurs, resulting in sediment transportation. Reference the district forest roads and erosion control document in analysis file, transportation section.

Temporary roads will be obliterated at the completion of harvest activities and put back into production. Obliteration may include re-contouring, scattering slash, subsoiling, and seeding, as ground conditions dictate.

Drainage structures will be installed and maintained on all open roads within RHCAs, using spacing guides listed in the Watershed Management Practices Handbook.

Road maintenance will maintain existing drainage features. Post-haul maintenance will protect the road surfaces during future periods of inactivity and may require construction of additional drainage features. Cross drains will not discharge onto erodible slopes or directly into stream channels, including ephemeral drainages.

### **G) Range**

Allotment boundary fences and other improvements damaged during the grazing season must be repaired to their functional condition immediately and damage outside the grazing season must be repaired two weeks prior to permitted livestock entry. Any damage occurring to existing range improvements should be reported to the District range manager and/or private landowner. This responds to the non-key issue of range and livestock management.

All range improvements will be protected during prescribed burning activities. If damaged they will be repaired as discussed above.

#### **H) Proposed, Endangered, Threatened, and Sensitive Species (PETS)**

Surveys have been completed within the project area for PETS plant species (reference Biological Evaluation for plants in the analysis file, p. 4). No threatened, proposed, or candidate species were discovered during these surveys. No additional sites for any currently listed Region 6 Sensitive species were discovered. No areas were identified as potential habitat or needing follow-up surveys. Since there are no PETS plants species within the project area; no special mitigation measures are necessary.

Biological evaluations and/or assessments have been completed for plants, fish, and wildlife PETS species. Contract provisions will be included to provide for the protection of areas where PETS occur and for those which may be discovered in the area during the contract period.

#### **I) Managing Competing and Unwanted Vegetation**

A site assessment report is available at the La Grande district. Noxious weed locations appear on project maps in the analysis file. Forest roads 1400123 and 1400130 have scattered populations of diffuse knapweed. These roads may be used for project activity and mitigation measures below apply. Two other sites identified in the noxious weed inventory are on roads or trails not planned for project use.

If new noxious weed infestations are located within the project area, a noxious weed inventory and site assessment will be completed.

In response to the INWMP, an analysis was prepared which considered prevention, correction, or maintenance measures.

The following measures shall be implemented to reduce new establishment or spread of noxious weeds and responds to the non-key issue of noxious weeds:

##### *Site Identification:*

Noxious weeds sites discovered during any phase of project implementation will be designated as "Areas to Protect" (no decking, skidding or equipment) and included in the contract package for use by the contract administrator.

##### *Clean Equipment:*

All equipment to be operated on the project area will be cleaned in a manner sufficient to prevent noxious weeds from being carried on to the project area. This requirement does not apply to passenger vehicles or other equipment used exclusively on roads. Cleaning, if needed, will occur off of National Forest System lands. Cleaning will be inspected and approved by the Forest Officer in charge of administering the project.

##### *Avoid Contaminated Materials:*

All hay or straw used for mulching, erosion control, or other rehabilitation purposes will be weed free (per the Wallowa-Whitman INWMP protocol).

Sand, gravel, and rock sources for road re-construction will be inspected for noxious weeds prior to their use. If inventory reveals the material source is infested with high priority noxious weed propagules, the source will not be utilized until appropriate mitigations are coordinated with the district noxious weed coordinator.

**J) Water and Material Sources**

Water and Material sources, if needed, will be existing sources. No expansion of sources is anticipated. All work will stay within existing source boundaries. No rock pits have been identified for project use.

**K) Forest Health/Ecological Integrity**

Seasonal operational restrictions may be applied to reduce risk of *lps* beetle population numbers in warm grand fir/Douglas-fir groups with ponderosa pine.

Borax will be applied to recently cut stumps of grand fir in stands where grand fir will still be a major component to reduce the risk of *fomes annosus* spread.

**L) Cultural Resource Protection**

No cultural sites were discovered during surveys in proposed activity areas for this project. However, should any sites be discovered during project activities, the Heritage Technician for this project will be notified immediately and appropriate protection measure employed.

**M) Recreation**

Maintain the character of dispersed camping sites by cleaning up project-created slash. Maintain access to dispersed sites on roads to be left open. Leave adequate space for camping at the point where roads are closed.

## Mt. Emily Fuels Reduction - Alternatives at a Glance

**Table 14. Alternative Comparison**

Alternative Elements	Alternative 1	Alternative 2	Alternative 3
Commercial Thin Treatment Acres	0	1,669 acres	1,268 acres
Fuels Reduction/Cleaning Only Treatment Acres	0	300 acres	488 acres
Non-Commercial Thinning Acres	0	300 acres	187 acres
Prescribed Fire Acres	0	1,622 acres	1,622 acres
Acres Mechanical Treat then Burn	0	588 acres	596 acres
RHCA Acres Treated (Hand Treated)	0	344 acres	307 acres
Old Growth (G4) Acres Treated	0	241 acres	143 acres
MA-15 Acres Treated	0	188 acres	158 acres
Acres Treated in North Mt. Emily IRA (includes mechanical and Rx burn)	0	369 acres	369 acres
Acres Treated in Mt. Emily IRA (includes mechanical and Rx burn)	0	16 acres	48 acres
Yarding Systems: Ground Based Helicopter	0 0 0	1,021 acres 762 acres	878 acres 622 acres
Road Work: Reconstruction Specified Road Construction Temporary Road Construction	0 0 0	2.5 miles 0.0 miles 1.0 miles	2.5 miles 0.0 miles 1.0 miles
Saw/Chip Volume Recovered	0	27.5 MMBF (55,426 CCF)	12.3 MMBF (24,696 CCF)

## **Comparison of How the Alternatives Respond to the Key Issues**

The following table compares each alternative with the key issues and key indicators identified in section I.

**Table 15. Alternative Comparison by Key Issue.**

Comparison Factors		Alternatives		
Key Issue	Key Indicators	1	2	3
<b>Manage Wildfire Risk on NF lands within the Mt. Emily WUI</b>	<ul style="list-style-type: none"> <li>Crown fire potential (active, passive or surface)</li> <li>Number of acres treated within fire regimes one, two, or three that are in a condition class two or three</li> </ul>	Passive  0	Surface  1,060 – Mech 1,411 - Burn	Surface  991 – Mech 1,411 Burn
<b>Manage Old Growth Component within the Mt. Emily WUI</b>	<ul style="list-style-type: none"> <li>Old Growth acres treated</li> <li>Acres converted from MSLT to SSLT in Biophysical Group 4</li> </ul>	0 0	543 241	418 0
<b>Maintain Mt. Emily Scenic Quality</b>	<ul style="list-style-type: none"> <li>Unnatural appearing impacts (disturbance) less than 10% of viewshed Y/N</li> <li>(Retention/foreground)</li> <li>Unnatural appearing impacts (disturbance) less than 14% of viewshed Y/N</li> <li>(Partial retention and retention middleground)</li> </ul>	Y    Y	Y    Y	Y    Y

## **Monitoring Plan**

Monitoring specific to project activities, and not in conjunction with research studies, would be accomplished to assure that activities conform to objectives of the Forest Plan. Project level monitoring is a component of Forest Plan monitoring. The following types of monitoring will be accomplished:

**Implementation Monitoring** - Are mitigation measures and BMPs being implemented as planned?

For example, monitoring of project activities will occur to assure proper application of all identified constraints and mitigation measures. Monitoring will also consist of project contract administration to ensure that all required mitigation measures are properly implemented and are effective.

Included in the monitoring activities is compliance monitoring of Proposed, Endangered, Threatened, and Sensitive species (PETS). If PETS are discovered in the area during project activity they will be protected in accordance with appropriate contract provisions. Additional site monitoring by the district fisheries and watershed staff during road reconstruction, project layout and marking, and fuels removal will be undertaken to assure compliance with water quality standards, hydrology, and soil parameters.

**Effectiveness Monitoring** - Did mitigation and protection measures result in desired effects?

A walk-through survey of the project area during implementation and after project closure will be conducted to qualitatively monitor on-site and downstream effects of project implementation.

If monitoring shows that mitigation measures of BMP's are not being implemented as planned or are not being effective in meeting resource objectives, activities will cease or be modified to correct problems.

Monitoring in areas where PACFISH RHCA widths are modified and burned by direct ignition will be undertaken at five-year intervals to determine vegetative responses.

#### **Other**

**Prescribed Burning Monitoring** - Fire Management will conduct monitoring of the prescribed burned acres as outlined in the Forest Prescribed Burn Monitoring Plan.

**Noxious Weeds** - The following elements will be monitored and documented; for a list of the responsible person, refer to the Noxious Weed Report in the analysis file:

- Effectiveness of treatments.
- Cost of the project (direct and indirect)
- Analysis of unintended effects .
- Impacts to human health
- Analysis of the degree of success.
- Effectiveness and adherence to the mitigation measures.

**Fisheries and Watershed** - The following is a list of monitoring activities for fisheries and watershed resources, which have been or will be implemented prior to and following the Mt. Emily Fuels Reduction project. These activities will provide information on evaluation of the sale and for future planning of projects in the area.

- A. Pre-project monitoring for each Forest Management project includes on the ground survey of the project area, and the proposed treatment units. Monitoring of the proposed treatment units includes survey of any stream channels, slope stability, general riparian vegetation characteristics, assessment of proposed roads for project use (surfacing, drainage, culverts, and locations), and general watershed conditions;
- B. Monitor the project to ensure that all Standard and Guidelines in the LRMP are met through implementation of protection measures as identified by the interdisciplinary team; this monitoring is conducted with the Timber Sale Administrator (TSA) or the Fuels Specialist as the project is being implemented;
- C. Stream channel and riparian surveys, downstream and within each of the project areas, will be conducted within five to ten years of project completion (or as funding allows) . Additional surveys will be conducted after channel changing events if funding allows. These surveys will evaluate fish habitat as well as channel and riparian habitat conditions, and relative to the treatment prescribed in the selected Alternatives.
- D. Monitoring of the implementation of project designs and protection measures will take place throughout the life of the project by the TSA and Watershed Specialist. For example, if an intense thunderstorm caused overland flow and subsequent excessive soil displacement or sediment production, harvest operations would cease until the soil moisture decreased or protection measures were complete. Potential effects from log haul on roads which parallel RHCAs will be monitored throughout the life of the project by the TSA and Watershed Specialist. Timber harvest operations will be halted if adverse impacts are observed at any point during the operating.

**Soils** - Monitoring will be undertaken

- 1) To ensure that best management practices and mitigating measures incorporated into the sale are being followed, and
- 2) To determine if these practices and measures are adequate to meet the intent of management directives.

Monitoring of sale layout and contract administration will be undertaken to ensure proper application of all identified constraints and mitigating measures. Ground-based harvest units will be monitored to ensure adequate spacing between skid trails, restriction of equipment to skid trails, prevention of wet weather yarding, and effective subsoiling of compacted skid trails and landings. As a result of site-specific surveys, the following 6 units (9,14,18,55,76,98) are a high priority for monitoring to ensure that project design and mitigations are properly implemented to ensure DSC levels remain below Forest Plan minimums.

Post-harvest activities will be monitored to ensure that guidelines to minimize soil disturbance are being followed. Subsoiling will be monitored to ensure additional soil damage related to project implementation is negligible. Burning will be monitored to ensure high and moderate fire severity is within the limits described as low-severity burn or moderately-low severity burn, depending on burn objectives.

**Wildlife** –

**Table 16. Wildlife Monitoring**

What	Type	When	Who	Why
Snags, logs Sample of units	Implementation	During logging, one year after logging	TS administrator & wildlife personnel	To determine if prescribed material was retained
MA 15 treatment area	Implementation, effectiveness	After unit layout, during treatment, following logging	District wildlife personnel	To ensure objectives were met
Cover in HFU units 10, 39, 50, & 95	Effectiveness	Following logging	ITD, wildlife personnel	To verify assumptions about HFUs' effect on cover
Calves, Fawns	Implementation	One to Three days prior to prescribed burning	District wildlife personnel; Fire personnel	To protect calves, fawns in spring from spring burning

## Chapter Three: Environmental Consequences

### A. Introduction

This chapter discloses the environmental consequences (effects) of implementing the alternatives (including the proposed action) described in Chapter Two. The effects analysis forms the basis of comparison of the alternatives through evaluation of the key issues and select non-key issues.

Direct, indirect, and cumulative effects will be discussed. The duration of direct, indirect, and cumulative effects varies, and is addressed by each resource and subject area to follow. Key indicators will be used to measure alternatives for each key issue. The effects will be discussed by resource or subject area and key issues and indicators will be addressed under the appropriate area. The scale of analysis of effects is on the project area level, including those portions of the subwatersheds identified in Chapter One, unless otherwise identified.

Detailed analyses, literature citations, and supporting information are contained in each individual resource specialists' reports in the project analysis file at the La Grande District Office.

### B. Alternative Evaluation as They Respond to the Key Issues

#### Fire and Fuels Management

##### *Introduction*

**Overview** - The purposes of this project is to modify fire behavior, specifically crown fire potential, and manage toward restoring fire adapted ecosystems. Reducing fuel loadings and managing vegetation to decrease the susceptibility of widespread insect and disease episodes would decrease the potential for intense fire behavior adjacent to homes and private property. This project is part of a collaborative effort to manage vegetation on private, state, and public lands adjacent to urban development to reduce fire hazard and improve defensible space. This project is being coordinated with the Oregon Department of Forestry, Union County, Rural Fire Protection Departments, and the Wallowa-Whitman and Umatilla National Forests to develop a community fire plan.

**Fire Behavior Modeling** - Each of the stands within the project area are categorized into seven broad fire behavior Modeling Groups based on fire regime, condition class, ecoclass, and field inventory. Modeling Groups One through Four have crown fire characteristics, while groups Five through Seven consist of surface fuels only (grass, shrub, and/or small trees). The following table displays existing acres within each of the Modeling Groups.

Table 1			
Modeling Group	Acres	Fire Regime	Plant Association
1	726	1 and 3	Douglas fir / Shrub Ponderosa pine / Grass and Shrub Grand fir / Grass
2	1,435	3	Grand fir / Big Huckleberry
3	1,400	4	Grand fir / Twinflower Grand fir / Queen's Cup Beadlily
4	992	4	Sub alpine / Lodgepole (> 5,000 feet elevation)
5	886	2	Grass
6	754	2	Grass / Shrub (Low Sage)
7	1,078	1, 3 and 4	Pine and Mixed Conifer Regeneration

Emphasis for reducing crown fire potential is on groups one through four. The Forest Vegetation Simulator and Fire and Fuels Extension (FVS-FFE) model was used to make fire behavior predictions and compare sustainability of stands over time to resist insects and disease following treatments. A ninety seventh percentile fire danger day (only 3% of weather and environmental conditions are worse) was used for the wildfire predictions.

A number of factors including crown bulk density, crown base heights, torching indices, crowning indices, crown fire potential, spotting potential, and flame lengths were analyzed in determining differences between alternatives (reference detailed modeling results in the analysis file). Crown fire potential and flame length were selected as the best measurements. Many of the other factors listed above are functions of crown fire potential. Fire managers are interested in flame lengths and crown fire potential because it effects how and where to fight a wildfire. Reducing crown fire potential to a surface fire and flame lengths that allow direct attack of a wildfire would meet the purpose and need of the project.

**Alternative Summary** - Two treatment alternatives for reducing fuel loadings and crown fire potential were developed and supported through fire modeling and professional experience. Thinning from below followed by surface fuel treatments can effectively alter fire behavior by reducing crown bulk density, increasing crown base height, and changing species composition to lighter crowned and fire-adapted species (Graham, et al, PNW-GTR-463). Intermediate treatments can reduce the severity and intensity of wildfires given a set of physical and weather variables. Treatments provide a window of opportunity for effective fire suppression and protecting high-value areas (Pollet and Omi 2002). A list of literature reviewed and/or referenced for this effects section can be found in the appendix of the Fire and Fuels Management Effects document.

Alternative One is the no action and would not treat any fuels mechanically or through the use of prescribed fire. Crown fire potential would be passive and/or active in all Modeling Groups under modeled conditions (ninety seventh percentile environmental conditions). Flame lengths range from 4-49 feet.

Alternative Two, the proposed action, has the highest level of treatment for reducing crown fuels (crown bulk density) while increasing crown base heights for the next 20 to 30 years. Reducing overstocked stand conditions would also reduce the risk of insect and disease mortality over the next 20 to 30 years (future fuel loadings). This alternative reduces crown fire potential to surface in all Modeling Groups except for Modeling Group three (Grand fir / forb plant associations). Flame lengths are reduced to 2-9 feet in all Modeling Groups. Prescriptions target multiple layers of trees, leaving large, fire resistant species.

Alternative Three prescriptions target the lowest layer of trees needed to reduce ladder and crown fuels, leaving a mix of both fire dependent and non-dependent trees that are less susceptible to insects, diseases, and fire. Reducing overstocked stand conditions would also reduce the risk of insect and disease mortality over the next 10 to 20 years (future fuel loadings). This alternative reduces crown fire potential to surface in all Modeling Groups. Flame lengths are reduced to 2-7 feet in all Modeling Groups.

**Effects Analysis Parameters** - This analysis addresses the effects of implementing the proposed alternatives for the Mt. Emily project area in relation to the key issue "Managing Wildfire Risk" on National Forest Lands within wildland urban interface. Wildfire risk was analyzed in terms of Fire Behavior Potential and Ecological Risk associated with the presence or absence of fire.

Key indicators used to compare the alternatives are: a) Fire Behavior Potential – Measured by Crown Fire Potential and Flame Length; and b) Fire Regime Departure - Number of acres treated within fire regimes one, two, or three that are in a condition class two or three (reference tables 2 and 3, Chapter One)..

This report also addresses three other issues: firefighter and public safety cost of wildfire suppression, and air quality.

For the purpose of this analysis mechanical treatments include tree removal, small diameter thinning, stand cleaning, pruning, and grapple and hand piling. These are all methods of mechanically pre-treating areas that are overstocked, have a ladder fuel component, and/or have heavy concentrations of standing dead and

down fuels. Prescribed fire would follow mechanical pre-treatment in both action alternatives. Slash pile burning would occur in both action alternatives as well.

Crown Fire Potential and Flame Length outputs were used to compare the *relative difference* between the alternatives and not the actual fire behavior of a wildfire. The following table displays the differences in crown fire potential and flame lengths for each of the Modeling Groups by alternative.

<b>Table 2</b>						
<b>Modeling Group</b>	<b>Crown Fire Potential</b>			<b>Flame Length</b>		
	<b>Alt 1</b>	<b>Alt 2</b>	<b>Alt 3</b>	<b>Alt 1</b>	<b>Alt 2</b>	<b>Alt 3</b>
1	P	S	S	14-29	5-8	6-7
2	P / A	S	S	4-49	2-6	2-5
3	P	P	S	10-12	8.8	1-2
4	P	S	S	5-6	2-3	2-3

(A) Active Crown Fire - surface, ladder, and crown fuels are involved in a continuous crown fire.

(P) Passive Crown Fire - Individual trees, small or large groups of trees are involved in crown fire and can range to nearly an active crown fire.

(S) Surface Fire - fire burning in surface fuels.

Modeling Groups 5, 6, 7 were not modeled because trees are not present or are in the regeneration stage and are modeled as a surface fire model (no crown fire characteristics).

## Effects Analysis

### Direct and Indirect Effects of Fire Behavior Potential

#### ALTERNATIVE 1 – NO ACTION

##### Direct and Indirect Effects Common to all Priority Areas

Within the analysis area, multi layered structures, tree densities and live vegetation continue to grow and dead wood continues to accumulate, creating conditions that allow fire to move vertically from the ground level to the forest crown. Overstocked stand conditions continue to increase the susceptibility of the stands to insects and disease (reference Silvicultural Effects) resulting in increased surface and crown fuel loadings and associated fire behavior potential. These conditions continue to limit fire fighting opportunities, increase risk to private property, firefighter and public safety, and increase the risk of damaging impacts to natural resources and visuals along the face of Mt. Emily.

The analysis area currently has approximately 4,550 acres that are represented by Modeling Groups one through four that have passive and/or active crown fire potential under modeled conditions. Under this alternative, predicted flame lengths within these Modeling Groups exceed direct attack capabilities with hand crews and tools. In Modeling Groups one through three, direct attack of the fire with engines and dozers is exceeded (reference table 2).

Alternative One does not meet the purpose and need of the project because crown fire potential would remain as passive or active. Flame lengths exceed direct attack with hand crews and equipment in most instances.

### **Priority Area One**

The direct effects of Alternative One is a continuation of heavy surface and crown fuel loadings that have passive (spotting) and/or active crown fire potential, and flame lengths that exceed four feet include: increased risk of a crown fire initiating and spreading to private property and homes, increased potential for fire damage to electronic site structures, and decreased opportunities to fight fire direct with handtools. This would result in backing off to a safer location or using heavy equipment. Not having the opportunity to direct attack a fire combined with the limited access along the face of Mt. Emily increases the potential for a large, high intensity fire, the potential for resource damage from heavy equipment, and risk to firefighter and public safety.

The direct effects of not treating acres with crown fire potential also increases the risk of damaging impacts to soil, vegetation, watersheds, and visuals on the face of Mt. Emily.

### **Priority Area Two**

The direct effects of Alternative One are a continuation of heavy surface and crown fuel loadings that have passive (spotting) and/or active crown fire potential increases the potential of a fire to spread across the ridge. This increases the risk of a fire originating to the west of the ridge to spot across the ridge and spread towards the community near Mt. Emily. This also increases the risk of a fire to spread from the east across the ridge and into a roadless area that has heavy accumulations of fuels, limited access, and steep terrain. Initial attack of fires within the roadless area is by handcrews hiking in or from aerially delivered resources. Access for handcrews to hike to a fire in this area is primarily from the 3120 road system. Response time for the nearest helicopter with rapellers is approximately 30 minutes. Response times for the nearest smoke jumpers are 45 to 60 minutes. Response time for retardant is approximately 10 to 15 minutes. The effectiveness of retardant depends on how soon firefighters arrive on scene following the drops. All aerial delivered resource response times are dependent on availability.

Not having treatments would decrease the opportunities to use this main ridge and road system as a control line during fire suppression operations and increases the potential for a large, high intensity wildfire. Flame lengths that exceed four feet limit the opportunities for ground resources to direct attack a fire with handtools and/or engines safely. This forces firefighters to back off to a safer location and possibly using heavy equipment which causes more damage to vegetation, soils, and watersheds.

### **Priority Area Three**

Priority area three includes two minor ridges that run southeast to northwest along the 3120-600 and 3120-450 roads. This area has the heaviest accumulations of dead standing and down trees. The direct effects of not treating these areas include increased potential for crown fire and flame lengths to exceed direct attack capabilities and decreased opportunities to use these ridge systems as control lines. There is the potential for damaging impacts to natural resources from severe burning conditions in these heavy accumulations of dead material.

## ***ALTERNATIVE 2***

### **Direct and Indirect Effects Common to all Priority Areas**

Alternative Two treats 3,591 acres through removals, stand cleaning, pruning, piling, pile burning, and/or prescribed fire and has the maximum removal of crown fuels of the two action alternatives.

Crown fire potential would be reduced from passive and/or active crown fire potential to surface (on acres treated) in all modeling groups except for modeling group three (reference Table 2). Reducing crown fire potential to a surface fire would reduce the potential for long range spotting to occur. Treatment effectiveness is expected to last for 20 – 30 years in terms of recommended stocking levels (ladder and crown fuels) and associated crown fire potential.

Flame lengths would be reduced to 2-9 feet on treated acres (reference table 2). Handcrews can fight fire direct when flame lengths do not exceed four feet. Engines and dozers (where roads and terrain allow) can directly fight the fire with 4-8 foot flame lengths. Having the opportunity to go direct decreases the potential fire size, the risk to public and firefighter safety, and private property (including homes).

Surface fuel treatments are expected to last for 10 – 15 years on acres that have been mechanically pretreated and burned. A maintenance level burn may be required in 10 – 20 years and/or light hand treatments to maintain surface fuel loadings. Maintaining surface fuel loadings that are less than 25 tons per acre reduces the risk of flame lengths exceeding direct attack capabilities during a wildfire.

Alternative Two meets the purpose and need of the project except in Modeling Group Three (Grand fir / forb plant associations).

The following images represent a one acre plot within Modeling Group 2 and display post treatment conditions for Alternative Two.

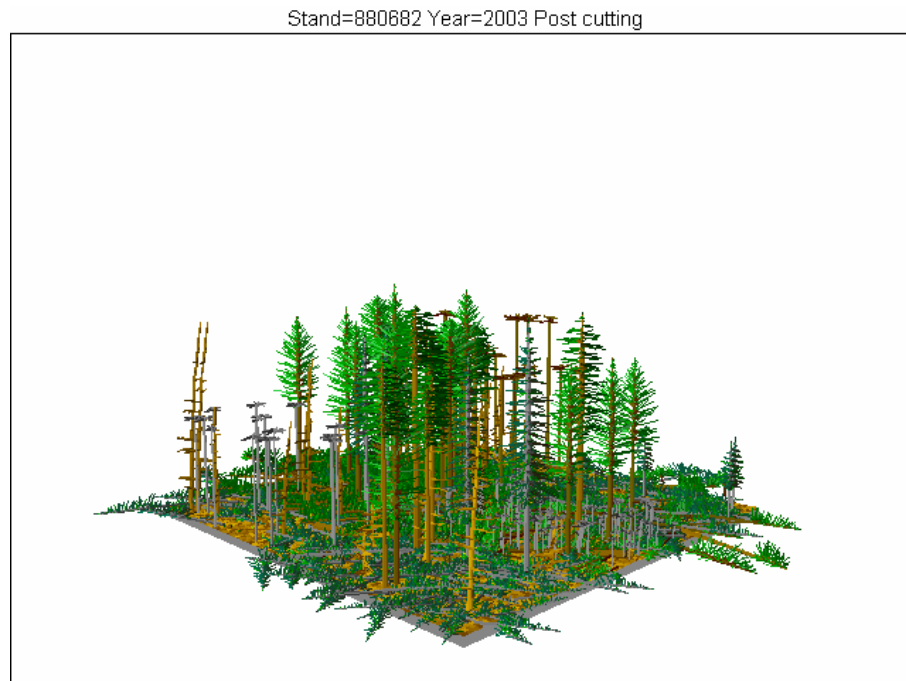


Figure 1

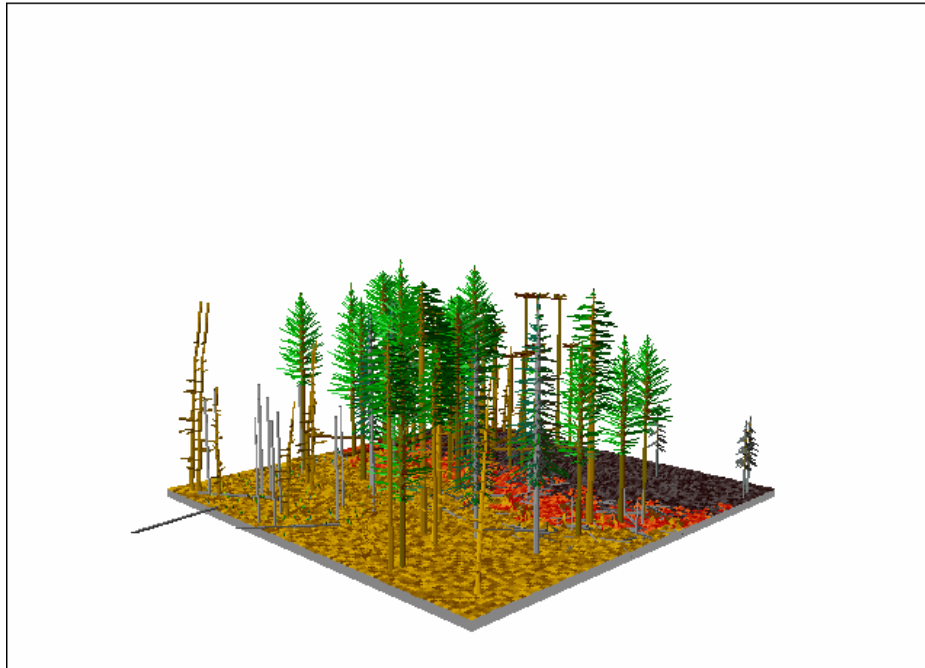


Figure 2

#### **Priority Area One**

Approximately 714 of the 1,669 acres proposed for mechanical treatment (including removal, pile, and pile burning) are located in priority area one. Mechanical fuels manipulation (Removal and/or treating on site) would reduce surface, ladder and crown fuels including dead standing and down trees. Reducing surface and crown fuels would reduce crown fire potential and potential flame length. Treatments would also maximize managing towards large trees that are resistant to insects, disease, and fire.

Approximately 1,060 acres of the 1,600 acres proposed for prescribed burning are included within priority area one. Six hundred forty one of the 1,060 acres proposed for burning would be mechanically treated prior to burning. Prescribed burning removes surface fuels in the form of litter, duff, and 0-3 inch woody material under desirable environmental conditions which reduces potential flame lengths. In areas that do not have mechanical pre-treatment, burning would target trees less than four inches in diameter.

One hundred seventy eight of the 300 acres proposed for small diameter thinning, removal or piling and pile burning are within priority area one.

Direct effects of implementing Alternative Two include fuel reduction work on public lands adjacent to private lands and urban development, and around the electronic site structures. Surface and crown fuel loadings would be reduced through treatments, crown fire potential would be reduced as indicated in table 2, long range spotting potential decreases as crown fire potential and flame lengths decrease, potential flame lengths are reduced, and fire fighting opportunities to direct attack a fire within the corridor are increased.

Firefighter and public safety is increased and the potential of high intensity fire spreading onto private lands that contain homes is decreased. The risk of damaging impacts to soils,

vegetation, and visuals along the face of Mt. Emily from severe burning conditions is decreased as well.

Direct effects of prescribed fire include reducing surface fuel loadings and potential flame lengths to lessen the extent of wildfire impacts.

#### **Priority Area Two**

Approximately 599 of the 1,699 acres proposed for mechanical treatment are located in priority area two. Mechanical fuels manipulation (removal and/or treating on site) would reduce ladder and crown fuels and dead standing and down trees.

Approximately 138 acres of the total 1,600 acres proposed for prescribed burning are included within priority area two (reference map). All of the acres proposed for prescribed burning would be mechanically pre treated prior to burning. Prescribed burning would remove surface fuels in the form of litter, duff, and 0-3 inch woody material.

Eighty four of the 300 acres proposed for small diameter thinning, removal or piling and pile burning are within priority area two.

Direct effects of implementing Alternative Two includes fuel treatments along the last main ridge that separates the Mt. Emily Wildland Urban Interface area (to the east) from National Forest lands that are designated as roadless and have heavy fuel loadings (to the west). Within the corridor, surface and crown fuel loadings would be reduced. Crown fire potential would be reduced and the potential for a fire spreading from the west to the east or vice versa would be reduced. Long range spotting potential is reduced with lower crown fire potential and flame lengths. Opportunities to safely access the area and use the ridge as a control line during fire suppression are increased. The potential for a large fire to occur decreases.

#### **Priority Area Three**

Approximately 356 of the 1,699 acres proposed for mechanical treatment are located in priority area three. Mechanical fuels manipulation (Removal and/or treating on site) would reduce ladder and crown fuels and dead standing and down trees, and maximize managing towards large trees that are resistant to insects, disease, and fire.

Approximately 416 acres of the total 1,600 acres proposed for prescribed burning are included within priority area three (reference map). Two hundred fifty one of the 416 acres proposed for burning would be mechanically pretreated prior to burning. Prescribed burning would remove surface fuels in the form of litter, duff, and 0-3 inch woody material. In areas that do not have mechanical pre-treatment, burning would target trees less than 4 inches in diameter.

Thirty eight of the total 300 acres proposed for small diameter thinning, removal or piling and pile burning are within priority area three as well.

The direct effects of treating priority three ridges include additional ridgetop fuel treatments to conduct fire suppression actions from. Surface and crown fuel loadings are decreased, crown fire potential is decreased, fire fighter safety is increased, and potential damaging impacts to natural resources from severe burning conditions is decreased.

### ***ALTERNATIVE 3***

#### **Direct and Indirect Effects Common to all Priority Areas**

The primary differences between Alternative Two and Three are a change in the level of treatment prescriptions (resulting in a reduction of years treatments are predicted to be effective for), a change in location of treatment along the 3120 ridgetop road, and deferring treatment on the ridge top above the 3120-450 road.

Alternative Three treats 3,361 acres through removals, stand cleaning, pruning, piling, pile burning, and/or prescribed fire. Prescriptions target the lowest layer of trees needed to reduce ladder and crown fuels, leaving a mix of both fire dependent and non-dependent trees that are less susceptible to insects, diseases, and fire. A higher stocking level of trees would be maintained within all Modeling Groups.

Crown fire potential would be reduced from passive and/or active crown fire potential to surface (on acres treated) in all modeling groups. Treatment effectiveness is expected to last for 10 – 20 years in terms of recommended stocking levels (ladder and crown fuels) and associated crown fire potential.

Flame lengths would be reduced to 1-7 feet on treated acres (reference table 2). Handcrews can fight fire direct when flame lengths do not exceed four feet. Engines and dozers (where roads and terrain allow) can directly fight the fire with 4-8 foot flame lengths. Having the opportunity to go direct decreases the potential fire size, the risk to public and firefighter safety, and private property (including homes).

Alternative Three meets the purpose and need for the project for 10 to 20 years. Within 10 to 20 years another mechanical pretreatment may be necessary within the priority areas to reduce surface, ladder, and crown fuels resulting from overstocked stand conditions and/or insect and disease mortality. Treatment would maintain surface fire characteristics and flame lengths that meet the purpose and need of the project.

The direct effects of reducing crown fire and spotting potential, flame length, potential damaging impacts to resources, increasing fire fighting opportunities, and increasing public and firefighting safety is similar to Alternative Two within each of the priority areas, with the exception of priority area three.

There are heavy accumulations of dead and down trees on the ridgetop above the 3120-450 road. Direct effects of dropping treatment along this ridge include; reduced opportunities to maintain a fuel reduction corridor for fire suppression, crown fire potential would remain as passive or active, and flame lengths would exceed direct attack capabilities. This increases the risk for a high intensity fire and damaging impacts to natural resources due to severe burning conditions.

The following images represent a one acre plot within Modeling Group 2 and display post treatment conditions for Alternative Three.

Stand=880682 Year=2003 Post cutting

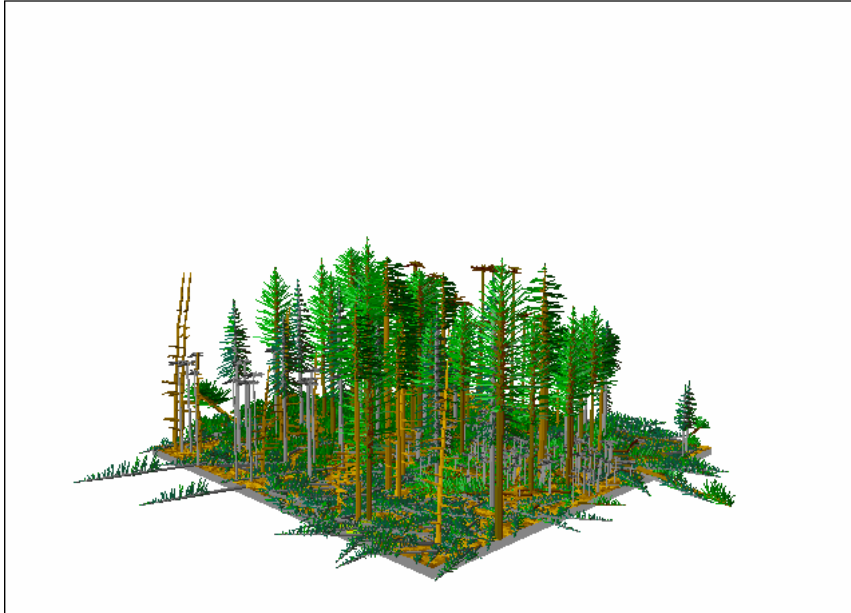


Figure 3

Stand=880682 Year=2004 Beginning of fire (01/03)



Figure 4

The following table displays the differences in treatments by action alternative, priority area, and modeling group.

Table 3													
		HTH		HFU		SCN		SPC		RMP (Pile & Burn)		RPB	
Priority Area	Modeling Group	Alt 2	Alt 3	Alt 2	Alt 3	Alt 2	Alt 3	Alt 2	Alt 3	Alt 2	Alt 3	Alt 2	Alt 3
1	1	273	273	273	273	273	273			273	273	273	273
1	2	333	333	333	333	333	333			333	333	333	333
1	3	97	91	97	91	97	91			97	91	35	35
1	4	11	11	11	11	11	11			11	11		
1	7			178	121			178	121	178	121		
1	Burn Polygons											418	418
	Total Priority Area 1	714	708	892	829	714	708	178	121	892	829	1059	1059
2	1	2		2		2				2			
2	2	138	92	138	146	138	146			138	146	146	146
2	3	160	148	160	148	160	148			160	148		
2	4	299	287	299	299	299	299			299	299		
2	7			84	66			84	66	84	66		
	Total Priority Area 2	599	527	683	659	599	593	84	66	683	659	146	146
3	2	98	98	98	98	98	98			98	98	98	98
3	3	251	153	251	153	251	153			251	153	153	153
3	4	7		7		7				7			
3	7			38				38		38			
3	Burn Polygons											166	166
	Total Priority Area 3	356	251	394	251	356	251	38	0	394	251	417	417
Totals		1669	1486	1969	1739	1669	1552	300	187	1969	1739	1622	1622

## Cumulative Effects on Fire Behavior Potential

### ALTERNATIVE 1 – NO ACTION

*The cumulative effects analysis boundary for this resource includes approximately 40,360 acres of private, state, and public lands.*

The analysis area has a high occurrence of both lightning and human caused fires that are scattered across all ownership boundaries. This risk combined with heavy accumulations of surface, ladder, and crown fuels increases the potential for a large, high intensity wildfire to occur and spread across ownership boundaries.

Oregon Department of Forestry, Boise Cascade, private land owners, and the Wallowa-Whitman and Umatilla National Forests are coordinating fuel reduction efforts to tie in treatment areas along the face of Mt. Emily and along the main ridge where the 3120 and 3120500 roads are located. Sound

biological fuel reduction treatments would create defensible space and increase opportunities to direct attack a wildfire.

Currently, vegetation and fuel treatments are being planned and implemented on private, industrial, and the adjoining Umatilla National Forest lands. Completed treatments have reduced fuel loadings to varied levels through thinnings, removals, piling, pile burning, and underburning. Light levels of treatment on dense crown fuels would require additional entries within five to ten years to maintain effectiveness. Treatments that reduce basal area and dense crown fuels will last 20 to 30 years requiring only light maintenance treatments to maintain effectiveness.

Not treating heavy surface, ladder, and crown fuels on the Wallowa-Whitman National Forest along the 3120, 3120500 roads (last main ridge between valley and roadless area) and the boundary adjacent to private and industrial lands increases the risk of a wildfire originating on forest land and spreading across these boundaries. Diurnal winds are down canyon, down slope. The Frizzel fire of 1986 is a good example of a fire that originated on National Forest spreading downhill towards private lands.

The fire growth model FARSITE modeled fires originating in the Emily Creek drainage spotting east across the 3120, 3120500 roads and onto private lands.

Limited vegetation management, aggressive wildfire suppression, and insects and disease mortality would continue the trend of fuel loadings accumulating in the form of dead and down trees, small diameter trees growing into the overstory, and dense crown conditions. These conditions would continue to increase the potential for a ground fire to transition into a crown fire. Heavy accumulations of surface fuels and/or crown fires would continue to increase the potential for spotting to occur.

These conditions would continue to limit fire fighting opportunities, increase risk to private property and homes, firefighter and public safety, and increase the risk of damaging impacts to natural resources and the visuals along the face of Mt. Emily. These vegetation conditions and associated risks would continue to escalate until action is taken to reverse the trend, or a stand replacement fire event occurs.

The following sections summarize current and planned treatments on the Wallowa-Whitman and Umatilla National Forests, private and industrial lands within the cumulative effects analysis boundary for this resource.

#### La Grande District – Wallowa-Whitman National Forest

There are no current or proposed vegetation projects on the La Grande District within the analysis boundary with the exception of this project.

The Tie Creek allotment is 198 acres and is the only grazing allotment (cattle or sheep) on the Wallowa-Whitman National Forest within the analysis boundary (located in priority area two).

#### **Walla Walla District – Umatilla National Forest**

The Walla Walla Ranger District proposes to treat fuels in two areas that fall within the fire/fuels resource area cumulative effects analysis boundary. These two projects are located between the District boundaries (La Grande and Walla Walla District boundary north of Mt. Emily) and Ruckle Junction. A total of approximately 900 acres of treatment fall within the cumulative effects analysis boundary. The treatment areas are located within a ¼ mile of the east boundary of the Umatilla Forest, immediately adjacent to private lands and within the Mt. Emily WUI, and along Forest Road 31 to Ruckle Junction. Treatment methods include hand thinning of trees less than six inches diameter, pruning, hand piling, and pile burning of created slash.

The design of the project is to compliment fuels reduction work that is being done by private landowners and the Oregon Department of Forestry along the east flank of Mt. Emily north to the forest boundary near County Road 22 (Forest Road 32) and the La Grande Ranger District.

There is no prescribed burning proposed in the Walla Walla District fuel reduction projects, except for pile burning. This would result in no overlap of grazing and prescribed burning within the analysis boundary.

#### **Boise Cascade/Boise Building Solutions – Industrial Lands**

Recently, there have been approximately 435 acres of timber sale activities within the analysis boundary that have reduced surface, ladder, and crown fuels. Boise Building Solutions has additional 164 acres of small diameter thinning planned along the face of Mt. Emily near homes, and along the 3120 road to reduce surface, ladder, and crown fuels.

#### **Private Land**

Currently there are 50 land owners that have planned or implemented fuel reduction projects on approximately 619 acres between Hunter Road and the National Forest boundary. Treatments include small diameter thinning, brush reduction, and slash treatments. Treatment levels vary between land owners and are scattered in block sizes from one to 400 acres. Three hundred sixty - five acres of timber sale operations were completed on private land adjacent to Hunter lane.

### **ALTERNATIVE 2**

The combined and continued fuel reduction efforts of all ownerships would reduce the potential for a large, high intensity wildfire to spread through the area. Fuel reduction efforts would reduce potential crown fire and flame lengths and improve opportunities to direct attack a wildfire safely.

Implementing Alternative Two would reduce the potential for a large, high intensity wildfire to spread from the Wallowa-Whitman National Forest onto private and industrial lands by reducing flame lengths and crown fire and spotting potential.

Managing fuels on all ownerships within the analysis area would reduce flame lengths, crown fire and spotting potential. This would result in less long term risks to private property, homes, firefighter and public safety, and damaging impacts to natural resources including visuals.

Alternatives that maximize removal and utilization have less chance of detrimentally impacting air quality.

### **ALTERNATIVE 3**

Cumulative effects in Alternative Three are similar to Alternative Two, with the main difference being the reduced acres (approximately 230 less) of mechanical pre-treatment, and the modified silviculture prescriptions within removal units. Modified silvicultural prescriptions would result in treatment effectiveness lasting for a shorter period of time when compared to Alternative Two.

### **Restoring Fire Adapted Ecosystems**

Vegetation conditions have evolved to a density and complexity outside the historical range in fire regimes one and three within the project area. The following two tables display the existing condition of the area by fire regime and condition class and proposed treatments by alternative.

Table 4					
Fire Regime	Condition Class	Acres in Need of Treatment	Mechanically Treated Acres And Percent of Total Need Treated		
			Alternative 1	Alternative 2	Alternative 3
1	3	319	0	86 (27%)	86 (27%)
3	2	119	0	38 (32%)	20 (17%)
3	3	2,698	0	936 (35%)	885 (33%)
<b>Totals</b>		<b>3,136</b>	<b>0</b>	<b>1,060 (34%)</b>	<b>991 (32%)</b>

Table 5					
Fire Regime	Condition Class	Acres in Need of Treatment	Acres Treated With Prescribed Fire And Percent of Total Need Treated		
			Alternative 1	Alternative 2	Alternative 3
1	3	319	0	193 (61%)	193 (61%)
2	2	938	0	209 (23%)	209 (23%)
3	2	119	0	0 (0%)	0 (0%)
3	3	2,698	0	1,009 (37%)	1,009 (37%)
<b>Totals</b>		<b>4,074</b>	<b>0</b>	<b>1,411 (35%)</b>	<b>1,411 (35%)</b>

## Direct and Indirect Effects on Fire Regime Departure

### ALTERNATIVE 1 – NO ACTION

The project area currently has approximately 3,017 acres in fire regimes one and three identified as having high departures from historical fire return intervals; and approximately 1,057 acres as having moderate departures from historical fire return intervals. This alternative would not treat any acres within fire regimes one, two, or three that are in a condition class two or three. The direct effects of not mechanically pre-treating acres with heavy fuel loadings (i.e., ladder fuels, overstocked stands, and heavy concentrations of standing and down dead) in these fire adapted ecosystems would limit the re-introduction and maintenance of low intensity fire because of potential extreme fire behavior.

Agency fire suppression efforts would continue under fuel conditions that are hazardous. Alternative One would not reduce risks or increase success rates of wildfire suppression in the Wildland Urban Interface.

Alternative One does not meet the purpose and need of the project for restoring fire adapted ecosystems within a range of historic conditions. Fire exclusion would continue to extend the fire return interval, increase fuel loadings, change vegetation profiles, and increase the gap between historical conditions and current conditions. True fire establishment would continue in the absence of low intensity “thinning fires.” These vegetative conditions have placed Late and Old structure, wildlife habitat, and riparian areas at risk to severe wildfire impacts.

### ALTERNATIVE 2

In Alternative Two, 1,060 acres of the 3,136 acres (34%) of fire regimes one and three that are in a condition class two or three would receive mechanical and prescribed fire treatments (reference table 4). These acres would be treated mechanically through removal, small diameter thinning, stand cleaning prescriptions, and piling to reduce surface, ladder, and crown fuels. Low to moderate intensity prescribed fire entries would occur within the next five to ten years following mechanical treatments. Prescribed fire would be used to thin suppressed overstocked regeneration and reduce surface fuel accumulations. These acres would move to a condition class one following treatments.

An additional 350 acres of prescribed fire would occur in fire regimes one, two, and three that are in a condition class two or three (reference tables 5 and 6 - difference between Alternative Two mechanical and prescribed fire acres). Condition class on these 350 acres would remain a two or three. Multiple entries of prescribed fire over time would be required to move these acres to a condition class one.

Alternative Two meets the purpose and need of the project by moving fire regimes one, two, and three towards more historic conditions on 34% of the acres that are outside historic conditions. These treatments are expected to last for 20 to 30 years with light maintenance level treatments in 10 to 15 years. This would reduce the risk of intense wildfire behavior to LOS, long-term wildlife habitat, and riparian structure, and areas managed for old growth habitat. Preservation of existing LOS is enhanced while promoting long-term LOS, wildlife diversity, and riparian function across the landscape towards more historical conditions.

### **ALTERNATIVE 3**

In Alternative Three, 991 acres of the 3,136 acres (32%) of fire regimes one and three that are in a condition class two or three would receive mechanical and prescribed fire treatments (reference table 4). These acres would be treated mechanically through removal, small diameter thinning, stand cleaning prescriptions, and piling to reduce surface, ladder, and crown fuels. Low to moderate intensity prescribed fire entries would occur within the next five to ten years following mechanical treatments. Prescribed fire would be used to thin suppressed overstocked regeneration and reduce surface fuel accumulations. These acres would move to a condition class one following treatments.

An additional 420 acres of prescribed fire would occur in fire regimes one, two, and three that are in a condition class two or three (reference tables 5 and 6 - difference between Alternative Three mechanical and prescribed fire acres). Condition class on these 420 acres would remain a two or three. Multiple entries of prescribed fire over time would be required to move these acres to a condition class one.

Direct and indirect effects for both action alternatives regarding acres treated in fire regimes one and three are similar, with the main difference being the reduced acres (approximately 69 less acres) of mechanical pre-treatment, and the modified silviculture prescriptions within all the removal units. Treatment prescriptions in Alternative Three are expected to last for 10 to 20 years before stand conditions become overstocked and the risk of invasive species for these fire regimes begins to trend away from historical vegetation conditions.

Alternative Three meets the purpose and need of the project by moving fire regimes one, two, and three towards more historic conditions on 32% of the acres that are outside historic conditions. These treatments are expected to last for 10 to 20 years with light maintenance level treatments in 10 to 15 years. This would reduce the risk of intense wildfire behavior to LOS, long-term wildlife habitat, and riparian structure, and areas managed for old growth habitat. Preservation of existing LOS is enhanced while promoting long-term LOS, wildlife diversity, and riparian function across the landscape towards more historical conditions.

## **Cumulative Effects on Fire Regime Departure**

### **ALTERNATIVE 1 – NO ACTION**

Acres identified as being in a condition class two would convert to a condition class three over the next 20 to 30 years. Acres identified as being in a condition class three would continue to be at high risk.

The analysis area lies within the Grande Ronde River/Hilgard Watershed which is ranked at high risk in terms of departure from historical fire return intervals. Movement towards historical conditions in

disturbance patterns across the landscape would be delayed for approximately 20 to 30 years, or until a stand replacement event occurs.

Heavy concentrations of dead standing and down trees and multi-layered structure and tree densities continue to be at risk to intense, stand replacing fire events, which could result in the loss of late and old structure, wildlife habitat cover, and consumption of large woody material and structure in riparian areas. "Maintaining soil productivity over the long term generally requires presence of soil organic material and fire effects characteristic of the natural fire regime. Most fires characteristic of the historic fire regime or moderate severity prescribed fires are likely to enhance soil development" (Brown, Reinhardt, and Kramer, RMS-GTR-105, 2003).

### **ALTERNATIVES 2 and 3**

Cumulative effects in Alternative Three are similar to Alternative Two, with the main difference being a reduced level of treatment. Modified silvicultural prescriptions treat dense stand conditions to a lower level, resulting in the potential for ground fire to move into tree crowns. This reduction in the level of treatment would result in fire regimes one and three moving into condition class two and three within 10 to 20 years (20 to 30 years for Alternative Three). Prescribed fire opportunities in areas with heavy surface and crown fuel loadings are decreased, extending the gap between current and historical fire return intervals and damaging impacts to natural resources.

Mechanical treatment would allow for more opportunities to use prescribed fire. Fuels can be manipulated prior to burning (where as weather and topography cannot) to reduce the potential for high intensity burning and damaging impacts to natural resources during prescribed fire operations. Mechanical pre-treatment would reduce the amount of smoke emissions generated during prescribed burning by reducing the amount of fuels available for combustion.

Maintaining fire return intervals within fire regimes one, two, and three would help move existing vegetative condition in terms of vegetation composition and structural stages, and disturbance patterns towards historical conditions.

## **Direct, Indirect and Cumulative Effects of Road Activity**

### **ALTERNATIVE 1 – NO ACTION**

No temporary road construction or road reconstruction would occur. Without temporary road construction, the existing road system would be used for control lines in either prescribed burning or wildfire suppression within the project area. Control lines are limited, however, adequate with the given road system.

Without reconstruction of the 3120500 road, suppression resources enroute to initial attack a wildfire would require five to thirty more minutes for arriving on site, due to the poor maintenance of the road. This is a minor delay under most circumstances, however, it would allow the fire that much more time to advance.

### **ALTERNATIVES 2 and 3**

One mile of temporary road construction in T1S R38E northeast quarter of section 5 would benefit suppression and prescribed fire activity. Following decommissioning of the temporary road, the created opening would serve as a fuel break. This opening would extend the existing fuel break created from the 1400100 road by one mile and allow more options in fire management. The additional one mile could be useful as an anchor point for backfiring in a wildfire scenario or for a control line during a prescribed burning operation.

Reconstruction of the 3120 road would benefit wildfire suppression efforts. Improving the road to bring it up to its required maintenance level of two would allow suppression equipment (mainly vehicles) easier access and a quicker response time in the event of a wildfire.

## Wildlife Resource – Old Growth

### Introduction

The Mt. Emily area provides unique wildlife habitat that supports old growth associated species such as American marten, pileated woodpecker, and Northern goshawk. Habitat features important to these species survival include old growth, high canopy closure, and snags and down wood. These habitat features and the low road densities on the face of Mt. Emily provide unique wildlife habitat that support high wildlife species diversity and species associated with old growth that are not commonly found in the Blue Mountains.

This section describes the effects of the Mt. Emily Fuels Reduction alternatives on wildlife and wildlife habitat. Direct, indirect and cumulative effects are addressed; direct effects are related to habitat features and indirect effects are described in terms of wildlife species response. A wildlife existing condition document of the Mt. Emily area resides in the analysis file. Effects to Threatened, Endangered and Sensitive species (TES species) and Management Indicator species (MIS species) are disclosed under separate sections later in this chapter.

This section evaluates the effects of three alternatives on one key issue, Managing Old Growth Components Adjacent to Wildland Urban Interface (WUI) that is currently outside the historic range of variability (HRV). Old growth characteristics include tree size, snags and down wood, canopy layers, and species composition as described in Region 6 Interim Old Growth Definition, June 1993. Effects to old growth habitat will be analyzed using key indicators: 1) old growth acres treated and 2) acres converted from multi-strata with large trees (MSLT) to single strata with large trees (SSLT).

The logical resource unit for old growth cumulative effects analysis is the project area boundary and the adjacent Mt. Emily roadless area (approximately 16,117 acres). This logical resource unit is of adequate size to encompass the home range of wildlife species associated with old growth habitat.

The Mt. Emily project proposes to reduce fuel loadings and manage vegetation to decrease the potential for intense fire behavior adjacent to homes and private property, to maintain safe and efficient fire access, and to improve fire suppression opportunities along the ridges. Treatment areas include old growth (MSLT, MA - 15) that would include reducing ladder fuels, ground fuels and high tree densities (Table 6).

Table 6. Percent of old growth in the project area proposed for fuels reduction treatment

	Old Growth Treatment Acres (MSLT)	MA-15 Treatment Acres
Alternative 1	0	0
Alternative 2	543 (30%)	188 (35%)
Alternative 3	418 (23%)	158 (30%)

Old growth is well represented in the Mt. Emily area; MSLT makes up at least 34% of the forested acres with two allocated old growth areas (MA -15; Bull Canyon 443 acres and Emily 138 acres) that total 581 acres. However, distribution of old growth by biophysical environments (biogroups) does not meet HRV's in biogroup 4. To meet the direction in the Forest Plan the amount of old growth structure must be analyzed and compared to an HRV standard established by the Forest for various biogroups. Treatments in MSLT biogroup 4 and MA -15 would suggest a Forest Plan amendment.

HRV's for MSLT are met or exceeded in all biogroups except in biogroup 4 (cool, dry-wet, grand fir; biogroup 6 is below HRV, however, this biogroup is poorly represented in the Mt. Emily area; Table 2). Because MSLT structure stage falls below HRV in biogroup 4, no net loss of old growth is to occur (Forest Plan Amendment #2, Screens, Scenario "A" Wildlife Standard).

SSLT is found in the drier biogroup types 1 and 5 through 8 (Douglas -fir, ponderosa pine, subalpine) but is not associated with biogroups 2 and 4 (subalpine fir, grand fir). Currently, single strata large trees structure stage does not occur in the Mt. Emily area.

Management indicator species (MIS) associated with old growth habitat include American marten, pileated woodpecker and Northern goshawk. Although these species are found in other structure types, such as understory reinitiation, old growth habitat is considered optimum with meeting structure and cover needs. The following discussion on effects to MIS analyzes only the changes to MSLT and the effect to MIS, although some of the UR stands would also provide suitable habitat.

American marten are an uncommon species in northeast Oregon because their biological requirements are poorly met on managed landscapes. Marten have large home ranges (approximately 2,000 acres for females and 5,000 to 7,000 acres for males; information from Beaver Creek study conducted by E. Bull, pers. commun., 1998) and their biological needs are best met by contiguous forest cover, abundant down wood and old growth stands for security, denning, and foraging. Based on professional judgment, MSLT is biogroups G1 through G5 (1,748 acres) in the Mt. Emily project area provides marten habitat based on large structure, cover and abundant down wood.

Northern goshawks are associated with mature and old growth forests. Goshawks use large diameter trees for nest sites and down logs as places to pluck their prey before carrying it to the nest. Mt. Emily provides Northern goshawks with suitable habitat based on the abundance of large structure stands; however, stands with dense understory may reduce hunting efficiency (Marshall 1992; Reynolds and Meslow 1984). Based on professional judgment, MSLT in biogroups G1 through G6 (1,743 acres) in the Mt. Emily project area provides Northern goshawk habitat based on large structure and down logs.

Pileated woodpeckers represent species dependent on large diameter snags and down trees in older -aged forests and have an average home range size of 900 acres (Bull and Holthausen 1993). Pileated woodpeckers use these snags for nesting, roosting and foraging. Mt. Emily provides pileated woodpeckers with at least 1,058 acres suitable habitat based on the quantity of stands with large trees within grand fir and mixed conifer plant communities (MSLT G4-G6).

Table 6.1. Old Growth Structure by Biophysical Group and HRV Analysis; Existing Condition

	<b>G1 831 ac</b>	<b>G2 101 ac</b>	<b>G4 3,637 ac</b>	<b>G5 323 ac</b>	<b>G6 54 ac</b>	<b>G7 540 ac</b>	<b>G8 34 ac</b>	
<b>Structural Stage</b>	<b>Cold,Dry Saf</b>	<b>Cool,Wet Saf</b>	<b>Cool,Dry- Wet Gf</b>	<b>Warm,Dry- Moist, Gf</b>	<b>Warm, Moist Df</b>	<b>Warm, Dry Pp</b>	<b>Hot, Dry Pp</b>	<b>TOTAL ACRES</b>
Multi-Strata-Large Trees (MSLT)	673 ac	22 ac	898ac	155 ac	5 ac	84 ac	0 ac	1837
HRV % Existing%	1-10 81	5-25 22	30-60 25	5-25 48	10-30 9	5-25 16	2-15 0	
Single Stratum – Large Trees (SSLT)	0 ac	0 ac	0 ac	0 ac	0 ac	0 ac	0 ac	0
HRV % Existing%	1-10 0	0 0	0 0	15-25 0	15-55 0	15-55 0	20-70 0	

Only **biogroup 4** falls below HRV for MSLT (Table 6.1), therefore, any treatments in MSLT biogroup 4 would suggest a Forest Plan amendment. Treatments in MSLT stands would retain all live trees  $\geq 21$  inch diameter and meet the Forest Plan standards for down wood and snags and meets the Region 6 Old Growth Definition, June 1993. Alternative 2 would convert MSLT to SSLT (Table 7). Alternative 3 would retain higher tree densities and MSLT treated stands would continue to meet the structure stage definitions (Table 3; Wallowa-Whitman National Forest Recommended Definitions for New Structure Stages per Amendment #2, November 9, 1995).

Table 7. Mt. Emily Biogroup 4 MSLT. Percent of project area proposed for fuels reduction treatment.

	Biogroup 4 MSLT Treatment Acres	Biogroup 4 MSLT Acres Converted to SSLT
Alternative 1	0	0
Alternative 2	241 (27%)	241
Alternative 3	142 (16%)	0

The Eastside Screens Team from the Regional Office in Portland, Oregon conducted a field review of the MSLT stands in biogroup 4 during Fall 2003. Their report (November 10, 2003; see analysis file) describes the historic fire regime where some stands were more single-story in nature during at least part of their seral development. The Screens Team reports that some of the stands in the drier end of biogroup 4 probably experienced more frequent fires and open conditions for longer periods. In addition, they documented that old growth attributes can be retained by reducing the risk of fire damage that might otherwise be lost in the event of a catastrophic fire.

**Prescribed burning**, to reduce fine fuels (< 3 inch diameter material), would occur on 358 acres MSLT in Alternative 2 and 347 acres in Alternative 3. Prescribed burning in the Emily allocated old growth would reduce fine fuels and act as an anchor for midslope fuels reduction burning. Less than 10% of the overstory would be affected. Prescribed burning in the Bull Canyon allocated old growth would occur after mechanical treatments are completed in Alternative 2 and 3.

Prescribed burning may have direct effects to wildlife species or indirect effects to wildlife habitat. Direct mortality of animals in fires has been documented by some investigators (Hakal et al. 1971, Chew et al. 1958, Starkey 1985). When animals are killed in fires the probable cause of death is usually suffocation rather than high temperatures (Chew et al. 1958). In general, while some evidence of vertebrate mortality has been reported, the most common opinion is that vertebrates are rarely killed in fires and where death does occur, it is usually negligible (Vogl 1967, Stoddard 1963).

Indirect effects of prescribed burning include the removal of stem and litter cover that may reduce movement and burrowing by mice and voles (Cook 1959, Tester and Marshall 1961). However, deer mice usually increase after fires (Sims and Buckner 1973) and litter removal may make some foods more available to wildlife (Stoddard 1963). During the first growing season following a fire, early and vigorous growth of vegetation in the spring usually improves food supplies (Lyon 1978).

**Roads** may facilitate a reduction in the density of large diameter trees and snags (Wisdom et al. 2000) as suggested by the lower density of large-diameter trees, snags and logs associated with roaded areas (Hahn and others 1997). Wisdom et al. (2000) identified 18 wildlife species associated with low elevation old forest and broad elevation old forest that rely on snags for nesting and foraging (e.g., white-headed woodpecker, pileated woodpecker, Northern flying squirrel). Existing road densities meet Forest Plan standards and guidelines; however, additional access has been created by fuelwood gatherers to remove snags for firewood.

## Effects Analysis

### No Direct, Indirect, or Cumulative Effects

The following restoration activity associated with the Mt. Emily project is of such limited and constrained nature that it would not impact species or wildlife habitat in the project area and would therefore have no effect on Wildlife resources.

- Road Reconstruction
- Subsoiling
- Seeding
- Borax stump treatments

These activities and their effects will not be discussed further in the Wildlife section.

### Direct and Indirect Effects

#### **ALTERNATIVE 1 – NO ACTION**

Old growth is well represented in the Mt. Emily area, especially in the subalpine fir plant communities on the ridge and the grand fir types on the face. Understory reinitiation would provide old growth structure within 25-50 years continuing to provide habitat for old growth associated species. There are presently 2,935 acres (40% of the project area) in understory reinitiation.

Old growth currently supports American marten denning and resting sites, pileated woodpecker nesting, roosting and foraging habitat, black bear denning sites, Northern goshawk nesting habitat, and Northern flying squirrel nesting habitat (Bull pers. commun. 2003, Bull and Hea ter 1996, Bull 1994, Wisdom et al. 2000). In the absence of a wildfire, old growth characteristics (e.g., large trees, snags, down wood) would persist for 50 to 100 years.

Based on professional judgment, MSLT (approximately 1,748 acres) in the Mt. Emily project area provides optimal American marten habitat based on large structure, cover, and abundant wood. However, the Mt. Emily area does not provide contiguous cover; approximately 25% is open grassland plant communities that naturally fragment the area and are avoided by American marten. These naturally occurring openings reduce the overall habitat suitability for marten in the Mt. Emily area.

Alternative 1 provides Northern goshawks with suitable habitat based on the abundance of MSLT; however, stands with dense understory may reduce hunting efficiency (Marshall 1992; Reynolds and Meslow 1984). Approximately 32% (1,743 acres) of the forested habitat within the Mt. Emily area provides habitat for Northern goshawks.

Alternative 1 provides pileated woodpeckers with approximately 1,058 acres of suitable habitat (20% of forested acres) based on the quantity of stands with large trees within grand fir and mixed conifer plant communities. In the absence of wildfire, old growth characteristics would persist for 50 to 100 years.

HRV's indicate that SSLT historically occurred in the Mt. Emily area (approximately 420 acres); however, no SSLT presently occurs on the landscape (Table 5, Chapter One). SSLT conditions would provide habitat for wildlife species such as pygmy nuthatch and white-headed woodpecker. The overstocked condition in MSLT stands would lead to a continued increase in susceptibility to stand replacing fires and vulnerability to insect and disease related tree mortality.

Old growth is well connected throughout the analysis area and with the adjacent Mt. Emily roadless

area. The face provides old growth habitat connected by riparian areas, primarily east to west. Old growth on the ridge is extensive and, therefore, provides a large block of connected old growth habitat. Fragmentation exists on the ridge due to past timber harvest; however, old growth connectivity is met through the short-term. In the absence of fire, Alternative One would not change current connectivity conditions. A large landscape crown fire would have potential to reduce connectivity.

Approximately three and one half miles of ineffectively closed roads would remain in this condition for approximately one to five year. These roads would be effectively closed under routine maintenance within that time.

Overstocked conditions in old growth stands would lead to a continue increase in susceptibility to stand replacing fires. The immediate post-fire environment in large stand replacement fires presents all animals with a sudden and drastic modification of habitat structure and local microclimate. Increased light and temperature, lowered humidity, and changes in food and cover may have positive or negative influences to wildlife species. The intensity and extent of area burned regulates the effect on wildlife. In general, the larger the area burned and the higher intensity, the higher habitat modification and effect on wildlife. Large stand replacement forest fires have the greatest potential to adversely affect late and old growth associated species.

## ALTERNATIVE 2

Treatments in Alternative 2 would affect 543 MSLT acres and 188 MA -15 acres (Bull Canyon Old Growth; Table 6). All treatments in old growth would retain live trees  $\geq 21$  inch, however, 543 acres MSLT would be converted to SSLT (Table 7.1). Historic levels (HRV) of SSLT were predicted to be approximately 420 acres in the Mt. Emily area. Alternative 2 would move 30% of the existing old growth towards historical single-stratum levels; the greatest increase in SSLT is shown in biogroup 1 (Table 7.1). These treatments would retain early seral large structure that would provide habitat for such species as pygmy nuthatch and white-headed woodpecker (Wisdom et al. 2000) and better meets HRVs compared with Alternative 1, except in biogroup 4. In addition, Alternative 2 would reduce the risk of stand replacement fires in old growth habitat for 20 to 30 years and maintain the large structure by reducing understory competition.

Table 7.1. Old Growth Structure by Biophysical Group and HRV Analysis; Alternative 2

	<b>G1 831 ac</b>	<b>G2 101 ac</b>	<b>G4 3,637 ac</b>	<b>G5 323 ac</b>	<b>G6 54 ac</b>	<b>G7 540 ac</b>	<b>G8 34 ac</b>	
<b>Structural Stage</b>	<b>Cold, Dry Saf</b>	<b>Cool, Wet Saf</b>	<b>Cool, Dry- Wet Gf</b>	<b>Warm, Dry- Moist, Gf</b>	<b>Warm, Moist Df</b>	<b>Warm, Dry Pp</b>	<b>Hot, Dry Pp</b>	<b>TOTAL ACRES</b>
Multi-Strata-Large Trees (MSLT)	423 ac	22 ac	657 ac	146 ac	1 ac	45 ac	0 ac	1294
HRV % Existing%	1-10 51	5-25 22	30-60 18	5-25 45	10-30 2	5-25 8	2-15 0	
Single Stratum – Large Trees (SSLT)	250 ac	0 ac	241 ac	9 ac	4 ac	39 ac	0 ac	543
HRV % Existing %	1-10 30	0 0	0 7	15-25 3	15-55 7	15-55 7	20-70 0	

Alternative 2 would treat and convert 241 MSLT acres in biogroup 4 acres to SSLT, reducing the percent of MSLT in the project area from 25% to 18%. Under this alternative a non-significant Forest Plan amendment would be required to treat in old growth that is below HRV. The direct and indirect effects of the Forest Plan amendment to treat reduce old growth below HRV are a reduction of wildlife habitat that use multi-strata old growth habitat (this conversion results in an increase of 7% of SSLT in biogroup 4).

For goshawks, martens and pileated woodpeckers source habitat is provided by the MSLT structure stage (Wisdom et al 2000). Reduced canopy closure in MSLT biogroup 4 and in MA -15 may not provide adequate escape cover for such species as American marten and pileated woodpecker from predation. Thinning treatments in Alternative 2 are expected to reduce cover by 20 to 30 percent (Powell 1999; Barrett pers. commun. 2003); thinning treatments in MSLT biogroup 4 would probably result in canopy closures ranging from 30 to 50% canopy cover in the Mt. Emily area. It is important to realize that treatment in MSLT biogroup 4 and MA -15 is relatively small in relation to some wildlife species home ranges and may have negligible effects to meeting species habitat requirements.

American marten usually avoid openings dominated by grasses, forbs, and saplings, especially in the winter. Bull et al. (1996) found 56% radiocollared marten killed by predators and believes that marten avoid areas in early structural stages or open canopies due to the increase in vulnerability to predation. Optimal escapement cover is 60% canopy cover and minimum levels are assumed to have at least 40% canopy cover. SSLT would not offer protection from predation or access to the subnivean zone (Buskirk and Powell 1994). American marten habitat (MSLT, biogroup 1-5) would be reduced by 500 acres, resulting in 1,248 acres of optimal marten habitat.

Bull (pers. commun. 2003, Bull and Holthausen 1993) reported that pileated woodpeckers exhibit a preference for grand fir stands with at least 60% canopy closure to protect them from predation by accipiters. However, Wisdom et al. (2000) states that pileated source habitat generally include both MSLT and SSLT and that special habitat for pileateds includes the dependency on large snags and logs for nesting, roosting and foraging. Reduction of canopy closure within pileated woodpecker habitat (MSLT biogroup 4-6) would occur within 254 acres and result in reducing optimal pileated habitat to 804 acres.

Goshawks nest in various forest structural conditions, from open stands to SSLT to MSLT; however, nest stands are generally characterized by large trees and the densest canopy cover available within the area (Reynolds and other 1992). Reduction of canopy closure within Northern goshawk habitat (MSLT biogroup 1-6) would occur within 494 acres, resulting in 1,249 acres of optimal habitat.

Although connectivity would be met under Alternative 2 the corridor size and effectiveness would be reduced and connectivity to the adjacent Mt. Emily roadless area would be minimized. The north portion of the Mt. Emily face and the ridge portion meet connectivity guidelines within the analysis area as well as to old growth in adjacent roadless areas. However, treatments along the 3120500 road affect connectivity between the south portion of the Mt. Emily face and the ridge old growth. Treatments above the 3120450 road would fragment the existing old growth and reduce corridor effectiveness. Wildlife species, such as American marten, would have increased vulnerability to predation due to the reduction of canopy cover (E. Bull, pers. commun. 2003) for 20 to 30 years when the next fuels reduction treatment would be expected. Reduced fuel loadings would reduce prey densities and the amount of below snow habitat available to marten during the winter.

Alternative 2 would create 1 mile of temporary road along the face of Mt. Emily and would be closed to public access. Approximately 1.5 acres of wildlife habitat would be affected (based on a 12 foot wide road). Cover quality and security habitat would be reduced on these acres for approximately 25 years until vegetation is well established. Mitigation measures include road closures and obliteration and would benefit wildlife habitat by eliminating vehicle access. There are 3.57 miles that are ineffective road closures that would be closed with the alternative (see Roads Analysis document). However, woodcutting access and OHV use are not addressed in this EA; a road management

proposal would be completed under a separate EA to be completed within 5 years. Therefore, this alternative would have little effect on protecting snags and logs from woodcutters.

Alternative 2 would treat 188 acres within the Bull Canyon MA -15 (443 acres) with commercial thinning to the lower management zone, followed by fuels reduction of dead standing and down trees, cutting of small diameter ladder fuels (cleaning) piling, and prescribed burning. The direct and indirect effects of the Forest Plan amendment to treat MA -15 are a reduction of wildlife habitat that use multi-strata old growth habitat. Old growth characteristics as measured by levels of down wood, snags and large trees would be reduced to minimum Forest Plan standards. Multi-strata would be converted to single strata. For Northern goshawks, American martens and pileated woodpeckers source habitat is provided by the MSLT structure stage (Wisdom et al. 2000) and reduced canopy closure may not provide adequate escape cover from predation. The Forest Plan amendment would retain Bull Canyon as allocated old growth.

Prescribed burning, to reduce fine fuels (< 3 inch diameter material), would occur on 358 acres MSLT in Alternative 2. Prescribed burning in the Emily allocated old growth would reduce fine fuels and act as an anchor for midslope fuels reduction burning. Less than 10% of the overstory would die from fire damage. Prescribed burning in the Bull Canyon allocated old growth would occur after mechanical treatments are completed. Approximately 19% MSLT in the Mt. Emily project area will include prescribed burning. Prescribed fire is important in maintaining a diversity of successional stages within plant communities. Wildlife niches are provided for all wildlife species if the number of acres, locations, frequency, and timing is carefully designed and implemented across the landscape. Prescribed burning would have negligible effects to old growth structure due to the low intensity burns. There may be a reduction in live overstory trees (approximately 10%), but this is likely to be distributed throughout the prescribed burn units. The creation of snags would benefit primary cavity excavators.

### **ALTERNATIVE 3**

Treatments in Alternative 3 would affect 418 MSLT acres and 158 MA -15 acres (Bull Canyon Old Growth; Table 6); this is 125 MSLT acres less than Alternative 2 and 30 acres less in MA -15. All treatments in old growth would retain live trees  $\geq 21$  inch, maintain at least 2 tree layers, meet Forest Plan standards and guides for snags and down wood. Alternative 3 would retain higher tree densities than Alternative 2 and MSLT treated stands would continue to meet the structure stage definitions (Wallowa-Whitman National Forest Recommended Definitions for New Structure Stages per Amendment #2, November 9, 1995) in all biogroups. Although there is a trend toward a more single structure stage, Alternative 2 better meets the habitat needs for species associated with SSLT. Alternative 3 would reduce the risk of stand replacement fires in old growth habitat for 10 to 20 years and maintain the large structure by reducing understory competition.

Alternative 3 would treat 142 MSLT acres in biogroup 4. The treated acres would remain in MSLT. MSLT in biogroup 4 would remain at 25% and SSLT in biogroup 4 would remain at 0% (Table 6.1). Under this alternative a Forest Plan amendment would be required to treat in old growth that is below HRV. The direct effects of the Forest Plan amendment to treat old growth below HRV are a modification of wildlife habitat for wildlife species that are dependent on a 60% canopy closure. Tree densities would be reduced from existing level; however, this alternative would continue to meet the structure stage definitions associated with the Regional Forester's Forest Plan Amendment #2.

Historic levels (HRV) of SSLT were expected to be approximately 420 acres in the Mt. Emily area. Alternative 3 would not convert MSLT to SSLT and there would continue to be short-falls in SSLT structure stage. Thinning treatments in Alternative 3 would reduce canopy closure by approximately 20 percent (Powell 1999; Barrett pers. commun. 2004) for 10 to 20 years when the next fuels reduction treatment would be expected. This treatment would result in a canopy closure of 40 to 50%. Depending on plant association, it is unlikely that 60% canopy closure would be maintained in most MSLT stands after treatment and, therefore, may not meet optimal escapement cover for such

species as American marten and pileated woodpecker (Bull et al. 1996, Bull pers. commun. 2004).

Alternative 3 maintains a higher tree density and maintains MSLT structure when compared to Alternative 2. Treatment to a higher tree density (mid to upper management zone) provides a more effective corridor along the 3120500 road. Alternative 3 defers treatment of 143 acres (6 units) on a ridge above the 3120450 road. This would continue to provide a large block of connective habitat within the project area to the adjacent old growth in the Mt. Emily IRA. Retaining high fuel loadings in this area pose an increased risk to stand replacement wildfires, potentially reducing connectivity.

American marten usually avoid openings dominated by grasses, forbs, and saplings, especially in the winter. Bull et al. (1996) found 56% radiocollared marten killed by predators and believes that marten avoid areas in early structural stages or open canopies due to the increase in vulnerability to predation. Optimal escapement cover is 60% canopy cover and minimum levels are assumed to have at least 40% canopy cover. Reduced canopy cover would not offer protection from predation or access to the subnivean zone (Buskirk and Powell 1994). American marten habitat (MSLT, biogroup1-5) would be reduced by 393 acres, resulting in 1,355 acres of optimal marten habitat.

Bull (pers. commun. 2003, Bull and Holthausen 1993) reported that pileated woodpeckers exhibit a preference for grand fir stands with at least 60% canopy closure to protect them from predation by accipiters. However, Wisdom et al. (2000) states that pileated source habitat generally include both MSLT and SSLT and that special habitat for pileateds includes the dependency on large snags and logs for nesting, roosting and foraging. Reduction of canopy closure within pileated woodpecker habitat (MSLT biogroup 4-6) would occur within 154 acres, resulting in 904 acres of optimal pileated habitat.

Goshawks nest in various forest structural conditions, from open stands to SSLT to MSLT; however, nest stands are generally characterized by large trees and the densest canopy cover available within the area (Reynolds and other 1992). Reduction of canopy closure within Northern goshawk habitat (MSLT biogroup 1-6) would occur within 397 acres, resulting in 1,356 acres of optimal habitat.

Alternative 3 would create 1 mile of temporary road along the face of Mt. Emily (same location as Alternative 2). This temporary road would be closed to public access. Approximately 1.5 acres of wildlife habitat would be affected (based on a 12 foot wide road). Cover quality and security habitat would be reduced on these acres for approximately 25 years until vegetation is well established. Mitigation measures include closing and obliterating the road. This would benefit wildlife habitat by eliminating vehicle access.

There are 3.57 miles that are ineffective road closures and would be closed with this alternative (see Road Analysis document). This would ensure more accurate road density estimates when comparing to Forest Plan standards and guidelines. Also, closing the ineffectively closed roads increases wildlife security areas for big game and reduces loss of snags and down wood to wood cutting activity.

Alternative 3 would treat 158 acres within the Bull Canyon MA -15 (443 acres) with commercial thinning to a mid-range between the lower and upper management zones followed by fuels reduction of dead standing and down trees, cutting of small diameter ladder fuels (cleaning) piling, and prescribed burning. The direct and indirect effects of the Forest Plan amendment to treat in MA -15 are a reduction of wildlife habitat that use dense canopy old growth habitat. Old growth characteristics as measured by levels of down wood, snags and large trees would be reduced to above minimum Forest Plan standards. Multi-strata would be retained. For Northern goshawks, American martens and pileated woodpeckers source habitat is provided by the MSLT structure stage (Wisdom et al. 2000). Maintaining multi-strata and higher canopy closure in MSLT and MA -15 would better provide escape cover (when compared to Alternative 2) for wildlife species from predation. The Forest Plan amendment would retain Bull Canyon as allocated old growth.

Prescribed burning, to reduce fine fuels (< 3 inch diameter material), would occur on 347 acres

MSLT in Alternative 3. Prescribed burning in the Emily allocated old growth would reduce fine fuels and act as an anchor for midslope fuels reduction burning. Less than 10% of the overstory would die from fire damage. Prescribed burning in the Bull Canyon allocated old growth would occur after mechanical treatments are completed. Approximately 19% MSLT in the Mt. Emily project area will include prescribed burning. Prescribed fire is important in maintaining a diversity of successional stages within plant communities. Wildlife niches are provided for all wildlife species if the number of acres, locations, frequency, and timing is carefully designed and implemented across the landscape. Prescribed burning would have negligible effects to old growth structure due to the low intensity burns. There may be a reduction in live overstory trees (approximately 10%), but this is likely to be distributed throughout the prescribed burn units. The creation of snags would benefit primary cavity excavators.

## **Cumulative Effects**

### **ALTERNATIVE 1 – NO ACTION**

The logical resource unit for old growth cumulative effects analysis is the project area boundary and the adjacent Mt. Emily roadless area (approximately 16,117 acres). This logical resource unit is of adequate size to encompass the home range of wildlife species associated with old growth habitat.

Old growth habitat is well represented in the logical resource unit for cumulative effects. The Mt. Emily IRA contains 45% old growth (reference Five Points EIS file at La Grande District). The Mt. Emily project area contains 34% old growth. The combined old growth for the logical resource unit is 40%. Old growth is primarily represented in the subalpine fir (biogroup 1) and grand fir (biogroup 4) plant communities. Old growth, within the logical resource unit, currently supports wildlife species associated with large structure such as American marten, pileated woodpecker and Northern goshawk. The Mt. Emily Roadless Area contributes to meeting the habitat requirements of old growth associated species; however, adjacent private land to the south and east of the Mt. Emily project area are not a dependable source of old growth habitat.

Past timber sales and roads on the ridge portion of the project area have resulted in habitat fragmentation, reduced connectivity and reduced old growth acres. The effect of these timber sales is expected to last 75 to 100 years. Roads have facilitated woodcutting access that has resulted in the removal of snags and logs important to old growth habitat.

Overstocked conditions in some MSLT stands would lead to a continued increase in susceptibility to stand replacing fires and vulnerability to insect and disease related tree mortality. Motorized access on the ridge would continue to facilitate the removal of large snags and logs by woodcutters.

### **ALTERNATIVE 2**

Past timber sales and roads on the ridge portion of the project area have resulted in habitat fragmentation, reduced connectivity and reduced old growth acres. The effect of these timber sales is expected to last 75 to 100 years. Roads have facilitated woodcutting access that has resulted in the removal of snags and logs important to old growth habitat. Future road closures will reduce the loss of large snags and logs from woodcutting activities.

Alternative 2 would move 30% of the existing old growth towards historical single-stratum levels. These treatments would retain early seral large structure that would provide habitat for such species as pygmy nuthatch and white-headed woodpecker. However, the stands converted to SSLT no longer provide the canopy closure preferred by pileated woodpeckers, American marten and Northern goshawks. Treatments above the 3120450 road would fragment the existing old growth and reduce corridor effectiveness. Wildlife species, such as American marten, would have increased vulnerability to predation due to the reduction of canopy cover (E. Bull, pers. commun. 2003) for 20 to 30 years when the next fuels reduction treatment would be expected.

Alternative 2 would reduce the risk of stand replacement fires in old growth habitat for 20 to 30 years and maintain the large structure by reducing understory competition.

### **ALTERNATIVE 3**

Alternative Three would not convert MSLT to SSLT. Thinning treatments in MSLT, in both alternatives, may not provide adequate escape cover for such species as American marten and pileated woodpecker from predation, however, Alternative Three would provide higher canopy closures than Alternative Two.

## **Scenery Resource Management**

### ***Introduction***

The scenery resources of Mt. Emily are fully described in the Valued Landscape Character Description. (See Chapter One).

Two main factors affect the condition and sustainability of the scenery resources. This analysis will evaluate the following factors and how each alternative affects those factors: impacts that appear unnatural and out of character with the surrounding landscape patterns, impacts, trends or conditions that pose a risk to the sustainability of valued positive attributes of the landscape character.

The Visual Management System establishes Visual Quality Objectives (VQO's) within the Mt. Emily Project Area. These VQO's are Forest Plan objectives. The Scenery Management System establishes Scenic Integrity Objectives and considers sustainability of the landscape character attributes. This affects analysis will rate the outcome of each alternative in terms of Visual Quality Levels, Scenic Integrity Levels and Ecological Integrity Levels.

**Unnatural Appearing Impacts** - The unnatural appearing impacts commonly effecting scenery from a background, middleground or foreground view are those impacts that are caused by management efforts that create openings of geometric shapes, those with edges that are clearly delineated by an uninterrupted wall of trees, or openings of such size that it appears out of character with the surrounding landscape. From the foreground, impacts such as numerous high cut stumps, remaining slash, and soil disturbance caused by logging equipment affect the scenery resource.

**Trends, or Conditions that Pose Risk to Positive attributes** - The trends or conditions that pose risk to the positive attributes to the landscape character include those that present hazards of large, severe intensity, stand replacement fire and insect and disease epidemics. Conditions such as these reduce the sustainability of the scenic resources.

The Key indicators are as follows:

Unnatural Appearing Impacts

Disturbance <10% of the viewshed (Retention Foreground)

Disturbance <14% of the viewshed (Partial Retention and Retention Middleground)

Trends or Conditions that pose risk of loss of positive attributes of the landscape character.

## Effects Analysis

### No Direct, Indirect, or Cumulative Effects

The following restoration activities associated with the Mt. Emily project are of such limited and constrained nature they would not disturb the positive attributes of the Landscape Character in the project area and would therefore have no effect on Scenery resources.

- Temporary Road Construction
- Road Reconstruction

These activities and their effects will not be discussed further in the Scenery section.

### Direct and Indirect Effects on Scenery Resources

#### **ALTERNATIVE 1 – NO ACTION**

The no action alternative would make no changes to existing conditions, nor would it alter the existing trends or conditions that may pose risk to the positive attributes of the landscape character.

No action taken in the priority area one would cause no effect to the visual quality level or the scenic integrity level. However, no action would allow the existing condition to continue and the trend of increasingly dense stands on a fire prone slope to endanger the scenic resources on the face of Mt. Emily to be at risk. The no action alternative would allow the scenic sustainability to decrease from low/moderate to very low/low in a period of 10 to 20 yrs.

**Summary:** No visual impacts would occur, however the conditions would continue to endanger the sustainability of the scenery resources.

#### **ALTERNATIVES 2 and 3**

**Overview** - The actions proposed in Alternatives Two and Three are designed to alter the existing conditions in a manner that increases the defensibility of the private properties adjacent to the Forest boundary. The actions proposed are designed in a manner that would not create unnatural or uncharacteristic impacts from a middleground or background view. The impacts visible from a foreground view would include the following: stumps less than 6" in height, some areas of soil disturbance, and evidences of tree removal. The impacts to foreground views would not be concentrated enough to degrade scenic resources. In some areas the slash removal and prescribed burning would decrease the amount of unnatural appearing impacts.

The actions proposed would affect the condition and trends that pose risks to the positive attributes of the landscape character. These affects to the condition and trends are minimal, but positive in nature.

Treatments that provide the potential for arresting a fire before a large stand replacing event occurs, improves the potential for maintaining scenic sustainability by artificial means. Therefore the scenic sustainability rating would not improve to a greater level, but remain as it is currently rated.

### COMMON EFFECTS of the Action Alternatives

**Commercial Thinning (HTH), fuels reduction harvest (HFU) and fuels thinning (SCN)** - These treatments would reduce tree densities, opening up the understory and letting in more light to the forest floor. Treatments to remove dead standing and down trees would enhance the landscape

character through increased prominence of valued scenery attributes such as large tree character and a decrease of dense thickets of small stunted trees and dead wood. The removal of dead standing and down material would be a “cleaning” effect to the aesthetic appearance of the forested areas in foreground views. The understory views would be improved and have a more healthy appearance.

Thinning to reduce tree densities and crown fuels would not be visibly apparent to the average viewer from a middleground or background distance. Close scrutiny of the stands from this distance would discern a less dense but continuous canopy. In areas where there are currently clusters of dead standing timber, there may be created openings where the material is removed. These openings would be small (less than a 1/2 acre) and have a natural appearance that would not detract from the existing scene.

These treatments would improve the ability to sustain the existing landscape character attributes by producing stands that are more defensible. By reducing ladder fuels, raising crown base height and crown density this area would be more defensible at the event of a fire.

**Pile burning (RMP) and underburning (RPB)** - Pile burning and underburning would create scorched and blackened underbrush, saplings, bark, grasses and forbs. These effects would continue for a period of 1 to 5 yrs. After the following growing season, the majority of these effects would no longer be visible. New growth of forbs and shrubs would quickly sprout and flourish. The positive effects of this treatment would be the decrease of the amount of small dead material that creates an unhealthy appearance. A decrease in this material lessens the fuel load for fires that could threaten landscape character attributes.

The proposed prescribed burning would introduce blackened soils and grasses, burned understory brush, saplings and forbs. Scorching of larger tree trunks would occur. The effects would be primarily short term (1-20 yrs). Much of the blackened understory would not be evident after a few growing seasons occur and the area begins to revegetate. There may be some minimal mid term effects such as small patches of overstory mortality, however the patches are expected to appear as a natural occurrence and not detract from the valued landscape character.

The prescribed fire would improve conditions for fire resistant species, which would indirectly improve landscape character attributes of large tree character and open stands that can withstand low intensity fires.

## **EFFECTS by Action Alternative**

### **ALTERNATIVE 2**

This alternative would cause effects to the lower portion of the face of Mt. Emily as well as the upper fringe of the face of Mt. Emily. These effects would be noticeable with close scrutiny from middleground and background views, but the effects would appear natural and characteristic of the existing views. From a foreground view the effects would be limited to small, low cut stumps (< 6” in height) and blackened vegetation. The understory views would be more open with less dead and down material. The forest would visually be less cluttered and have a more “clean and healthy” appearance.

Units 213 –233 along the upper rim of Mt. Emily may require skyline logging. This would affect the scenic integrity for approximately twenty years by introducing human-caused disturbances that detract from the valued landscape character. Skyline logging would create vertical corridors that would be highly visible from the valley floor.

The foreground views along the 3120 road would also be affected by Alternative Two. The views from this travel corridor would be “cleaned up” and the appearance of the understory would be more

open with less clutter. Low stumps would be visible from this corridor. The effects would not be apparent from a middleground or background view. The treatments along the ridges to the west would be similar to those on the face of Mt. Emily and along the 3120 rd.

**Summary** - The scenic integrity would remain high on the face of Mt. Emily. The scenic sustainability would not improve. However, the treatments would enable fire fighters to contain most wildfires thus improving the long-term sustainability of the scenery resources by artificial means. The scenic integrity on top of Mt. Emily along the ridges would improve from moderate/low to low. The scenic sustainability would not be improved by this alternative and would remain at low. The visual quality objectives would be met by all actions of Alternative Two.

### **ALTERNATIVE 3**

The effects of Alternative Three would be the same as Alternative Two for most areas. The scenic integrity would remain high on the face of Mt. Emily. The scenic sustainability would not improve. The units 301 to 306 along the ridge east of Fiddlers Hell Creek would not be treated. The unhealthy conditions that exist in this area would remain, and the scenic integrity would remain low to very low on the ridges. Deferred treatment of units 213 to 233 would eliminate the potential for effects to scenery that appear unnatural in this area along the rim of Mt. Emily.

This alternative would meet the forest Visual Quality Objectives.

### **Cumulative Effects for Scenery Resources**

The project lies in an area that has obvious effects caused by previous timber sales. Past clearcuts have created unnatural appearing openings that detract from the scenery on the ridges in this area. In areas where no management has occurred, much of the stands are overstocked and full of dead and down material. The action alternatives would improve the latter condition, but have no negative cumulative effects to scenery resources.

The no action alternative would allow the conditions and trends that currently exist to continue to pose a risk of losing positive attributes of the landscape character, but would not cause cumulative effects to the scenery resource.

Efforts occurring on private lands along the east boundary, and project efforts being proposed by the Umatilla National Forest in addition to this project would not create negative cumulative effects that would degrade the scenic resources. This determination is based on the type of activity and prescriptions being implemented. Activity includes thinning from below of overstory, reducing ground fuels, cleaning small diameter understory trees and prescribed underburning. These type of treatments scenic integrity as described in the Valued Landscape Character description. The cumulative efforts would increase defensibility in the event of fire thus improving scenic sustainability in an artificial manner.

## **C. Alternative Evaluation as They Respond to the Other Issues**

### **Issue: Inventoried Roadless Areas (IRAs)**

#### ***Introduction***

Both action alternatives (two and three) propose fuels reduction treatment in two inventoried roadless areas, Mt. Emily IRA and North Mt. Emily IRA. No road construction (temporary or otherwise) is proposed with either action alternative within either IRA.

The interdisciplinary team used direction from the Wallowa-Whitman and Umatilla Forest Plans and roadless characteristics in the Roadless Rule, January 2001 to determine which characteristics applied to these particular IRAs (see effects document for total list of roadless characteristics).

The rationale for roadless characteristic not analyzed for effects include:

*Sources of Public Drinking Water* - Public sources of drinking water are not found in either IRA.

*Habitat for PETS species and for those species dependent on large undisturbed areas of land* - Lynx habitat is found in both IRAs. The project proposes treatment in sixteen acres of the Mt. Emily IRA that is within Lynx Habitat. The project does not propose any treatment in the North Mt. Emily IRA that is within Lynx Habitat. The lynx analysis of effects is more meaningfully analyzed using lynx analysis units (LAUs) and will be covered under the wildlife portion of the Environmental Assessment, to include the sixteen acres within the Mt. Emily IRA. The lynx analysis will not be covered any further in this section.

*Traditional Cultural Properties and Sacred Sites* – The Mt. Emily IRA contains cultural properties such as old railroad logging in the Five Points Drainage. However, the project does not propose activity in or near the cultural sites identified in this project area and would have no effect on these sites. No sacred sites have been identified in either IRA. This analysis will not further address traditional cultural properties and sacred sites.

*Other Locally Identified Unique Characteristics* - The Roadless Area Conservation Rule gives examples to include uncommon geological formations, unique wetlands, unique cultural, social or historic characteristics, and/or exceptional hunting or fishing opportunities. Neither Forest Plan cited unique characteristics to either North Mt. Emily or Mt. Emily IRAs.

The roadless characteristics addressed by this analysis include:

- 1) High quality or undisturbed soil, water, air
- 2) Diversity of plant and animal communities
- 3) Reference landscapes
- 4) Natural appearing landscapes with high scenic quality

#### North Mt. Emily IRA

Table 8 summarizes characteristics, concerns and proposed actions taken within the North Mt. Emily IRA:

<b>Table 8 - North Mt. Emily Inventoried Roadless Area</b>	
<b>Total Acres – 5,400</b>	<b>Acres within the project area boundary – 744</b>
Roadless Characteristics	<ol style="list-style-type: none"> <li>1. Water Quality</li> <li>2. Soil Quality</li> <li>3. Air Quality</li> <li>4. Diversity of Plant and Animal Communities</li> <li>5. Reference Landscapes</li> <li>6. Natural Appearing Landscapes with High Scenic Qualities</li> </ol>
Management Concerns/Issues	<ol style="list-style-type: none"> <li>1. Maintain and Preserve Roadless Characteristics</li> <li>2. Provide Continuity of Fuels Reduction Treatments across IRA to meet Project Purpose and Need.</li> </ol>
Proposed Management Actions	<ol style="list-style-type: none"> <li>1. Mechanical Fuels Reduction Treatment</li> <li>2. Prescribed Fire Fuels Reduction Treatment</li> </ol>

## Mt. Emily IRA

Table 9 summarizes characteristics, concerns and proposed actions taken within the Mt. Emily IRA:

<b>Table 9 - Mt. Emily Inventoried Roadless Area</b>	
<b>Total Acres – 8,822</b>	<b>Acres within the project area boundary – 84</b>
Roadless Characteristics	<ol style="list-style-type: none"><li>1. Water Quality</li><li>2. Soil Quality</li><li>3. Air Quality</li><li>4. Diversity of Plant and Animal Communities</li><li>5. Reference Landscapes</li><li>6. Natural Appearing Landscapes with High Scenic Qualities</li></ol>
Management Concerns/Issues	<ol style="list-style-type: none"><li>1. Maintain and Preserve Roadless Characteristics</li><li>2. Provide Continuity of Fuels Reduction Treatments across IRA to meet Project Purpose and Need.</li></ol>
Proposed Management Actions	<ol style="list-style-type: none"><li>1. Mechanical Fuels Reduction Treatment</li><li>2. Prescribed Fire Fuels Reduction Treatment</li></ol>

## Hell Hole IRA

A third IRA, The Hell Hole IRA, lies NW of the project area and is adjacent to the North Mt. Emily and the Mt. Emily IRAs. Since project activities do not enter the Hell Hole IRA, this analysis of effects will cover only the North Mt. Emily and Mt. Emily IRAs.

## Management Direction

During the late summer of 2003, during project development, the Roadless Area Conservation Rule, January 2001 was enjoined by the District Court in Wyoming. Following the injunction, Forest direction concerning roadless areas was to follow the Forest Plan(s) for guidelines on managing IRAs. The Wallowa-Whitman Forest Plan identifies both North Mt. Emily and the Mt. Emily IRAs as managed roadless areas (i.e. – allows for management), FEIS, IV page 59., Appendix C-5. Both portions of the IRAs within the project boundary are allocated to Wildlife – summer range -MA3a (a small portion of Mt. Emily IRA includes Wildlife –winter range MA3). The IRAs would be managed according to the standards and guidelines provided for MA3a/3 under the Forest Plan.

The Umatilla Forest Plan has designated the North Mt. Emily Roadless area to Management Area A5 (see Umatilla Land and Resource Management Plan, pages 3-5). Management area A5 is described as Roaded Natural with a goal to “provide dispersed recreation opportunities in an area characterized by a predominantly natural to near natural appearing environment with moderate evidences of the sights and sounds of man.” (Forest Plan, 4-111). There are very few restrictions on vegetation management or road construction. However, the Mt. Emily Fuels Reduction project is not proposing activity on the Umatilla portion of the North Mt. Emily IRA.

While enjoined, The Roadless Area Conservation Rule is being deferred as the most current direction. However, as a study it provides recent public input with definitions of roadless characteristics. The project effects will be analyzed using these recent definitions of the roadless characteristics. Should the injunction on the Roadless Area Conservation Rule be lifted prior to the decision signing of this project, the decision maker should reference Appendix A of the roadless effects document for a continued analysis that would meet guidelines from the Rule.

## Effects Analysis

### No Direct, Indirect, or Cumulative Effects

The following activities associated with the Mt. Emily project do not occur within the roadless areas and due to location, have no bearing on a change in access to the roadless areas. These activities would have no effect on roadless characteristics or resources.

- Temporary Road Construction
- Road Reconstruction

These activities and their effects will not be discussed further in this section.

### Direct and Indirect Effects on ROS

The following analysis evaluates the effects that implementing the different alternatives would have on availability of different recreation opportunities within Mt. Emily.

The analysis is based upon definitions and guidelines set forth in the USFS Recreation Opportunity Spectrum Handbook. The recreation opportunity spectrum (ROS) provides a framework for classifying different types of outdoor recreation opportunities that exist within an area. While the goal of the recreationist is to obtain a satisfying experience, the goal of the recreation manager is to provide the "recreational opportunity," or setting in which people can engage in their chosen activities and have a satisfying experience. The ROS is a communication tool that describes combinations of activities, settings, and probable experiences that would result in a given situation. The spectrum describes opportunities from the most primitive (deep wilderness), to rural (a city park).

Parts of ROS definitions that apply directly to this discussion of Mt. Emily are:

- Semi-Primitive Motorized: The experience goal is to provide visitors with a moderate probability of getting away from the sights and sounds of other people, to be independent and to practice outdoor skills. Motorized equipment is allowed in this setting. Vehicles such as jeeps and ATVs are encouraged. Non-recreation uses may result in moderately dominant alterations to the visitor wandering through. However, from trails and primitive roads would remain visually subordinate. Visual quality objective is foreground partial retention. A semi-primitive motorized area can be closer than ½ mile to primitive roads, but must be at least ½ mile from better primitive roads.
- Roaded Natural: The experience goal for a roaded natural area is to provide visitors with an equal opportunity of meeting and enjoying other visitors and of being isolated from the sights and sounds of other people. Visitors have the opportunity to interact with the natural environment, but the risk and challenge associated with semi-primitive settings is not present. Both motorized and non-motorized forms of recreation take place. Highway vehicle use is encouraged, however road closures are allowed. Non-recreation uses include activities that dominate the observer's view. However, from sensitive travel routes and use areas these alterations are unnoticed or visually subordinate. Roaded natural areas are generally within ½ mile of roads.

The Mt. Emily IRA is 8,822 acres in size, however, only a very miniscule portion of that (84 acres) is within the project area. The North Mt. Emily IRA (5,400 acres) is primarily located on the Umatilla National Forest with only 744 within this project area. Therefore, hearts of both roadless areas are well outside of this project area. The entire 744 acres of the North Mt. Emily IRA is classified (using the ROS system) as a roaded natural recreation opportunity. Three-quarters of the Mt. Emily IRA is classified as semiprimitive motorized while the remainder of the areas is roaded natural, including the

portion within this project area which is roaded natural.

The long-term goal of this project is to maintain the current recreation character of Mt. Emily against the possibility of a large wildfire that would greatly reduce the desirability of the area for the recreationists that use it.

The following analysis of the effects of the alternatives reflects a conservative interpretation of the ROS definitions.

### **ALTERNATIVE 1**

There would be no immediate direct effects on recreation opportunities available. In the absence of a large wildfire, both IRAs would maintain their current ROS.

Visual resources would be little changed from current conditions. If a wild fire occurred, the landscape character would be changed until recovery, but the roaded natural setting and scenic integrity would be maintained.

### **ALTERNATIVES 2 and 3**

The project as currently designed under both action alternatives would fully meet the parameters on which roaded natural areas are to be managed. Fuel reduction areas would be maintained without ladder fuels yet these alterations of such a small portion of the landscape will remain subordinate to the contiguous landscape and recreational use within these areas is not expected to change. Roaded-natural/modified settings are in high supply and low relative demand. This action would have a minor short-term effect on a small portion of the IRAs but would not impact the quality of the entire area and the recreational experience related to it.

Scenic attractiveness would be slightly reduced in terms of its intactness, harmony, uniqueness, and balance when initial tree removal activities are evident. Evidence of tree removal is expected to fade within one to three years and with the exception of fuel reduction corridor maintenance, which would be of equally short duration, the area outside the corridors the evidence would be completely unnoticeable within 10-20 years. Scenic attractiveness would remain unchanged as would scenic integrity.

## **Cumulative Effects**

### **Wilderness Eligibility**

#### **ALTERNATIVES 1, 2, and 3**

The Mt. Emily and North Mt. Emily IRAs were assessed for wilderness potential in the Forest Plan FEIS (Appendix C, pages C-43 through C-45 and C-63 through C-66). The area was determined to provide localized solitude and semi-primitive recreational experiences. A range of alternatives was examined, and the area was allocated to multiple resource management objectives. Both unroaded areas are relatively small in size and visitors to the areas can perceive the entire area from many points along the perimeter and within the interior. However, because of its compact shape, there are opportunities for solitude not found in many similarly sized areas. The knowledge that roads are never more than 2 miles away would detract from a sense of self-reliance or adventure for many.

These unroaded areas were determined to have demonstrable wilderness potential but was not needed for retention as future wilderness designation unless the purpose would be to simply add wilderness acreage. Due to the fact that that public interest in these areas is primarily at the local level and they lie 20-30 miles from the Eagle Cap Wilderness and the Wenaha-Tucanón Wilderness which

are much larger areas which provide the same ecosystems, they was not recommended for wilderness designation in any of the Forest Plan alternatives. All of the alternatives, including the no action, considered in this project would retain unroaded characteristics as described in the Roadless Character effects analysis in this section.

None of the alternatives would road the areas and all work accomplished in the action alternatives would be at the very periphery of the IRAs and would result in greater than the 5,000 acres required for wilderness consideration.

## Roadless Characteristics

### **ALTERNATIVE 1 – NO ACTION**

#### **A. North Mt. Emily and Mt. Emily IRAs**

##### **Direct and Indirect Effects on Roadless Characteristics**

No activity would occur in either roadless area with this alternative; therefore, no direct effects would occur to any of the roadless characteristics. Recreation Opportunity Spectrums would not change for either IRA.

Existing fuel levels would increase in both roadless areas over the next few decades with continued success of fire suppression. Results of fire suppression are overstocked forests. Overstocked forests result in tree stress and increased risk of ensuing tree mortality from insects and disease. Fire danger and risk of unwanted resource damage would increase as fuel levels go up.

The majority of the roadless areas are in condition classes 2 and 3 (see discussion of condition classes in fire inventory and effects documents). Much of the area historically adapted under frequent fire return intervals, but now is changing in density, stand structure, and tree species composition. As fire return intervals are lengthened over time due to fire suppression, the risks increase that eventually a fire will escape early suppression and, due to weather, topography and heavy fuel loadings, become a large stand replacing wildfire. In areas that developed with frequent fire return intervals, a large stand replacing wildfire would be outside the range of variability that would be expected to occur under historic natural disturbance regimes. Therefore, an indirect effect of Alternative One is the development of roadless areas that are outside of historic disturbance regimes. This effect could last for five to 100 years, or until a large disturbance occurs.

Indirect effects from fuel accumulations and increasing risk of large stand replacing wildfire would impact roadless characteristics. **Air, soil and water quality** may be impacted for a short duration (0-3 years) in the event of a stand replacing wildfire. Water quality could decrease in streams adjacent to high-intensity burns that consume riparian vegetation. Re-growth from stand replacing wildfires can take up to three years to establish vegetation adequate enough to reduce soil erosion and sediment flow into adjacent streams. Water quality would diminish with an increase of sediment during these three years.

A high intensity fire may also burn hot enough to cause detrimental soil conditions. This would likely occur in isolated small patches (less than one acre) where fuel concentrations are heavy and result in a long duration of high-intensity burn (Reference soil effects). Because of slope and fuel distribution, the probability of small patches of detrimental soil conditions is higher in the Mt. Emily IRA.

Huff, Ottmar, et al (1995) found PM10 smoke production was twice as high for wildfires as for prescribed fire. Alternative One would result in a higher risk of wildfire smoke emissions, which

would be more difficult to manage. Under a wildfire scenario, impacts to air quality would be of short duration to roadless area users (0-3 months, depending on fire severity).

**Diversity of plant and animal communities** – Alternative One may result in a large uncontrolled wildfire. Many plant species, especially those in the warmer, drier biophysical groups are fire resistant and may regenerate quickly following wildfire. Effects to plant diversity would depend on the plant community affected. Prescribed burning may actually increase diversity under certain circumstances, for example, in Douglas-fir/ninebark and Douglas-fir/Oceanspray (see Appendix B of the Roadless Effects Document in the analysis file). Cool, moist biophysical groups tend to support a greater number of species with more complex effects from wildfire.

Alternative One would have no direct or indirect effect on **reference landscapes**. “Reference landscapes of relatively undisturbed areas serve as a barometer to measure the effects of development on other parts of the landscape” (Federal Register, 36CFR part 294, Roadless Area Conservation; Final Rule, p 3245). Even in the event of a stand replacing wildfire, both roadless areas would continue to serve as reference landscapes, as wildfire is recognized as a natural disturbance event in the ecosystem, and should not hinder studies to compare ecosystems.

The indirect effects of Alternative One on the roadless characteristic, **natural appearing landscapes with high scenic quality** are subjective to viewer’s perspective. For the viewer that believes natural wildfire should be tolerated to within reason, even a large burned roadless landscape would not detract from the viewer’s experience. To this viewer, the appearance may seem altered; albeit, in the context of an acceptable natural occurrence (i.e. - the burned area may be viewed as a young emerging forest following a natural disturbance vs. what was a middle to old age forest ripe for a disturbance).

Another viewer may experience a high intensity fire in the roadless landscape as preventable. This viewer may argue that should a stand replacement wildfire burn in an area that historically was maintained by ground fires, the natural appearance of the roadless area would be altered. This viewer may believe that the natural appearance has already been altered due to fire suppression, but may also hold the belief that fire suppression is necessary. This viewer would likely believe fire is beneficial but would accept the beneficial results only under controlled, managed conditions. Both viewers may come to agree on the value of roadless characteristics, but not on how best to maintain these values over time.

## **Cumulative Effects on Roadless Characteristics**

The logical resource area for cumulative effects on roadless areas is the combined boundaries of the North Mt. Emily and Mt. Emily IRAs. Cumulative effects on roadless characteristics under this alternative include the effects of no action listed above plus the effects of past, present, and foreseeable future activities that overlap with either roadless area.

These overlapping activities include the Boundary Fuels Reduction project and the North End Sheep and Goat (S&G) Allotment (Walla Walla Ranger District, Umatilla National Forest) within the North Mt. Emily IRA.

They also include a small portion of the Spring Mt. Sheep Allotment within the Mt. Emily IRA.

Activities on both IRAs include dispersed recreation and limited firewood cutting.

There are no cumulative effects of the no action that are not covered above under direct and indirect effects. This is because Alternative One of the Mt. Emily Fuels Reduction project proposes no overlapping activities with any of the above past, present, or foreseeable activities.

## ***ALTERNATIVE 2 – PROPOSED ACTION***

### **A. North Mt. Emily IRA**

#### **Introduction**

The project purpose and need is to modify fire behavior, specifically crown fire potential, and manage towards restoring fire adapted ecosystems. To meet this end, the interdisciplinary team recognized the need for consistent fuels reduction treatment across all boundaries of the Mt. Emily Wildland Urban Interface (WUI). Therefore, treatment proposals enter the North Mt. Emily IRA.

Fuels reduction objectives are the same within the IRA as they are outside the IRA; to modify fire behavior and restore fire adapted ecosystems. The need to modify fire behavior and reduce crown fire potential is to create defensible space and allow direct attack by hand crews during fire suppression (see fire effects). The benefits are two-fold by reducing fuels in the IRA: The area would be more ecologically in balance by returning to condition class one and the area would be more resistant to large stand replacing fires that could diminish roadless characteristics.

The ecological argument is analyzed in the appendix of the Roadless Effects Document, as it addresses maintaining fire return intervals closer to historic levels in fire regimes one and three within the IRA. In summary, however, 69% (254 acres) of the treated acres are in fire regimes one and three and would be treated under this alternative within the IRA to help maintain these areas in condition class one. See Appendix A of the Roadless Effects (analysis file) for further analysis.

The balance of this report will address the effects to roadless characteristic as defined in the introduction. The project activities under Alternative Two to the North Mt. Emily IRA are displayed as the following:

<b>Table 10- North Mt. Emily IRA – Alternative Two</b>	
Total IRA Acres	5,400
IRA Acres within Project Boundary	744
*Mechanical Treatment Acres	155
Mechanical Treatment Unit Numbers	101-108, 110, 111, 113, 201-206, 208, 210, 211
Prescribed Fire Acres	359
RX Fire Unit Numbers	101-108, 110, 111, 113, 201-206, 208, 210, 211, 601
Overlapping RX Fire and Mechanical Treatment Acres/unit numbers	145 acres / units 101-105, 108, 110, 111, 113, 204-206, 208, 210, 211
<b>Total Treated Acres</b>	<b>369</b>
<b>Percent of Total IRA Treated</b>	<b>7</b>

\*Mechanical treatment acres include commercial thinning, removing standing and dead down fuels, fuels thinning, cleaning, piling and burning.

**Treatment Description** - Alternative Two would treat 155 acres within the North Mt. Emily IRA. Treatment includes commercial thinning (HTH) to the lower management zone followed by fuels reduction harvest (HFU), fuels thinning (SPC), cleaning (FCN) and pile burning (FHB, FMB). This would occur only in priority areas one and two (see proposed action, chapter one, for priority area discussion). Priority area three is outside the IRA. Affected units include 101 – 108, 110, 113 (94 acres) and 201 – 208, 210, 211 (61 acres). Treatment of surface fuels (HFU) would include removal of dead standing and down material to <25 tons per acre by piling or slashbusting. Live trees less than seven inches diameter would be hand or mechanically thinned, cleaned, (SPC and FCN) piled, lopped, scattered, crushed or burned.

Commercial thinning, surface and near surface fuels reduction treatment would include the use of mechanical ground-based equipment. Commercially thinned trees from all mechanical fuels reduction units would be hand-felled (chainsaw) or cut by low impact ground based equipment. Removal of trees from these areas would be by helicopter (155 acres affected). Helicopter landings would be outside of the IRAs. Removal sites for units 201-211 would be to road 3120, a road that is within 400 feet of the IRA boundary.

## **Direct and Indirect Effects on Roadless Characteristics North Mt. Emily IRA**

**Water quality** – There are no perennial streams within the project boundary of the IRA. Potential effects to water quality exist only on intermittent, seasonal flowing streams. Spring run off from intermittent streams feed downstream tributaries of listed steelhead making the area desirable for high water quality.

Effects to water quality are relative to the activities distance from streams. No ground based equipment would operate within riparian habitat conservation areas (RHCAs). Sediment delivery rates to stream channels are not expected to increase due to logging impacts because of the implementation of buffers. Grass/forb cover throughout the buffers and sufficient down woody material reduces the potential of sediment to reach streams and effect water quality. (Burroughs and King – 1985 & 1989 and elsewhere – Trimble and Sartz 1957, Packer 1967, Swift 1986 – concluded that non-channelized sediment flow rarely travels more than 300 feet and 200-300 foot riparian “filter strips” are generally effective at protecting streams from sediment from non-channelized flow; PACFISH, C-8). This project would utilize 100 foot buffers as all streams identified are intermittent.

No skid trails would be created because all yarding of material would occur with helicopter. This minimizes soil disturbance and impacts to water quality due to a lower risk of erosion.

Cleaning and non-commercial thinning of small diameter trees (less than seven inches) would occur within RHCAs (36 acres – all units affected except 205 and 207). Hand-work would be accomplished using chain saws. Excess slash may be burned on site or carried outside of the riparian areas, piled and burned. Burn piles would be small and ignition would result in low -intensity, short duration fires. Ground vegetation is expected to return within one to three years, and provide sediment trapping material. Piles would be scattered and would not impact a large area (less than five acres).

Cleaning and non-commercial thinning within RHCAs would add down woody material to the forest floor. While of small diameter, the woody material would function as sediment traps. This would benefit water quality by reducing the amount of sediment delivery to nearby streams. Trees would be hand-felled; there would be no additional ground disturbance other than from fallen trees, a minimal soil disturbance. Thinning would release residual trees and increase crown potential. There would be no short-term decrease in shading, as residual overstory trees would continue to provide current shade. Long-term water quality would be maintained or improved as stream temperatures stabilize or decrease from healthy, full-crowned trees.

Prescribed fires would be allowed to back into RHCAs; however, direct fire ignition would not occur within 100 feet of any intermittent streams (see constraints and mitigations, chapter two). Stream temperatures and sediment delivery may be affected if a high intensity crown fire enters riparian areas and consumes sediment trapping and shade producing vegetation. However, burn plans call for specific weather and fuel conditions, including fuel moisture content, that greatly reduce the probability of damaging fires in RHCAs. Prescribed fires are monitored and controlled, and backing fires only would be allowed within RHCAs.

Backing fires are generally low -intensity ground fires. Within RHCAs backing fires are expected to consume a mosaic of grass, litter, duff and 0-3 inch material. Adequate down woody material larger than three inches diameter is expected to be retained at a high percentage. The potential for short -term sediment delivery rates is negligible with the removal of less than three inch sediment trapping ground cover (estimated less than 20% consumption, personal comm., Trish Wallace, Fuels Specialist).

The increase in sediment delivery rates is not expected to be measurable; therefore, water quality would not be negatively impacted. Supporting criteria include the low -intensity of backing fires that result in a mosaic of burned and unburned areas, leaving higher concentrations of sediment trapping vegetation. Riparian areas generate higher humidity's, causing low -intensity fires to go out or burn sporadically. The timing of spring and fall burning provides higher humidity's and less fuels consumption in RHCAs. Finally, burn plans have guidelines that call for specific fuels moisture and weather conditions, helping to control the amount of ground fuels consumed in both upland and riparian areas.

Backing fires are not expected to consume or kill shade producing vegetation within RHCAs. The risk is negligible that stream temperatures would increase as a result of prescribed burning.

**Soil Quality** - Publications have provided information on appropriate levels of coarse wood required to protect long-term soil productivity (Agee 1994, Harvey et al. 1994, Graham et al. 1994). The suggested tons/acre of coarse wood to leave on site for desired soil productivity would be incorporated into project design and are listed in the constraints and mitigation section. This suggests long-term soil productivity would be maintained within treatment units in the IRA.

Helicopter yarding and directional felling techniques would minimize soil disturbance. Low impact harvesters would operate on skid trails at no less than 60 foot spacing. Restoration of detrimental soil conditions, primarily by subsoiling, that exceed 20 percent over pre-activity levels would occur. Detrimental soil conditions (DSCs) include compaction, puddling, displacement, and severe burning.

None of the proposed treatment units within the IRA have previously been tractor logged and detrimental soil conditions are estimated at 0%. With utilization of above mitigation measures, DSCs after treatment are estimated to increase to 5-8% (estimates based on soils effects provided in the Environmental Analysis), well below Forest Plan standards. Soil quality, in terms of detrimental conditions, would decrease on these acres within the IRA until natural compaction mitigation processes reverse the trend (5-20 years). (Natural compaction mitigation processes (frost heave, root penetration by grasses and sedges, rodent activity) acting over a period of 5 to 20 years is effective to a depth of about 4 inches.

Due to the limited extent of potential soil compaction across the total area of the IRA, the magnitude of impacts is very low. Overall, negligible impacts on soil quality in either roadless area would occur.

**Air Quality** - Alternative Two would produce smoke through prescribed burning of 359 acres (see units affected in table above). Smoke would impact the roadless areas for a short duration with moderate intensity. Smoke emissions could be managed to stay under the 15,000 tons PM10 per year agreed to under the Memorandum of Understanding (October 27, 1994). In comparison, Alternative One would result in a higher risk of wildfire smoke emissions, which would be more difficult to manage.

The greatest impact to air quality would occur within the first few days after ignition; beyond that, smoke from burning logs and snags would smolder causing light drift smoke. Smoke emissions under this alternative would have two to six week duration depending on weather conditions. During this period, IRA users would be impacted by prescribed burning activities, and may choose to avoid the area until smoke clears. Overall, the effects to air quality would be short-term duration with effects to roadless area users resulting in a slight delay of use. Given that the roadless area use is low to moderate, postponed use would impact a limited amount of people.

**Diversity of Plant and Animal Communities** – Plant communities under this alternative would likely change from mid/late seral to an early seral condition on the treated acres. This is expected because thinning would open stands up, allowing more sunlight to reach the ground. Depending on plant communities, results vary. Generally, plants that flourish under more sunlight would increase in coverage, and there may be a loss of those species which do require more shaded conditions. For examples by plant community/biophysical group see Appendix B of the Roadless Effects Document.

Prescribed fire would move stands from mid/late to early seral conditions. The understory recovers quickly from fire. Depending on plant community, shrubs and herbaceous layers would increase following prescribed fire (see Appendix B of Roadless Effects for details).

No threatened, endangered or sensitive plant species would be impacted as none occur in the treated areas.

The direct and indirect effects to diversity of plants and animals would occur on approximately 369 acres of the IRA. The acres with the highest potential to affect plant and animal diversity are those proposed for mechanical treatment in Mt. Emily Fuels Reduction project (155 acres). Mechanical treatment would disturb vegetation and expose soil as a potential seedbed, should invasive plant seed be introduced. The potential for noxious weeds and the introduction of invasive plants is greatest on these acres. Introduction of invasive plants would reduce the diversity of native plant species. Approximately half of the acres are adjacent to the 3120, which increases the potential for weed spread from vehicles following the ground disturbance of mechanized equipment.

The risk of invasive plant species introduction from mechanized equipment is low considering mitigation measures that require contract vehicle equipment to be washed prior to entering National Forest lands. The risk is considered low also because helicopter yarding reduces ground disturbance. There would be minimal exposed soil (seed bed) for invasive plant species.

Animal communities would continue to exist on treated acres under this alternative. Some raptors that prefer open stands to closed stand would utilize the treated areas slightly more, while other birds of prey that prefer closed canopies would not. Utilization may change slightly in the treated areas for some species; however, animal diversity is not expected to diminish as habitat would not be dramatically altered.

**Reference Landscapes** - Alternative Two would modify the landscape of the treated acres by reducing stand densities and removing ground and ladder fuels. This would change the character of these acres as reference landscapes. The roadless rule refers to reference landscapes as "... Relatively undisturbed areas .... " that would "serve as barometers to measure effects of development on other parts of the landscape" (Federal Register, 36CFR part 294, Roadless Area Conservation; Final Rule, p 3245). The definition of relatively undisturbed areas is subject to some interpretation. Mechanical treatment of the 155 acres would have the most potential of altering these acres and changing the reference landscape. It would move these areas out of the unmanaged classification. Whether they could still be considered "relatively undisturbed" is arguable. At best, they would be considered disturbed and modified from a reference condition.

The Wallowa-Whitman Forest plan recognizes development and management within the North Mt. Emily IRA (L&RMP page 4-10; FEIS IV page 57). The IRA is allocated to MA3 and 3A (wildlife summer and winter range), which provides for vegetation management according to standards and guidelines. Fuels reduction treatments are within Forest Plan guidelines for MA3 and MA3A, however, one hundred fifty-five acres within the IRA would be modified from a reference landscape condition to meet the purpose and need of the project.

Prescribed burning of 194 acres (in both IRAs) would likely not change the reference condition of the treated areas. Prescribed burning would occur in predominately fire-adapted plant communities and would mimic historic conditions of ground fires burning through the understory. Low -intensity fire is part of the historic reference condition of fire regimes one and three; therefore, prescribe burning in Alternative Two would not alter this condition.

**Natural Appearing Landscapes with High Scenic Quality** – The effects on the roadless area under this alternative are similar as those discussed under key issue: Maintain Mt. Emily Scenic Quality. For the roadless area user, unnatural appearing landscapes would include management impacts such as high cut stumps, remaining slash, blackened vegetation, and soil disturbance caused by mechanical equipment. The impacts visible from a foreground view would include the following: stumps less than 6" in height, some areas of soil disturbance, fire scars, and evidences of tree removal.

The impacts to foreground views would not be concentrated enough to degrade large areas of scenic resources. Approximately seven percent of the entire IRA acres (369 of 5,400 acres) would be affected under this alternative; however forty -eight percent (369 of 774 acres) of the IRA acres within the project boundary would be affected.

Short to mid-term effects would occur under this alternative to the apparent naturalness of the area. Stumps left by thinning for fuels reduction would be evident until their visible impact is obscured or diminished by decomposition or vegetation. This process may take as few as five year or as many as fifty. Created stumps would reduce the natural appearing landscape and high scenic quality on approximately all 155 mechanically treated acres. The remaining 5, 245 acres (97%) acres would not be affected under this alternative.

Helicopter removal would keep disturbance levels to a minimum. Skid trails and landing sites would not occur on any treatment acres within the IRA and therefore provide a safeguard against any further reduction of apparent naturalness of the area.

The degree to which the natural appearing landscape is diminished by the creation of stumps is subjective to the individual. However, 40% (61 acres) of the mechanically treated acres are adjacent to the 3120 road. The natural appearance of these adjacent lands to the 3120 road is currently altered by a break in vegetation and presence of the road.

While this roadless characteristic is most at risk of being affected by fuels reduction activity proposed in this alternative, consideration of the small percentage affected (3%) and location of 42% of treated acres being adjacent to an existing road lessens the overall impact to natural appearance of the treated IRA.

Prescribed burning in the IRA would result in short to mid-term visual impacts. The proposed prescribed burning would introduce blackened soils and grasses, burned understory brush, saplings and forbs. Scorching of larger tree trunks would occur. The effects would be primarily short term (1 - 20yrs). Much of the blackened understory would not be evident after a few growing seasons occur and the area begins to revegetate. There may be some minimal mid-term effects such as small patches of overstory mortality, however the patches are expected to appear as a natural occurrence and not detract from the roadless character.

### **Cumulative Effects on Roadless Characteristics North Mt. Emily IRA**

The logical resource area for cumulative effects on roadless areas is the boundary of the North Mt. Emily IRA. Cumulative effects on roadless characteristics under this alternative include the effects of activities in Alternative Two listed above under direct and indirect effects, plus the effects of past, present, and foreseeable future activities that overlap with the roadless area. Those activities include the Boundary Fuels Reduction project, North End Sheep and Goat (S&G) Allotment, and dispersed recreation.

Dispersed recreation is limited to very few hunting camps and one known recreation trail. The impacts from these sites are of such limited and constrained nature that they would have an immeasurable or no effect on roadless characteristics. Activities on these sites will not be discussed further in this section.

There is no overlap of treated acres between the Mt. Emily Fuels Reduction activities and Boundary Fuels treatment or livestock grazing. The activities analyzed for cumulative effects under Alternative Two in the North Mt. Emily IRA are displayed as the following acres:

<b>Table 11 –North Mt. Emily IRA Cumulative Activities – Alternative Two</b>			
<b>Project Activity</b>	<b>Activity Acres</b>	<b>Project Activity</b>	<b>Activity Acres</b>
Mt. Emily Mechanical Treatment	155	North End Allotment	716
Mt. Emily RX Burn	359	Boundary Fuels Hand Treatment	630
Overlapping Mechanical Treat and RX Burn	145	Overlapping Activities	150
Sub-total	369		1196
		<b>Combined Total</b>	
		<b>1,565 acres (29%)</b>	

**Description of Past, Present, Foreseeable Activities** - The Phillips Creek Unit of the North End Allotment has been in non-use status for the past two years. This allotment has met the Umatilla Forest Plan PAFISH implementation team standard for the past five years (personal communication, Tom Thompson). Should livestock grazing continue within the 716 acres of the IRA, most animal movement would occur along the ridgetop on the 3100 road (approximately 150 acres). This is because of steep topography to the east, densely populated forested stands, and no developed water sites east of the 3100 road on the steeper slopes. It is more probable that the cumulative affected acres are within a range of 19-29% of the total North Mt. Emily IRA acres.

It is unlikely that there would be overlap of treated acres between the Boundary Fuels reduction treatments and livestock grazing. Should overlapping activities occur, probabilities are greater that they would occur on less than 50 acres where an upslope Boundary Fuels treatment unit comes close to the 3100 road.

The Boundary Fuels Reduction project would treat fuels on approximately 630 acres of the 5,400 acre North Mt. Emily Roadless area. Treatment would be scattered throughout where stands are transitioning to complex ladder and surface fuels. Treatment methods include hand thinning of trees less than six inches diameter, pruning, hand piling, and pile burning of created slash. Treatments would occur on 130 acres of condition class 2, five acres of condition class 3, and 495 acres of condition class 1. The above fuels reduction treatment would occur within ¼ mile of the east boundary of the Umatilla Forest, immediately adjacent to private lands and within the Mt. Emily Wildland Urban Interface (WUI).

North Mt. Emily Roadless characteristics that would be affected by the above activities would be as follows:

**Water quality** – Alternative Two has the potential to cumulatively affect water quality on 1,565 acres. However, due to adequate stream buffers, mechanical activity on flatter slopes, activity adjacent to intermittent streams only, low-intensity backing prescribed fire, no temporary or permanent road construction, and mitigation measures to limit haul under dry condition only, activity under Alternative Two would have limited cumulative effects to water quality in the North Mt. Emily IRA.

The effects to water quality from the Mt. Emily Fuels Reduction project are described under direct and indirect effects. The cumulative effects of two additional projects in the roadless area would have less impact to water quality than the Mt. Emily project.

The Boundary project proposes no thinning, piling or removal of down material that would occur within 50 feet of a stream channel. This would provide a buffer of undisturbed area to maintain shade and sediment trapping vegetation. Beyond 50 feet, only trees less than six inches diameter would be cut or pruned. This would retain and enhance the larger trees for shade and future down woody recruitment.

Should livestock grazing continue in the North End allotment, PACFISH standards for stubble height in RHCAs would retain sufficient vegetation to maintain water quality. Livestock would not seek watering sites in the upper or lower reaches of drainages within the allotment due to lack of water in these drainages during summer months. Also, sheep are herded to watering holes and sheep herders keep the animals out of drainages. Animal activity and potential effects are limited within RHCAs for these reasons.

The potential for negative cumulative effects to water quality would be low due to adequate RHCA buffers on mechanical equipment, no in-stream work, upslope watering sites, and no treatment adjacent to perennial flowing streams.

**Soil quality** – The cumulative effects to soil quality would be the same effects as described under direct and indirect effects of the Mt. Emily project. The Boundary project and livestock grazing would add no additional measurable impacts. This is based on the following rationale:

The Boundary project proposes use of no mechanical equipment for material removal. This would limit soil disturbance to the minimal impacts of hand work (chainsaw thinning and pruning) and pile burning. No detrimental soil conditions are expected from these activities.

Livestock grazing would have limited impact on soil conditions due to the small percentage of area grazed and short duration of grazing periods (rotating pastures).

**Air quality** – The cumulative effects to air quality would increase slightly, but the duration would be limited to short term (one to three days following pile burning from the Boundary project). Pile burning under the Boundary project would occur when the potential for fire creep is minimal to none and when weather conditions are not likely to hold smoke in the area. Pile burning has not proven to be a large impact to air quality because of shorter duration of smoke from concentrated fuel piles.

There is no impact to air quality from livestock grazing. Overall, a short-term impact to air quality would occur for users in the IRA, lasting for approximately 1-3 days following pile burning. Should prescribed burning from the Mt. Emily Fuels Reduction project occur on similar days of pile burning, the prescribed burning smoke would impact the air quality for IRA users as described under direct and indirect effects. The additional smoke from pile burning would be unnoticeable on days impacted by prescribed burning smoke.

**Diversity of Plants and Animals** – The Boundary project would remove trees six inches and under. This activity would not diminish plant and animal diversity. Overstory trees would continue to provide shade; the amount of light to the forest floor would not change enough to alter species composition. Pile burning in the Boundary project would not decrease diversity or habitat, because of the limited area and low impacts of pile burning.

Habitat for animal species would remain virtually the same as few species rely solely on small diameter trees for their habitat needs.

Livestock grazing would affect plant diversity according to the plant community grazed. In cool/moist plant communities, livestock grazing decreases some species while increasing others (species are detailed in Appendix B of Roadless Effects). Overall, grazing would not result in a significant reduction of plant diversity.

The cumulative effects to plant and animal diversity would impact slightly over 300 acres of the IRA. The acres with the highest potential to affect plant and animal diversity are the 155 acres of mechanical treatment in Mt. Emily Fuels Reduction project and approximately 150 acres of livestock grazing in the North End Allotment. The potential for noxious weeds and the introduction of invasive plants is greatest on these acres. Introduction of invasive plants would reduce the diversity of native plant species. These acres are adjacent to the 3120 and 3100 road, which also increases the potential for weed spread from vehicles following the ground disturbance of mechanized equipment and livestock grazing.

The risk of invasive plant species introduction from mechanized equipment is low considering mitigation measures that require contract vehicle equipment to be washed prior to entering National Forest lands. The risk is considered low also because helicopter yarding reduces ground disturbance. There would be minimal exposed soil (seed bed) for invasive plant species.

The risk of invasive plant species from livestock grazing is low considering livestock grazing of sheep and goats would not occur on ground disturbed by mechanized equipment (no overlapping activity). It is unlikely that seed would pass through animals onto recently disturbed ground from project activities. The risk of invasive plant species is low, furthermore, because grazing is monitored and utilization standards would meet Forest Plan and PAFISH standards for stubble height retention. Because the animals would be rotated off the pasture prior to reaching minimum stubble heights, the opportunity for invasive plants to establish and replace native plants is low.

Post-project monitoring of all activities would provide information of invasive species introduction should it occur, and allow for early treatment. With mitigation measures in place and low -risk of invasive plant species introduction, the cumulative effects of all activities would not lead toward a reduction of diversity of plant species.

**Reference Landscapes** – The cumulative effects on reference landscapes would include an additional 630 acres of treatment from the Boundary project. Removal of small diameter trees would accelerate growth of residual trees. While somewhat changed due to removal of small trees and creation of pile burn-sites, the areas treated would remain relatively undisturbed. This is based on removal of small trees and use of hand treatment only. Mid-sized to larger trees would remain, creating a natural appearance of dominant trees out-competing smaller trees. The treatment simulates the natural occurrence of ground fires reducing competition of smaller trees by cleaning out the understory. No additional ground disturbance from mechanized equipment or road construction would occur. This would leave soil undisturbed and in a reference condition.

The cumulative effects of livestock grazing would not be compounded with the overlapping Boundary project as there is little potential for the Boundary project to change grazing patterns. The Boundary project would not open up stands enough to improve forage. Also, the Boundary project is concentrated on the lower slopes, adjacent to the Forest Boundary. Sheep and goat grazing would be concentrated on the upper slopes closer to better forage and the two developed watering sites that are outside of the IRA.

Overall cumulative effects to reference landscapes have the potential to impact a range of 19-29% of the North Mt. Emily IRA. This leaves a range of 71-81% unchanged from reference condition.

The greatest potential to change the reference landscape condition lies with the Mt. Emily Fuels Reduction project. One hundred fifty-five acres of mechanical treatment would noticeably move those acres out of unmanaged classification. At best, they would be considered disturbed and slightly modified from a reference condition. As quality reference landscape, however, sixty-one mechanically treated acres (40%) of the above mentioned 155 acres are of low quality as they are adjacent to open roads and therefore very susceptible to human influences and changed conditions.

**Natural Appearing Landscapes with High Scenic Quality** – The cumulative effects of Alternative Two activities on natural appearing landscapes with high scenic quality includes additional stumps that would be created on 630 acres, predominately adjacent to private lands, on the east boundary of the Umatilla National Forest. These stumps, at less than six inches diameter, would be unobtrusive, and likely would be covered up with vegetation in five years or less. The fact that the majority of these stumps would be created immediately adjacent to private land, which is developed and less natural in appearance, also diminishes the impacts to the IRA. A roadless user looking for natural appearing landscapes would expect to travel deeper into a roadless area than the immediate boundary with private, developed lands in order to find a higher level of scenic quality.

The cumulative effects of Alternative Two include additional small piles, either burned or stacked, that would appear throughout the treated Boundary units. Burned areas would vegetate within three to five years while unburned piles would settle closer to the ground in the same amount of time. The scenic quality of these areas would be slightly diminished; however, the areas would remain relatively undisturbed. Again, because the treatment areas are immediately adjacent to private developed lands, the user would be less likely to seek or expect natural landscapes and high scenic quality in these portions of the IRA.

The cumulative effects on landscapes and scenic quality under this alternative would include livestock grazing from the North End Allotment, should grazing activity continue. Livestock grazing would have little probability of compounding effects with any overlapping portions of the Boundary project as there is little potential for the Boundary project to change grazing patterns (see rationale above under reference landscapes). Of the 716 acres of livestock grazing within the IRA, natural

appearing landscapes and high scenic quality has been diminished to the degree that the user notices grazed landscapes and some trampling of vegetation particularly near water holes. Grazing utilization standards would be followed, maintaining vegetation to standards and guidelines of the Forest Plan and minimizing reduction of natural appearance. Watering sites are currently located along a road, outside of the IRA. The potential for livestock to diminish this roadless characteristic is heavily localized to upslope areas where natural appearing landscapes have been altered by the 3100 road.

The majority of the roadless acres (71%), particularly those in the interior portions of the IRA, would remain in a natural appearing landscape.

**Summary** - the cumulative effects of Alternative Two and other known and foreseeable activity would impact a larger area (29%) of the North Mt. Emily IRA. The majority of the area affected would be adjacent to developed roads on the western edge of the IRA (3120 and 3100) or private boundaries on the eastern edge of the IRA. The duration would be relatively short-term on many of the acres. This roadless characteristic would be retained over the vast majority (71%) of the North Mt. Emily IRA, and slightly reduced in treated areas (19 – 29%).

## **B. Mt. Emily Roadless Area**

### **Introduction**

The project purpose and need is to modify fire behavior, specifically crown fire potential, and manage towards restoring fire adapted ecosystems. To meet this end, the interdisciplinary team recognized the need for consistent fuels reduction treatment across all boundaries of the Mt. Emily Wildland Urban Interface (WUI). Therefore, treatment proposals enter a small portion of the Mt. Emily IRA.

Fuels reduction objectives are the same within the IRA as they are outside the IRA; to modify fire behavior and restore fire adapted ecosystems. The need to modify fire behavior and reduce crown fire potential is to create defensible space and allow direct attack by hand crews during fire suppression (see fire effects). The benefits are two-fold by reducing fuels in the IRA: The area would be more ecologically in balance by returning to condition and the area would be more resistant to large stand replacing fires that could diminish roadless characteristics.

The ecological argument is analyzed in Appendix A of the Roadless Effects Document, as it addresses maintaining fire return intervals closer to historic levels in fire regimes one and three for the IRA. In summary, however, 100 percent (16 acres) of the treated acres are in fire regimes one and three and would be treated under this alternative within the IRA to help maintain these areas in condition class one. See Appendix A of the Roadless Effects for further analysis.

While a very small percentage of the Mt. Emily IRA is being treated to reduce fuel loadings, this IRA has been recognized for higher fuel loadings with a larger inaccessible area (no road access). Direct attack fire suppression would be difficult in the event of an active crown fire moving into or from the IRA.

The balance of this report will address the effects to roadless characteristic as defined in the introduction. The project activities under Alternative Two to the Mt. Emily IRA are displayed as the following:

<b>Table 12 - Mt. Emily IRA – Alternative Two</b>	
Total Acres	8,822
Mechanical Treatment Acres	6
Mechanical Treatment Unit Number	311
Prescribed Fire Acres	16
RX Fire Unit Numbers	603
Overlapping RX Fire and Mechanical Treatment Acres/unit number	6 acres / Unit 311
<b>Total Treated Acres</b>	<b>16</b>
<b>Percent of IRA Treated</b>	<b>2</b>

\*Mechanical treatment acres include commercial thinning, removing standing and dead down fuels, fuels thinning, cleaning, piling and burning.

**Treatment Description** - Alternative Two would mechanically treat 6 acres within the Mt. Emily IRA. Unit 311 would be treated for surface and near surface fuels, including commercial thinning to the lower management zone. Treatment of surface fuels would include removal of dead standing and down material to <25 tons per acre by piling or slashbusting. Live trees less than seven inches diameter would be hand or mechanically thinned, cleaned, piled, lopped, scattered, crushed or burned.

Commercial thinning, surface and near surface fuels reduction treatment would include the use of mechanical ground-based equipment. Commercially thinned trees from all mechanical fuels reduction units would be hand-felled (chainsaw) or cut by low impact ground based equipment. Removal of trees from these areas would be by ground based yarding equipment (6 acres affected). Removal landings for unit 311 would be to road 3120600, a road that is within the IRA boundary.

Prescribed fire would occur on approximately 16 acres (unit 603) in Mt. Emily IRA. Mechanical treatment would occur prior to burning on approximately 6 of these acres.

## **Direct and Indirect Effects on Roadless Characteristics On Mt. Emily IRA**

**Water quality** – There are no or intermittent or perennial streams within the project boundary portion of the IRA. Spring runoff from the nearest intermittent streams feed into Five Points Creek which contains spawning and rearing habitat for listed steelhead, making high water quality desirable in its tributaries.

Potential affects to water quality within the IRA are greatly reduced because the nearest intermittent stream is approximately 500 feet from unit 311. Effects to water quality are relative to the activities distance from streams. No ground based equipment would operate within riparian habitat conservation areas (RHCAs). Sediment delivery rates to stream channels are not expected to increase due to logging impacts because of the implementation of buffers and distance to the nearest intermittent stream. Grass/forb cover throughout the buffers and sufficient down woody material reduces the potential of sediment to reach streams and effect water quality. (Burroughs and King – 1985 & 1989 and elsewhere – Trimble and Sartz 1957, Packer 1967, Swift 1986 – concluded that non-channelized sediment flow rarely travels more than 300 feet and 200-300 foot riparian “filter strips” are generally effective at protecting streams from sediment from non-channelized flow; PACFISH, C-8).

Cleaning and non-commercial thinning of small diameter trees (less than seven inches) would not occur within RHCAs of the treated unit (311) under this alternative.

Prescribed burning planned within the IRA would not impact water quality, as no streams are within the 16 acres planned for burning. In the event streams are encountered during operations, mitigation measures prescribed in chapter two of this EA would apply. These mitigation measures are summarized as no direct ignition within RHCAs and backing fires only allowed within RHCAs (direct and indirect effects are disclosed under the North Mt. Emily IRA).

**Soil Quality** - Publications have provided information on appropriate levels of coarse wood required to protect long-term soil productivity (Agee 1994, Harvey et al. 1994, Graham et al. 1994). The suggested tons/acre of coarse wood to leave on site for desired soil productivity would be incorporated into project design and are listed in the constraints and mitigation section. This suggests long-term soil productivity would be maintained within treatment units in the IRA.

Other mitigation measures for action alternatives include designated skid trails at no less than 60 foot spacing and directional felling techniques to minimize soil disturbance. (Restoration of detrimental soil conditions, primarily by subsoiling, that exceed 20 percent over pre-activity levels would occur.) Detrimental soil conditions (DSCs) include compaction, puddling, displacement, and severe burning. Unit 311 is currently at 0-5% detrimental soil condition. With utilization of above mitigation measures, DSCs after treatment would be increased to 5-10%, well below Forest Plan standards. Soil quality, in terms of detrimental conditions, would decrease on these acres within the IRA until natural compaction mitigation processes reverse the trend (5-20 years). (Natural compaction mitigation processes (frost heave, root penetration by grasses and sedges, rodent activity) acting over a period of 5 to 20 years is effective to a depth of about 4 inches.

Due to the limited extent of potential soil compaction across the total area of the IRA, the magnitude of impacts is very low. Overall, negligible impacts on soil quality in the roadless area would occur.

**Air Quality** - Alternative Two would impact the IRA from smoke produced through prescribed burning of 16 acres (unit 603) of the IRA and 416 acres burning of adjacent unit 603. Depending on wind direction, smoke emissions may or may not impact the entire IRA, however, the 16 acres of prescribed burning would be impacted by smoke emissions. Smoke emissions could be managed to stay under the 15,000 tons PM10 per year agreed to under the Memorandum of Understanding (October 27, 1994). In comparison, Alternative One would result in a higher risk of wildfire smoke emissions, which would be more difficult to manage.

The greatest impact to air quality would occur within the first few days after ignition; beyond that, smoke from burning logs and snags would smolder causing light drift smoke. Smoke emissions under this alternative would have two – six week duration depending on weather conditions. During this period, IRA users would be directly impacted on 16 acres and indirectly impacted over the remaining IRA by prescribed burning activities, and may choose to avoid the area until smoke clears. Overall, the effects to air quality would be short-term duration with effects to roadless area users causing a slight delay in use. Given that the roadless area receives low to moderate use during spring and moderate use during fall, prescribed burning would impact a limited amount of people.

**Diversity of Plant and Animal Communities** – Plant communities under this alternative would likely change from mid/late seral to an early seral condition on the treated acres. This is expected because thinning would open stands up, allowing more sunlight to reach the ground. Plants that flourish under more sunlight would increase in coverage and there may be loss of those species which do require more shaded conditions. Six acres of the same plant community would be thinned and sixteen acres burned. The effects are summarized in Appendix B of the Roadless Effects Document under “Alternative 2, North Mt. Emily Direct and Indirect Effects, G-4 (Abgr/Vame) Grand fir / Big Huckleberry (CWS211).

No threatened, endangered or sensitive plant species would be impacted, as none occur in the treated acres.

The direct and indirect effects to diversity of plants and animals would increase slightly in approximately 16 acres of the IRA. The acres with the highest potential to affect plant and animal diversity are those proposed for mechanical treatment in Mt. Emily Fuels Reduction project (6 acres). Mechanical treatment would disturb vegetation and expose soil as a potential seedbed, should invasive plant seed be introduced. The potential for noxious weeds and the introduction of invasive plants is greatest on these acres. Introduction of invasive plants would reduce the diversity of native plant species. These acres are adjacent to the 3120600 road, which also increases the potential for weed spread from vehicles following the ground disturbance of mechanized equipment and livestock grazing.

The risk of invasive plant species introduction from mechanized equipment is low considering mitigation measures that require contract vehicle equipment to be washed prior to entering National Forest lands.

Animal communities would continue to exist on treated acres under this alternative. Some raptors that prefer open stands to closed stand would utilize the treated areas slightly more, while other birds of prey that prefer closed canopies would not. Utilization may change slightly in the treated areas for some species; however, animal diversity is not expected to diminish as habitat would not be dramatically altered.

**Reference Landscapes** - Alternative Two would modify the landscape of the treated acres by reducing stand densities and removing ground and ladder fuels, the same as described under North Mt. Emily IRA, only on fewer acres. Mechanical treatment of the 6 acres would have the most potential of altering these acres and changing the reference landscape. It would move these areas out of the unmanaged classification. Whether they could still be considered "relatively undisturbed" is arguable. At best, they would be considered disturbed and slightly modified from a reference condition.

Prescribed burning of 16 acres would likely not change the reference condition of the treated areas. Prescribed burning would occur in fire-adapted plant communities and would mimic historic conditions of ground fires burning through the understory.

**Natural Appearing Landscapes with High Scenic Quality** – The effects on the roadless area under this alternative are similar as those discussed under direct and indirect effects to North Mt. Emily IRA only on fewer acres.

The impacts to foreground views would not be concentrated enough to degrade scenic resources. Less than one percent of the total IRA acres (16 of 8,822 acres) would be affected under this alternative; however 19 percent (16 of 84 acres) of the IRA acres within the project area would be affected.

Created stumps would reduce the natural appearing landscape and high scenic quality on approximately 6 acres. The remaining 8,816 acres (99%) of Mt. Emily IRAs would not be affected under this alternative.

Skid trails, track marks, and landing sites would appear on approximately 6 acres (seven percent of the project IRA acres and a fraction of one percent of the IRA acre total). The area where skid trails and track marks would occur are adjacent to an existing road (3120600), which is an area within the IRAs that has diminished value for apparent naturalness because of the road.

Prescribed burning in the IRA would result in short to mid-term visual impacts on 16 acres. The effects are the same as described under direct and indirect effects of North Mt. Emily IRA.

The degree to which the natural appearing landscape is diminished by the creation of stumps is subjective to the individual. However, 100% of the mechanically treated acres are adjacent to the

3120600 road. The natural appearance of these adjacent lands to this road is currently altered by the break in vegetation and presence of the road.

## Cumulative Effects on Roadless Characteristics On Mt. Emily IRA

The logical resource area for cumulative effects on this roadless area is the boundary of the Mt. Emily IRA. Cumulative effects on roadless characteristics under this alternative include the effects of activities in Alternative Two listed above under direct and indirect effects, plus the effects of past, present, and foreseeable future activities that overlap with the roadless area. Those activities include the Spring Mt. Sheep Allotment, and dispersed recreation.

Dispersed recreation is limited to very few hunting camps and one known recreation trail. The impacts from these sites are of such limited and constrained nature that they would have an immeasurable or no effect on roadless characteristics. Activities on these sites will not be discussed further in this section.

The activities analyzed for cumulative effects under Alternative Two in the Mt. Emily IRA are displayed as the following acres:

<b>Table 13. Mt. Emily IRA Cumulative Activities – Alternative Two</b>			
<b>Project Activity</b>	<b>Activity Acres</b>	<b>Project Activity</b>	<b>Activity Acres</b>
Mt. Emily Mechanical Treatment	6	Spring Mt. Sheep Allotment	263
Mt. Emily RX Burn	16	Boundary Fuels Hand Treatment	0
Overlapping Activity	6	Overlapping Activity	0
Sub-total	16		263
		<b>Combined Total</b>	
		279 acres (3%)	

**Description of Past, Present, Foreseeable Activities** - The Spring Mt. Sheep Allotment has been in non-use status for the past five years. The allotment is currently in NEPA for re-issuance and is proposed for non-use. This allotment falls within the guidelines of the Umatilla Forest Plan PAFISH implementation team standard, and is administered by the Umatilla National Forest (personal communication, Tom Thompson). Should livestock grazing continue within the 263 acres of the IRA, there would be no overlapping acres grazed with any of the proposed Mt. Emily Fuels reduction activities. The portion of the allotment within the IRA is on the far western boundary of the Mt. Emily IRA. Alternative Two proposed activities are on the far east boundary of the Mt. Emily IRA. Over two miles separates the two activities.

Since there are no other ongoing or proposed projects within the Mt. Emily IRA, cumulative effects of Alternative Two will include those effects proposed under Alternative Two of the Mt. Emily Fuels Reduction project and livestock grazing on the Spring Mt. Sheep Allotment, should grazing be re-introduced.

The effects on roadless characteristics are as follows:

**Water quality** – Alternative Two has the potential to cumulatively affect water quality on 279 acres. However, due to adequate stream buffers, mechanical activity on flatter slopes, activity away from intermittent streams only, no temporary or permanent road construction, and mitigation measures to limit haul under dry condition only, activity under Alternative Two would have low cumulative effects to water quality in the Mt. Emily IRA.

The effects to water quality from the Mt. Emily Fuels Reduction project are described under direct and indirect effects. The cumulative effects of one additional project in the roadless area would have less impact to water quality than effects from the Mt. Emily project.

As measured by increase in sediment or removal of riparian habitat, cumulative effects would not change current water quality in the roadless area. Six acres are proposed for mechanical fuels reduction (unit 311). This unit is not adjacent to either a perennial or intermittent stream. Activity would be well away from the nearest stream and have no impact on water quality. Prescribed burning would occur on only sixteen acres (unit 603). See effects of prescribed burning under direct and indirect effects.

Should livestock grazing continue in the Spring Mt. Sheep Allotment, PACFISH standards for stubble height in RHCAs would retain sufficient vegetation to maintain water quality. Also, sheep are herded to watering holes and sheep herders keep the animals out of drainages.

The cumulative effects to water quality are negligible when considering the unlikely condition of sediment reaching streams and limited magnitude of 279 acres (3%) of the IRA potentially impacted.

**Soil quality** – There would be no cumulative effects to soil quality beyond what has been described under Alternative Two direct and indirect effects of the Mt. Emily project. This is based on the following rationale:

Livestock grazing historically has not occurred on the 263 acres inside the IRA. Should it occur, livestock grazing would have limited impact on soil conditions due to the small percentage of area grazed and short duration of grazing periods (rotating pastures).

**Air quality** - There would be no cumulative effects to air quality beyond what has been described under Alternative Two direct and indirect effects of the Mt. Emily project. This is based on the following rationale:

There is no impact to air quality from livestock grazing.

**Diversity of Plants and Animals** – Cumulative effects include what has been described under Alternative Two direct and indirect effects of the Mt. Emily Fuels Reduction project and the following:

Livestock grazing would affect plant diversity according to the plant community grazed. In cool/moist plant communities, livestock grazing decreases some species while increasing others (species are detailed in Appendix B of the Roadless Effects). Overall, grazing would not result in a significant reduction of plant diversity.

No additional cumulative effects would occur from livestock grazing. The risk of invasive plant species from livestock grazing is low considering livestock grazing of sheep would not occur on ground disturbed by mechanized equipment (no overlapping activity). There is no chance of seed spread passing through animals onto recently disturbed ground from the Mt. Emily Fuels Reduction Project. The risk of invasive plant species is low, furthermore, because grazing is monitored and utilization standards would meet Forest Plan and PACFISH standards for stubble height retention. Because the animals would be rotated off the pasture prior to reducing stubble heights below standards, the opportunity for invasive plants to establish and replace native plants is low.

Post-project monitoring of all activities would provide information of invasive species introduction should it occur, and allow for early treatment. With mitigation measures in place and low risk of invasive plant species introduction, diversity of plant and animals in this alternative should be maintained to its current level.

**Reference Landscapes** – The cumulative effects on reference landscapes includes the 6 mechanically treated acres in the Mt. Emily Fuels Reduction project plus the 263 acres of potential livestock grazing (reference landscapes would not be altered by the 16 acres of prescribed fire). Both activities would diminish reference landscape conditions on these 269 acres. Mechanical treatment would move the 6 acres out of the “unmanaged” classification. At best, they would be considered disturbed and slightly modified from a reference condition.

The fact that these acres are immediately adjacent to the 3120600 road somewhat diminishes their condition as “undisturbed” even prior to management efforts to reduce fuels. Forest users seeking reference landscape conditions would not likely focus on these areas so close to roads.

Because approximately 97% of the IRA would remain in a reference landscape condition, the cumulative effects of Alternative Two are very limited in intensity, leaving the vast majority of the IRA unchanged.

**Natural Appearing Landscapes with High Scenic Quality** – The cumulative effects on Natural Appearing Landscapes with High Scenic Quality includes the impacts of both projects on the previously mentioned 269 acres (again, prescribe fire has little to no impact on natural appearing landscapes). Of the 263 acres of livestock grazing within the IRA, natural appearing landscapes and high scenic quality has currently been diminished to the degree that the user notices grazed landscapes and some trampling of vegetation particularly near watering holes. Plant species should not be altered from natural conditions as grazing guidelines would remove livestock prior to over-grazing and retain current levels of native plant species.

The additional 6 acres of treatment in the Mt. Emily project would change the natural appearing landscape by creating stumps, skid trails, landings, and a more open stand condition. This condition would occur at the edge of the roadless area and immediately adjacent to Forest Roads 3120600. The natural appearing landscape has currently been altered by the existence of this road. While these treated acres are being slightly modified from their natural appearance, a roadless user looking for natural appearing landscapes would expect to travel deeper into a roadless area than the immediate boundary and/or areas adjacent to roads.

Approximately 97% of the IRA would remain in its natural appearance with potential for high scenic quality. These are areas furthest from the roadless boundaries and more likely that users would seek out for natural appearing landscapes with high scenic quality.

**Summary** - the cumulative effects of Alternative Two and other known or foreseeable activity would impact a limited area (3%) of the Mt. Emily IRA. The majority of the area affected would be adjacent to a developed road on the eastern edge of the IRA (3120600). These roadless characteristics would be retained over the vast majority (97%) of the Mt. Emily IRA, and slightly reduced in treated areas (3%).

## **ALTERNATIVE 3**

### **A. North Mt. Emily IRA**

#### **Introduction**

Fuels reduction objectives are the same within the IRA as they are outside the IRA; to modify fire behavior and restore fire adapted ecosystems. The need to modify fire behavior and reduce crown fire potential is to create defensible space and allow direct attack by hand crews during fire suppression (see fire effects). The benefits are two-fold by reducing fuels in the IRA: The area would be more ecologically in balance by returning to condition class one and the area would be more resistant to large stand replacing fires that could diminish roadless characteristics.

The ecological argument is analyzed in the appendix of this report, as it addresses maintaining fire return intervals closer to historic levels in fire regimes one and three within the IRA. In summary, however, 69% (254 acres) of the treated acres are in fire regimes one and three and would be treated under this alternative within the IRA to help maintain these areas in condition class one. See the appendix for further analysis.

The analysis of direct and indirect effects from activities under Alternative Three to the North Mt. Emily IRA is displayed as the following acres:

<b>Table 14 - North Mt. Emily IRA – Alternative Three</b>	
Total IRA Acres	5,400
IRA Acres within Project Boundary	744
*Mechanical Treatment Acres	155
Mechanical Treatment Unit Numbers	101-108, 110, 111, 113, 201-206, 208, 210, 211
Prescribed Fire Acres	369
RX Fire Unit Numbers	101-108, 110, 111, 113, 201-206, 208, 210, 211, 601
Overlapping RX Fire and Mechanical Treatment Acres/unit numbers	155 acres (units 101-108, 110, 111, 113, 201-206, 208, 210, 211)
<b>Total Treated Acres</b>	<b>369</b>
<b>Percent of Total IRA Treated</b>	<b>7</b>

\*Mechanical treatment acres include commercial thinning, removing standing and dead down fuels, fuels thinning, cleaning, piling and burning.

**Treatment Description and Comparison with Alternative Two** - Alternative Three would treat the same 155 acres within the North Mt. Emily IRA. The treatment prescriptions are changed, however, when compared to Alternative Two. Commercial thinning to the mid range between the lower and upper management zone would occur only in priority area one (units 101-111, 113). This is a prescription change from Alternative Two, although treatment units/acreages stay the same.

Treating to the mid-range would meet fuels objectives of modifying fire behavior and providing defensible space while retaining more trees per acre than Alternative Two (which treats to the lower management zone). Additional mechanical treatment would follow commercial thinning, to include: fuels reduction harvest (HFU), fuels thinning (SPC), cleaning (FCN) and pile burning (FHB, FMB). Affected units include 101 – 108, 110, 111, and 113 (94 acres). Cutting and removal would be similar to Alternative Two: trees would be hand-felled or cut using low impact ground based equipment. Removal would occur using helicopters. Removal sites would be outside the IRA.

Units 201 – 206, 208, 210, 211 (61 acres) of the North Mt. Emily IRA would be treated for surface and near surface fuels, with no commercial thinning. This is a prescription change from Alternative Two, although treatment units/acreages stay the same. Treatment would include removal of dead standing and down material to <25 tons per acre by piling or slashbusting. Live trees less than seven inches diameter would be hand or mechanically thinned, cleaned, piled, lopped, scattered, crushed or burned.

Prescribed fire would occur in approximately 369 acres in the IRA. Mechanical treatment would occur prior to burning on approximately 155 of these acres. Prescribed burning prescriptions are the same as Alternative Two.

## Direct and Indirect Effects on Roadless Characteristics On North Mt. Emily IRA

**Water quality** — Effects to water quality from use of mechanical equipment and removal of fuels under this alternative are similar to Alternative Two. The only treatment difference in the IRA between Alternative Three and two is Alternative Three commercially thins fewer trees in priority area one (94 acres) and proposes no commercial thinning in priority area two (61 ac res). There is a potential for less ground disturbing activity on these acres, due to removal of fewer or no commercial sized trees. Less ground disturbing activity can equate to less potential for impacts to water quality. However, mechanical equipment would still operate on these acres with adequate stream buffers and mitigation measures.

The potential for negative cumulative effects to water quality would be low due to adequate RHCA buffers on mechanical equipment, no in-stream work, and no treatment adjacent to perennial flowing streams.

Because all streams are intermittent-seasonal flowing streams, adequate streams buffers are proposed, and because no ground based equipment would operate within riparian habitat conservation areas (RHCAs), sediment delivery rates to stream channels are not expected to increase from mechanical impacts or fuel wood removal.

Effects to water quality from prescribed burning are the same as described under Alternative Two.

**Soil Quality** — The primary difference between action Alternatives Two and Three would be the aerial extent of treatment impacts. Alternative Three proposes treatment on the same acres but with slightly less risk of soil disturbance due to fewer trees removed on all 155 acres planned for mechanical fuels reduction.

The same mitigation measures apply as Alternative Two, including restoring detrimental soils conditions that may exceed 20 percent over pre-activity levels. With utilization of mitigation measures, DSCs after treatment would be increased to approximately 0-5%, well below Forest Plan standards. Soil quality, in terms of detrimental conditions, would decrease on these acres within the IRA until natural compaction mitigation processes reverse the trend (5-20 years). (Natural compaction mitigation processes (frost heave, root penetration by grasses and sedges, rodent activity) acting over a period of 5 to 20 years is effective to a depth of about 4 inches.)

**Air Quality** — The effects on air quality from this alternative are the same effects as Alternative Two as prescribed burning acres are the same.

**Diversity of Plant and Animal Communities** — The same amount of acres are treated in Alternative Three as in Alternative Two. The difference is the amount of vegetation removed or treated on the Mt. Emily project areas. Retaining stand density to a higher level in priority area one would retain slightly more shade on the forest floor, with less impact to shade tolerant species. This alternative should result in less change to the existing conditions, with fewer changes in the understory vegetation than when compared to Alternative Two. Habitat would be more conducive for existing shade-tolerant plant species.

In priority area two along the 3120 road, less ground disturbing activity may result from the change in treatment prescription (no commercial thinning removal). If fewer acres are disturbed, there is less potential for invasive plant species to become established.

Effects to diversity of animal species would be similar to Alternative Two, with a slight potential that animal diversity would not be impacted as much as Alternative Two.

**Reference Landscapes** – There would be no change to effects in priority area one (units 101 -108, 110, 11, 113). Fewer trees would be cut and removed; however, the same acres would be removed from reference landscape condition. Priority area two (units 201 -206, 208, 210, 211) would be removed from reference landscape condition through fuels reduction of surface and near surface fuels; however, to a lesser degree than under Alternative Two fuels treatments. Ground fuels and trees less than seven inches diameter would be removed; creating a change from reference conditions, however, trees greater than seven inches would remain on site.

Prescribed burning of 194 acres (in both IRAs) would not change the reference condition of the treated areas. Prescribed burning would occur in fire-adapted plant communities and would mimic historic conditions of ground fires burning through the understory. Low -intensity fire is part of the historic reference condition of fire regimes one and three; therefore, prescribe burning in Alternative Three would not alter this condition on 78% of prescribed burned acres.

**Natural Appearing Landscapes with High Scenic Quality** – The effects on the roadless area under this alternative are similar as those discussed under Alternative Two. Slightly fewer stumps would appear in priority area one (94 acres) when compared to Alternative Two (this is because the prescription change would leave more trees on-site).

Priority area two would also retain more stumps on 61 acres due to the prescription change from Alternative Two. These acres are adjacent to road 3120600, an area where natural appearing landscape has been altered by the presence of the road.

**Summary** - Created stumps would reduce the natural appearing landscape and high scenic quality on approximately 155 acres. The remaining 5, 245 acres (97%) of North Mt. Emily IRA would not be affected under this alternative.

## **Cumulative Effects on Roadless Characteristics On North Mt. Emily IRA**

The logical resource area for cumulative effects on roadless areas is the boundary of the North Mt. Emily IRA. Cumulative effects on roadless characteristics under this alternative include the effects of activities in Alternative Three listed above under direct and indirect effects, plus the effects of past, present, and foreseeable future activities that overlap with either roadless area. Those activities include the Boundary Fuels Reduction project and North End Sheep and Goat (S&G) Allotment, and limited dispersed recreation. Dispersed recreation is limited to very few hunting camps and one known recreation trail. The impacts from these sites are of such limited and constrained nature that they would have an immeasurable or no effect on roadless characteristics. Activities on these sites will not be discussed further in this section.

The analysis of cumulative effects of activities under Alternative Three in the North Mt. Emily IRA is displayed as the following acres:

Table 15. North Mt. Emily IRA Cumulative Activities – Alternative Three			
Project Activity	Activity Acres	Project Activity	Activity Acres
Mt. Emily Mechanical Treatment	155	North End Allotment	716
Mt. Emily RX Burn	369	Boundary Fuels Hand Treatment	630
Overlapping Mechanical Treat and RX Burn	155	Overlapping Activities	150
Sub-total	369		1196
		<b>Combined Total</b>	
		<b>1,565 acres (29%)</b>	

**Description of Past, Present, Foreseeable Activities** – This activity description is presented under Alternative Two cumulative effects. There is no change or additions to this activity description.

North Mt. Emily Roadless characteristics that would be affected by the above activities would be as follows:

**Water quality** – Same as Alternative Two

**Soil quality** – Same as Alternative Two

**Air quality** – Same as Alternative Two

**Diversity of Plants and Animals** – Same as Alternative Two

**Reference Landscapes** – Same as Alternative Two.

**Natural Appearing Landscapes with High Scenic Quality** – Same as Alternative Two.

**Summary** - the cumulative effects of Alternative Three and other known and foreseeable activity would impact a larger area (29%) of the North Mt. Emily IRA. The majority of the area affected would be adjacent to developed roads on the western edge of the IRA (3120 and 3100) or private boundaries on the eastern edge of the IRA. The duration would be relatively short-term on many of the acres. This roadless characteristic would be retained over the vast majority (71%) of the North Mt. Emily IRA, and slightly reduced in treated areas (19 – 29%).

## B. Mt. Emily IRA

### Introduction

Fuels reduction objectives are the same within the IRA as they are outside the IRA; to modify fire behavior and restore fire adapted ecosystems. The need to modify fire behavior and reduce crown fire potential is to create defensible space and allow direct attack by hand crews during fire suppression (see fire effects). The benefits are two-fold by reducing fuels in the IRA: The area would be more ecologically in balance by returning to condition class one and the area would be more resistant to large stand replacing fires that could diminish roadless characteristics.

The ecological argument is analyzed in Appendix A of the Roadless Effects Document, as it addresses maintaining fire return intervals closer to historic levels in fire regimes one and three within the IRA. In summary, however, 100 percent (48 acres) of the treated acres are in fire regimes one and three and would be treated under this alternative within the IRA to help maintain these areas in condition class one. See Appendix A for further analysis.

The analysis of direct and indirect effects from activities under Alternative Three to the Mt. Emily IRA is displayed as the following acres:

<b>Table 16 - Mt. Emily IRA – Alternative Three</b>	
Total Acres	8,822
Mechanical Treatment Acres	38
Mechanical Unit Numbers Affected	264, 267-268, 271, 311
Prescribed Fire Acres	48
RX Fire Unit Numbers Affected	264, 267, 268, 271, 603
Overlapping RX Fire and Mechanical Treatment Acres	38 acres (Units 264, 267, 268, 271, 311)
<b>Total Treated Acres</b>	<b>48</b>
<b>Percent of IRA Treated</b>	<b>.005</b>

\*Mechanical treatment acres include commercial thinning, removing standing and dead down fuels, fuels thinning, cleaning, piling and burning.

**Treatment Description and Comparison with Alternative Two** - Alternative Three would treat 48 acres within the Mt. Emily IRA. This is an additional 32 acres that are not included in Alternative Two (unit 311 is the only Mt. Emily IRA treatment unit in both action alternatives). Units 263, 264, 267-269, 270, 271, and 311 would be treated for surface and near surface fuels, with no commercial thinning. Treatment would include removal of dead standing and down material to <25 tons per acre by piling or slashbusting. Live trees less than seven inches diameter would be hand or mechanically thinned, cleaned, piled, lopped, scattered, crushed or burned.

Surface and near surface fuels reduction treatment would include the use of mechanical ground-based equipment. Non-commercial thinned trees from all mechanical fuels reduction units would be hand-felled (chainsaw) or cut by low impact ground based equipment. Removal of trees from these areas would be by ground based yarding equipment (38 acres affected). Removal landings for unit 311 would be to road 3120600, a road that is within the IRA boundary. Removal landings for all other units would be to road 3120, outside of the IRA boundary.

Prescribed fire would occur on approximately 48 acres. Mechanical treatment would occur prior to burning on approximately 38 of these acres. This is an increase of 32 acres of prescribed burning when compared to Alternative Two.

## **Direct and Indirect Effects on Roadless Characteristics On Mt. Emily IRA**

**Water quality** – Effects to water quality from use of mechanical equipment to remove fuels under this alternative are similar to Alternative Two. There is a net increase in acres treated under this alternative of 32 acres when compared to Alternative Two. Of these 32 acres, 2.7 acres would receive RHCA treatment of hand felling trees less than seven inches (see next paragraph). The above activity slightly increases the potential of ground disturbing activity to result in unwanted sediment to streams when compared to Alternative Two. However, because all streams are intermittent-seasonal flowing streams, adequate streams buffers are proposed, and because no ground based equipment would operate within RHCA's, sediment delivery rates to stream channels are not expected to increase from mechanical impacts or fuel wood removal.

This alternative includes an additional three units (units 264, 268 and 271) with RHCA treatments. RHCA treatment includes cleaning and non-commercial thinning of small diameter trees (less than seven inches). The effects would be similar to Alternative Two for rationale stated above. The slight increase of ground disturbance from fallen trees would be negligible resulting in similar effects as in Alternative Two. Long-term water quality would be maintained or improved.

The effects to water quality from prescribed fire are the same as described under Alternative Two but on twice as many acres (total 32 acres).

**Soil Quality** – The primary difference between action Alternatives Two and Three would be the aerial extent of treatment impacts. Alternative Three designates thirty-two more acres of fuels reduction treatment with planned use of mechanical equipment. This represents a slight increase in area for potential surface soil erosion from treatment activities.

The same mitigation measures apply as Alternative Two, including restoring detrimental soils conditions that may exceed 20 percent over pre-activity levels. None of the additional 32 acres proposed for treatment have previously been tractor logged and detrimental soil conditions are at 0%. With utilization of mitigation measures, DSCs after treatment would be increased to approximately 5-10%, well below Forest Plan standards. Soil quality, in terms of detrimental conditions, would decrease on these acres within the IRA until natural compaction mitigation processes reverse the trend (5-20 years). Natural compaction mitigation processes (frost heave, root penetration by grasses and sedges, rodent activity) acting over a period of 5 to 20 years is effective to a depth of about 4 inches.

**Air Quality** – The effects on air quality from this alternative are the same effects as Alternative Two with a slight increase in prescribed burning acres (32 acres).

**Diversity of Plant and Animal Communities** – The effects include the same unit (unit 311) as Alternative Two that is within the grand fir / big huckleberry plant association. Effects to an additional 32 acres would occur. These effects are described fully in Appendix B of the Roadless Effects (under grand fir / twinflower plant association) and are summarized as increases in the shrub layer with potential increases and decreases in the herbaceous coverage.

Because this alternative treats only ground fuels within priority area two, and removes fewer trees in priority area one, the effects to understory vegetation are expected to be less overall.

No threatened, endangered, or sensitive plant species would be impacted, as none occur in the treated acres.

**Reference Landscapes** – Alternative Three would modify the landscape of the treated acres by reducing stand densities and removing ground and ladder fuels on 32 more acres than Alternative Two. Mechanical treatment of the 38 acres proposed would have the most potential of altering these acres and changing the reference landscape. It would move these areas out of the unmanaged classification. Whether they could be considered “relatively undisturbed” is arguable. At best, they would be considered disturbed and slightly modified from a reference condition.

Prescribed burning of 48 acres would likely not change the reference condition of the treated areas. Prescribed burning would occur predominately in fire-adapted plant communities and would mimic historic conditions of ground fires burning through the understory. Low-intensity fire is part of the historic reference condition of fire regimes one and three; therefore, prescribe burning in Alternative Three would not alter this condition on 100% of acres treated.

**Natural Appearing Landscapes with High Scenic Quality** – The effects on the roadless area under this alternative are similar as those discussed under Alternative Two.

Stumps would appear on thirty-two more acres under this alternative. These 32 acres are adjacent to the 3120 road, an open road on the district access and travel management plan. There is a high potential that this area's natural appearance is diminished simply by its close proximity to a road, an unnatural development. Stumps would add to the diminished natural appearance. However, most

users would look farther than lands adjacent to a roadside for natural appearing landscapes with high scenic quality.

**Summary** - Created stumps would reduce the natural appearing landscape and high scenic quality on approximately 38 acres. The remaining 8,784 acres (99%) of Mt. Emily IRAs would not be affected under this alternative.

## Cumulative Effects on Roadless Characteristics On Mt. Emily IRA

The analysis of cumulative effects of activities under Alternative Three in the Mt. Emily IRA is displayed as the following acres:

<b>Table 17. Mt. Emily IRA Cumulative Activities – Alternative Three</b>			
<b>Project Activity</b>	<b>Activity Acres</b>	<b>Project Activity</b>	<b>Activity Acres</b>
Mt. Emily Mechanical Treatment	38	Spring Mt. Sheep Allotment	263
Mt. Emily RX Burn	48	Boundary Fuels Hand Treatment	0
Overlapping Activity	38	Overlapping Activity	0
Sub-total	48	Sub-total	263
	<b>Combined Total</b>		
	311 acres (4%)		

The Spring Mt. Sheep Allotment has been in non-use status for the past five years. The allotment is currently in NEPA for re-issuance and is proposed for non-use. This allotment falls within the guidelines of the Umatilla Forest Plan PAFISH implementation team standard, and is administered by the Umatilla National Forest (personal communication, Tom Thomps on). Should livestock grazing continue within the 263 acres of the IRA, there would be no overlapping acres grazed with any of the proposed Mt. Emily Fuels reduction activities. The portion of the allotment within the IRA is on the far western boundary of the Mt. Emily IRA. Alternative Two proposed activities on the far east boundary of the Mt. Emily IRA. Over two miles separates the two activities.

Since there are no other proposed ongoing or proposed projects within the Mt. Emily IRA, cumulative effects of Alternative Three will include direct and indirect effects proposed under Alternative Three of the Mt. Emily Fuels Reduction project and livestock grazing on the Spring Mt. Sheep Allotment, should grazing be re-introduced.

The cumulative effects on roadless characteristics are as follows:

**Water quality** – As measured by increase in sediment or removal of riparian habitat, cumulative effects would have little probability of changing current water quality in the roadless area. Thirty-eight acres are proposed for mechanical fuels reduction, none of which are adjacent to perennial streams. Therefore, potential affects to water quality exist only on intermittent, seasonal flowing streams. As stated under direct and indirect effects above, “No ground based equipment would operate within riparian habitat conservation areas (RHCAs). Sediment delivery rates to stream channels are not expected to increase due to logging impacts because of the implementation of buffers.”

Should livestock grazing continue in the Spring Mt. Sheep Allotment, PACFISH standards for stubble height in RHCAs would retain sufficient vegetation to maintain water quality. Also, sheep are herded to watering holes and sheep herders keep the animals out of drainages.

The cumulative effects to water quality are negligible when considering the unlikely condition of sediment reaching streams and limited magnitude of 311 acres (4%) of the IRA potentially impacted. The acreage difference between Alternative Two and three is 32 more acres treated in Alternative Three, with 2.7 acres of non-commercial treatment in RHCAs. This difference proposes a slight, but immeasurable potential for more sediment transport to nearby streams.

**Soil quality** – There would be no cumulative effects to soil quality beyond what has been described under Alternative Three direct and indirect effects of the Mt. Emily project. This is based on the following rationale:

Livestock grazing would have limited impact on soil conditions due to the small percentage of area grazed and short duration of grazing periods (rotating pastures).

**Air quality** - There would be no cumulative effects to air quality beyond what has been described under Alternative Three direct and indirect effects of the Mt. Emily project. This is based on the following rationale:

There is no impact to air quality from livestock grazing.

**Diversity of Plants and Animals** – Cumulative effects include what has been described under Alternative Three direct and indirect effects of the Mt. Emily Fuels Reduction project and the following:

Livestock grazing would affect plant diversity according to the plant community grazed. In cool/moist plant communities, livestock grazing decreases some species while increasing others (species are detailed in Appendix B of the Roadless Effects Document). Overall, grazing would not result in a significant reduction of plant diversity.

The risk of invasive plant species from livestock grazing is low considering livestock grazing of sheep would not occur on ground disturbed by mechanized equipment (no overlapping activity). There is a low probability of seed spread passing through animals onto recently disturbed ground. The risk of invasive plant species is low, furthermore, because grazing is monitored and utilization standards would meet Forest Plan and PAFISH standards for stubble height retention. Because the animals would be rotated off the pasture prior to reducing stubble heights below standards, the opportunity for invasive plants to establish and replace native plants is low.

Post-project monitoring of all activities would provide information of invasive species introduction should it occur, and allow for early treatment. With mitigation measures in place and low -risk of invasive plant species introduction, diversity of plant and animals in this alternative should be maintained to its current level.

**Reference Landscapes** – The cumulative effects on reference landscapes includes the 38 mechanically treated acres in the Mt. Emily Fuels Reduction project plus the 263 acres of potential livestock grazing. Both activities would diminish reference landscape conditions on these 301 acres. (Forty-six acres of prescribed fire would not change reference landscapes as described under direct and indirect effects). Mechanical treatment would move the 38 acres out of the “unmanaged” classification. At best, they would be considered disturbed and slightly modified from a reference condition.

The fact that these acres are immediately adjacent to either the 3120 or 3120600 roads, somewhat diminishes their condition as “undisturbed” even prior to management efforts to reduce fuels. Forest users seeking reference landscape conditions would not likely focus on these areas so close to roads.

The current condition of reference landscapes in the IRA would not change from livestock grazing since grazing under this allotment has been established within the IRA boundaries for several years (see Umatilla Forest Plan). Since there are no overlapping acres between the two projects, the cumulative effects of livestock grazing would not be compounded with overlapping Mt. Emily Fuels Reduction activity.

Because approximately 96% of the IRA would remain in a reference landscape condition, the cumulative effects of Alternative Three are very limited in intensity, leaving the vast majority of the IRA unchanged.

**Natural Appearing Landscapes with High Scenic Quality** – The cumulative effects on Natural Appearing Landscapes with High Scenic Quality includes the impacts of both activities on the previously mentioned 301 acres. Of the 263 acres of livestock grazing within the IRA, natural appearing landscapes and high scenic quality has currently been diminished to the degree that the user notices grazed landscapes and some trampling of vegetation particularly near water holes. Plant species should not be altered from natural conditions as grazing guidelines would remove livestock prior to over-grazing and retain current levels of native plant species.

The 38 acres of mechanical treatment in the Mt. Emily project would change the natural appearing landscape by creating stumps, skid trails, landings, and a more open stand condition. This condition would occur at the edge of the roadless area and immediately adjacent to Forest Roads 3120 and 3120600. The natural appearing landscape has currently been altered by the existence of these roads. While these treated acres are being slightly modified from their natural appearance, a roadless user looking for natural appearing landscapes would expect to travel deeper into a roadless area than the immediate boundary and/or areas adjacent to roads.

Approximately 96% of the IRA would remain in its natural appearance with potential for high scenic quality. These are areas furthest from the roadless boundaries and more likely that users would seek out for natural appearing landscapes with high scenic quality.

**Summary** - the cumulative effects of Alternative Three and other known or foreseeable activity would impact a limited area (4%) of the Mt. Emily IRA. The majority of the area affected would be adjacent to developed roads on the eastern edge of the IRA (3120 and 3120600). These roadless characteristics would be retained over the vast majority (96%) of the Mt. Emily IRA, and slightly reduced in treated areas (4%).

## **Issue: Fisheries and Watershed Resources**

### ***Introduction***

The expected and potential effects of each developed alternative on the fisheries and watershed resources were assessed using several management directives/recommendations. The Management directives from the Wallowa-Whitman Land and Resource Management Plan (LRMP) 1990, the Interim Strategies for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California (PACFISH 1994); and the LRMP Biological Opinions (1995 and 1998) will be followed. In addition, the PACFISH amendments add further interim management direction in the form of Riparian Management Objectives (RMOs), Riparian Habitat Conservation Areas (RHCAs) and standards and guidelines for Key Watersheds. All of the National Forest System (NFS) Watersheds in the Upper Grande Ronde Basin have been designated as Key Watersheds. National Marine Fisheries Service (NMFS) also designated this as a priority watershed. A Total Maximum Daily Load (TMDL) and Water Quality Management Plan (WQMP) for the Upper Grande Ronde River Subbasin were approved by the Environmental Protection Agency (EPA) in 2001. The Best Management Practices identified in the WQMP will be used for this project. The effects outlined below are based on all fisheries and watershed protection and mitigation measures being implemented in full (Specific Mitigation Measures Section).

Three alternatives were analyzed. Table 18 displays the approximate number of acres potentially effected by each action alternative.

**Table 18. Alternative Comparison** (acres unless otherwise noted)

<b>Treatments</b>	<b>Alternative 2</b>	<b>Alternative 3</b>
Harvest Commercial Thin (HTH)	<b>1669</b>	<b>1486</b>
Harvest Fuels Reduction (HFU)	<b>1969</b>	<b>1739</b>
Hand Piling	<b>1036</b>	<b>925</b>
Grapple Piling	<b>933</b>	<b>814</b>
Small dia. Thin and Clean (SCN) inside commercial thinned (HTH) units	<b>1669</b>	<b>1552</b>
RHCA Treatments (SCN/RMP/RPB)	<b>344</b>	<b>307</b>
Small dia. Thin and Clean (SPC) outside commercial thinned (HTH) units	<b>300</b>	<b>187</b>
Prescribed Burning (RPB)	<b>1622</b>	<b>1622</b>
Temporary road (miles)	<b>1.0</b>	<b>1.0</b>
Road re-construction (miles)	<b>2.5</b>	<b>2.5</b>

The logical resource area used to analyze cumulative effects of the Mt. Emily Project includes past, present, proposed and future management activities within subwatersheds Wright Slough (17E), South Fork Willow Creek (84G), Upper Willow Creek (84H), Upper Five Points Creek (87C).

## Effects Analysis

### A. Water Quality

#### **ALTERNATIVE 1 – NO ACTION**

#### **Direct, Indirect and Cumulative Effects**

There are no direct effects on water quality as a result of the No Action alternative. Effects related to this alternative on water quality are primarily indirect in nature. These indirect effects relate to suppression of conifers in the riparian area which may reduce the effectiveness of the conifers in providing shade, cover and large wood for recruitment to the stream channel. This indirect effect would retard attainment of RMOs.

Sediment delivery rates would remain at existing levels, including the effects of poorly drained and designed roads, under this alternative. This alternative would provide no opportunity to perform restoration activities to correct road system problems.

No change in existing stream temperatures would take place under this alternative in the short term. Long term, in those areas where the streamside cover is primarily made up of dead and dying trees, stream temperatures are anticipated to either remain at the current levels or increase as the trees die out and reduce existing cover. Without active restoration (partial removal of dead and dying materials and planting) within these areas, the potential for future streamside cover from regeneration would be delayed approximately 20 years.

The logical resource area used to analyze cumulative effects of the Mt. Emily Project includes past, present, proposed and future management activities within subwatersheds Wright Slough (17E), South Fork Willow Creek (84G), Upper Willow Creek (84H), Upper Five Points Creek (87C).

While the potential impacts from the Mt. Emily Project would not occur under this alternative, neither would the restoration activities which would reduce sediment delivery, rehabilitate problem areas in

roads, reduce potential impacts to sensitive riparian areas and fisheries and accelerate large wood recruitment and stream cover. However, past and present disturbances from roads, timber harvest, grazing, fire and recreation would continue. As the area continues to be at risk to wildfire, and increases in susceptibility to insects it would be considered again for entry long before the 20 years described as the objective under the action alternatives.

## **ALTERNATIVES 2 AND 3 – ACTION ALTERNATIVES**

### **Direct and Indirect Effects**

No direct effects on water quality are expected from the implementation of any action alternative described with this project.

The location of activities away from perennial stream channels, adequate riparian buffers (RHCA's), and timing of activities in relation to soil and moisture conditions will prevent direct adverse effects to stream channels. Potential adverse effects such as increased sediment yield and direct channel sedimentation, removal of large woody material from the channel, disturbance of spawning areas, and any instream impacts are not expected due to the protection and mitigation measures being implemented in full (Specific Mitigation Measures Section).

The primary indirect effects to watershed resources that could arise as a result of fuel reduction activities proposed in the Mt. Emily Project are increases in sediment delivery rates and water temperature changes. Impacts to water quality will be addressed in terms of sediment loads and temperature.

#### **Sediment**

The definition of accelerated sediment delivery includes any increase over and above the natural sediment rates of the watershed. Soil erosion may lead to accelerated sediment delivery to stream channels, although with implementation of RHCA's, as prescribed by PACFISH, this is not expected.

It is difficult to equate soil erosion directly to sedimentation rates. Obstructions in the path (i.e. downed wood, grass/forb cover) between the sediment source and the stream reduce the risk of direct sediment inputs to the stream. Therefore, adequate filter strips (in terms of size, ground cover and downed material) are necessary to slow or prevent sediment movement downslope of disturbed areas.

There are several activities associated with fuel reduction that may cause increased sediment delivery. The activities/methods proposed for use in the implementation of the Mt. Emily Project include:

- Road reconstruction
- Logging Systems
- Prescribed Fire
- Temporary Roads
- Small Diameter Tree (<7" dbh) Thinning and Cleaning

#### **Road Reconstruction**

Alternatives Two and Three would reconstruct approximately 2.5 miles of the 3120500 road to improve drainage, reduce erosion and the potential for increased sedimentation rates, and reinforce the sub grade (Table 18). The proposed road reconstruction crosses four Class IV streams and three Class III streams. Distance of reconstruction activities from fish bearing streams is 0.6 miles, 1.0 mile, and 1.6 miles for Class III streams; and 0.8 miles, 2.0 miles, 2.1 miles, and 1.7 miles for Class IV streams in subwatershed 87C. In subwatershed 84G there is one reconstruction activity crossing a Class III stream that is a distance of 1.6 miles from occupied fish habitat. Culverts would be

installed at all stream crossings and would either replace undersized culverts or install culverts where they are not currently present. However, none of the culverts are fish passage issues. Road surface would be improved within RHCAs and consists of spot rocking, grading, and drainage improvement. Currently, portions of the 3120500 road are in poor condition, and runoff is channeled down the road leading to severe erosion, rutting, and deposition of sediment into stream channels. Reconstruction and drainage improvement should lead to immediate reductions in sediment delivery to stream channels. The short term sediment pulse generated from reconstruction activities should be far less than sediment generated under the current conditions. The reconstruction would not adversely affect water quality, riparian habitat, or fisheries since all sections would improve areas of inadequate drainage along the roadways.

No more than one mile of temporary spur road is needed for either Alternative Two or three to facilitate removal of material. All temporary spur roads would be located outside of RHCAs. Temporary roads would be fully obliterated after use and within the same operating season of use.

### Logging Removal Systems

Action Alternatives Two and Three propose the use of ground based removal systems (i.e. tractor skidding or harvester forwarder). Ground based removal of trees would typically occur on slopes less than 35% that have current road access or could be accessed with temporary spur roads. On areas over 35% slope, removal would occur via helicopter. Table 19 displays the approximate acres of ground based and helicopter yarding that would occur for each alternative.

**Table 19. Logging Removal System Acreage per Alternative**

System	Alternative 2	Alternative 3
Ground Based	1047	997
Helicopter	855	622
<b>Total Acres</b>	1902	1619

Soil erosion may be initiated by soil disturbance and/or soil compaction. Repeated soil disturbance (through dragging of logs) can lead to soil compaction (Froelich 1978). Mitigation measures include designated skid trails, skyline corridors, and directional felling techniques to keep soil disturbance and detrimental compaction below 20% of the area. See soils effects documentation for further discussion.

No mechanical harvest or mechanical treatment would occur within RHCAs. PACFISH buffers would be implemented on all RHCAs, and include: 300 feet on fish bearing streams (Class I); 150 feet on non-fish bearing perennial streams (Class III); and 100 feet on intermittent streams and wetlands (Class IV).

### Prescribed Fire

Prescribed fire would occur under Alternatives Two and Three. Prescribed fire, like wildfires can accelerate sediment delivery by effects to soil erosion. Soil erosion can be increased by fire through duff/litter consumption, ground vegetation consumption and the creation of water repellent soil layer.

Prescribed burning is proposed on approximately 1,622 acres for Alternative Two and Three and would occur when weather and fuel conditions are appropriate to meet the objectives and prescriptions. Burning would be accomplished over two to five years depending on environmental conditions needed to meet burning prescriptions. Control lines such as roads, natural barriers and brush removal would be utilized instead of bare mineral soil line construction where possible.

Table 20 summarizes the erosion hazard rating (EHR) acres computed for sheet and rill and gully erosion in subwatershed 87C in the 1995 Spring Creek/Five Points Creek Watershed Analysis. The EHR acres designations are based on soils, topography, climate and cover conditions in the

subwatershed. There are no acres designated with a high EHR in the Mt. Emily project and if mitigation measures are implemented in full for prescribed burning during the project no change in the EHR acres listed in Table 20 would occur.

**Table 20. Erosion Hazard Rating (EHR) for subwatershed 87C**

SWS	Rating	Sheet and Rill (acres)	Gully (acres)
87C	Low to Moderate	236	40
87C	Moderate to High	14	18

Approximately 344 acres of the 1,622 acres are within RHCAs for Alternative Two and 307 acres of the 1,622 acres are within RHCAs for Alternative Three. Prescribed fire ignition will not occur within 150 feet of any perennial and/or fish-bearing stream and within 100 feet of any intermittent stream. However, low and moderate intensity fire (see Specific Mitigation Measures) would be allowed to back into the riparian areas resulting in no greater than 10% of the acres burned at a moderate fire severity where a small amount of duff/litter consumption, ground vegetation consumption and soil disturbance occurs, and 90% of the acres burned at a low fire severity where the soil is unchanged (DeBano *et al.* 1998). Prescribed fire like wildfires can accelerate sediment delivery into streams from soil erosion if the duff/litter and ground vegetation are consumed to levels that exposing too large of an area of mineral soil. Soil erosion can also be increased if water repellent soils are created from fires burning too hot. However, reducing these fuels will enhance forage habitat and increase overstory growth rates by making nutrients readily available after burning is completed. This will set the environmental baseline to a condition that is within the historic range of variability.

**Small Diameter Tree (<7" dbh) Thinning and Cleaning (SPC) outside Mechanically Treated Commercially Thinned (HTH) Units**

Approximately 300 acres in Alternative Two and 187 acres in Alternative Three, located outside of units designated for mechanical treatment (HTH), would be hand or mechanically thinned and cleaned to remove standing trees less than 7 inch dbh to improve tree growth and select desirable tree species. All of the RHCA acres within these units are included in the acres that would receive prescriptions proposed for SCN described below.

**Small Diameter Tree (<7" dbh) Thinning and Cleaning (SCN) inside mechanically treated (HTH) units**

Approximately 1,669 acres in Alternative Two and 1,552 acres in Alternative Three would be thinned to improve tree growth and select desirable tree species. Approximately 344 acres in Alternative Two and 307 acres in Alternative Three of the total project acres are within RHCAs (Appendix A of fisheries effects). Thinning would occur in RHCAs to accelerate achievement of Riparian Management Objectives (RMOs) for shade, cover and large wood recruitment. A no cut buffer of 25 feet would be implemented on fish bearing and perennial streams, and a 10 foot no cut buffer would be implemented on intermittent stream channels. Tree spacing within RHCAs would vary from 8 feet by 8 feet to 10 feet by 10 feet. Within the RHCA (and outside of the no cut buffers), no trees greater than seven inches DBH would be cut. All cut trees would be felled by hand, and some slash would be piled by hand and burned inside the RHCA. No ground disturbance caused by mechanical equipment would occur in RHCAs (See Specific Mitigation Measures).

**Temperature**

Adequate streamside vegetation (trees, shrubs, grasses, grass -likes and forbs) necessary to maintain cool stream temperatures would be left through the implementation of PACFISH buffers. In the instances of treatment within RHCAs and prescribed fire common to both alternatives, adequate streamside vegetation would be left within RHCAs to maintain stream temperatures in existing condition. No shade producing trees would be removed. Long-term cover would be enhanced through accelerating the growth of trees treated in these alternatives, as well as accelerating

regeneration in areas of extreme mortality, which would accelerate long-term cover production 20 years.

#### **Water Quality Summary for Action Alternatives**

Alternative Two poses a slightly greater risk to water quality relative to Alternative Three due to the additional 259 acres of additional stand treatment. The additional activity would result in more overall ground disturbance than Alternative Three.

Both action alternatives may cause short-term (0-2 years) impacts to water quality because of ground disturbing activities and the use of roads within RHCAs. These short-term impacts are immeasurable. However, long-term decreases in sediment delivery rates should occur due to the 2.5 miles of road reconstruction to improve drainage problems.

There are no fish species of concern within the project area, however Snake River summer steelhead (*Oncorhynchus mykiss*) are located downstream of the area. There are no expected adverse effects to fish habitat and populations from either action alternative due to the implementation of activities away from perennial streams, adequate riparian buffers (RHCAs), timing of activities in relation to soil and moisture conditions.

### **Cumulative Effects**

Disturbances in the analysis area from past, present, proposed, and future management activities include open and closed roads, timber harvests of varying prescription, prescribed burning, recreation activities and domestic grazing on federal and private land. Activities proposed with the Mt. Emily Project were designed to meet the anticipated restoration needs within the project area for a 20-year period before additional management activities would occur (see purpose and need in chapter one).

Road densities on both private and public ground in the analysis area are at or below LRMP standards. The Mt. Emily Project would not further reduce road densities, but would improve current drainage and sediment delivery problems. The most recent harvest activity in the analysis area was the Hazard Tree III, completed in 1997. Restrictions on harvest prescriptions, on location, and timing of harvest due to listed fish have reduced impacts to riparian areas and stream channels.

There is one livestock grazing allotment within the project area, the Tie Creek Cattle Allotment. The allotment is currently active. Tie Creek Allotment includes approximately 200 acres of the Upper Five Points Creek Subwatershed (87C) within the project area with the majority of the grazing activity occurring on private land lying south of the project area. The acres of the allotment that are located in the Mt. Emily project area are normally grazed later in the year when the intermittent streams have gone dry. The Mt. Emily project would thin (HTH), remove fuels (HFU), clean (SCN), pile (RMP) and burn (RPB) approximately 80 acres and would treat approximately 10 RHCA acres within the 200 acres of the grazing allotment that overlaps the project. These proposed treatments would open up the area potentially allowing greater distribution of the livestock and would also improve the forage, which may attract livestock to graze the area earlier in the season. Restrictions on livestock grazing on timing of grazing, location of animals and access should reduce impacts to the riparian areas and stream channels.

The Boundary Fuels Reduction Project on the Walla Walla Ranger District is located directly north of the Mt. Emily Project in subwatershed 84H and is planned for implementation in 2004. The project includes removal of fuels on approximately 630 acres of the 5,400 acre North Mt. Emily Roadless areas. Hand disposal removal (only) would occur on all 630 acres, to include hand piling, pile burning, hand thinning of trees less than six inches in diameter, and pruning. Treatments may occur within RHCAs, however, no thinning, piling or removal of down material would occur within 50 feet of a stream channel. No pile burning would occur within the RHCAs or in the bottom of ephemeral

draws. Pile burning will occur when the potential for fire creep is minimal to none and when weather conditions are not likely to hold smoke in the valley. Potential adverse effects such as increased sediment yield and direct channel sedimentation, removal of large woody material from the channel, disturbance of spawning areas, and any instream impacts are not expected due to the protection and mitigation measures being implemented in full.

Future prescribed burning within the analysis area would have reduced impacts to water and fisheries resources by preventing large catastrophic wildfires that could result in overstory mortality, severe soil damage and sedimentation of stream channels. Restrictions (primarily fencing and grazing strategies) on domestic livestock grazing due to the three listed fish as well as Biological Opinion (BO) monitoring requirements have reduced impacts to riparian areas and stream channels that may effect fish distribution downstream of the Mt. Emily Project. Recreation activity has remained relatively high in the project area primarily centering on hunting, mushrooming, huckleberrying and viewing the Grande Ronde Valley. Forest standards on location of all types of user trails and ATV use have reduced, and would continue to reduce impacts to riparian areas and stream channels. Continued implementation of these forest management practices are not expected to cause adverse effects on water, riparian and fish resources.

Road densities within the analysis area are currently at or below LRMP standards. Overall, there is a strong effort to reduce the magnitude of cumulative effects due to road surface erosion. Reconstructing roads reduces sediment yields by allowing adequate road drainage to be installed and eroding road beds to be fixed. Both action alternatives would reconstruct 2.5 miles of road to bring it back up to its current maintenance level, which would improve drainage and erosion problems and decrease sediment delivery to the streams. The overriding effect of the proposed reconstruction would be beneficial to water quality, fisheries habitat and riparian habitat for the fish population located from a mile to 2.5 miles downstream of the RHCA treatment units in the project.

## **B. Fish Habitat and Populations**

### **ALTERNATIVE 1 – NO ACTION**

#### **Direct and Indirect and Cumulative Effects**

There are no direct effects on instream fish habitat or populations as a result of the No Action alternative. Effects related to this alternative on fish habitat and populations are primarily indirect in nature. Riparian habitat will be maintained in its current condition.

While the potential impacts described above from the Mt. Emily Project would not occur under this alternative, neither would the restoration activities which would reduce sediment delivery, rehabilitate problem areas in roads, reduce access and potential impacts to sensitive riparian areas and fisheries and no acceleration of large wood recruitment and cover would occur. However, past and present disturbances from roads, timber harvest, grazing, fire and recreation would continue. As the area continues to be at risk to wildfire, and increases in susceptibility to insects it would be considered again for entry long before the 20 years described as the objective under the action alternatives.

### **ALTERNATIVES 2 AND 3**

#### **Direct and Indirect Effects**

No direct effects on fish habitat are expected from the implementation of any action alternative described with this project. The location of activity away from perennial stream channels, adequate riparian buffers (RHCA's), and timing of activities in relation to soil and moisture conditions would prevent direct adverse effects to fish habitat, and fish populations. Potential adverse effects such as increased sediment yield and direct channel sedimentation, removal of large woody material from the channel, disturbance of spawning areas, and any instream impacts are not expected due to the

protection and mitigation measures being implemented in full (Specific Mitigation Measures Section) and no fish populations in the project area. The primary indirect effects to fish populations that could occur as a result of the Mt. Emily Project are effects to water quality, from sediment delivery, as described above.

There are 84 units with RHCA treatments in the Mt. Emily Project (Appendix A of fisheries effects in analysis file). RHCA treatments would include hand cleaning and piling with a no cut buffer of 25 feet on both sides of Class III (non-fish bearing perennial) streams and 10 feet on both sides of Class IV (non-fish bearing intermittent) streams. No trees greater than seven inches DBH would be cut. All trees would be felled by hand, and some slash would be piled by hand and burned inside the RHCA. No ground disturbance caused by mechanical equipment would occur in RHCAs. Potential adverse effects such as increased sediment yield and direct channel sedimentation, removal of large woody material from the channel, disturbance of spawning areas, and any instream impacts would not occur due to the protection and mitigation measures being implemented in full (Specific Mitigation Measures Section).

Alternative Two proposes hand cleaning (SCN), piling (RMP) and pile burning treatments in 79 units within RHCAs. These treatments contain 5.6 miles of Class III (non-fish bearing perennial) streams and 5.4 miles of Class IV (non-fish bearing intermittent) streams. Approximately 180 acres would receive a 25 foot no treatment buffer and 164 acres would receive a 10 foot no treatment buffer (Table 21). Alternative Three proposes SCN, RMP and pile burning treatments in 67 RHCA units. Treatments contain 5.2 miles of Class III (non-fish bearing perennial) streams and 4.9 miles of Class IV (non-fish bearing intermittent) streams. Approximately 162 acres would receive a 25 foot no treatment buffer and 145 acres would receive a 10 foot no treatment buffer (Table 10). In each of these units, achievement of RMOs for shade, cover and large wood recruitment would be accelerated approximately 20 years with the restorative treatments prescribed.

Alternative Two proposes prescribed burning in 79 units for a total of 344 acres of RHCA treatments and Alternative Three proposes prescribe burning in 67 units for a total of 307 acres of RHCA treatments (Appendix A of fisheries effects). Prescribed fire ignition will not occur within 150 feet of any perennial and/or fish-bearing stream and within 100 feet of any intermittent stream. However, low and moderate intensity fire would be allowed to back into the riparian areas. Fireline construction disturbs the soil and could expose bare mineral soil that would be susceptible to soil erosion and could potentially result in sediment inputs into the stream. In the Mt. Emily project fireline will only be constructed where needed and will be restored to pre-disturbed condition after use. Reducing these fuels would enhance forage habitat and increase overstory growth rates by making nutrients readily available after burning is completed. This would set the environmental baseline to a condition that is within the historic range of variability. Potential adverse effects such as increased sediment yield and direct channel sedimentation, removal of large woody material from the channel, disturbance of spawning areas, and any instream impacts are not expected due to the protection and mitigation measures being implemented in full (Specific Mitigation Measures Section).

**Table 21. Summary of Units Proposed for RHCA Treatment for each Subwatershed**

SWS	Number of Units Treated		Total RHCA Acres Treated		Class III miles in RHCA Treatments		Class IV miles in RHCA Treatments		No Treatment Buffer Acres				Miles from Occupied Fish Habitat
									25 foot		10 foot		
	Alt 2	Alt 3	Alt 2	Alt 3	Alt 2	Alt 3	Alt 2	Alt 3	Alt 2	Alt 3	Alt 2	Alt 3	(Miles From)
17E	5	5	43	43	0.1	0.1	1.6	1.6	2	2	41	41	1.5
84G	36	22	198	166	4.4	4.0	1.9	1.4	139	123	59	43	1.0
84H	19	19	44	44	0.6	0.6	0.6	0.6	22	22	22	22	2.5
87C	19	21	59	54	0.5	0.5	1.3	1.3	17	15	42	39	0.8
Totals	79	67	344	307	5.6	5.2	5.4	4.9	180	162	164	145	.8 to 2.5

Removal of trees and burning of small fuels within the RHCAs would not prevent the attainment of Riparian Management Objectives (RMOs). The removal and burning of standing dead and down trees within RHCAs would accelerate tree growth (by 20 years), aid in conifer regeneration, and reduce the risk of intense wildfire. No treat RHCAs implemented in all other units should maintain riparian habitat in its existing condition. Implementation of either action alternative should improve riparian habitat.

Burning in these specific units would not increase the potential for impacts. Supporting criteria include timing of prescribed burns during periods when weather is cool and relative humidity is high (spring and fall), wind speeds are low, and fuel moisture conditions are appropriate to meet project objectives and prescriptions for each unit. There would be no measurable changes in sediment delivery rates and no direct impacts on stream shade or bank stability due to site specific igniting location and firing techniques identified by fuels, watershed and fisheries specialists.

## **Cumulative Effects**

See Cumulative Effects under Water Quality above.

## **Issue: Forest Health/Vegetation Management**

### ***Introduction***

This section will address the key issue of managing wildfire risk on Forest lands of the Mt. Emily Wild land Urban Interface via the statement - "Overstocked stands need density reduction to remove ladder fuels, standing dead, and down fuels, to reduce the risk of uncharacteristic wildfire." The key indicator for alternative comparison is "acres of reduced risk of uncharacteristic wildfire."

*Silvicultural Objectives of proposed treatments* - The objectives of treatments are to reduce overstocking to levels consistent with the capability of individual plant communities to support them and to thereby reduce the amount of tree suppression in multi-layered stands that are now more susceptible to disease, stand replacing fires and insect outbreaks. Reducing the amount of Douglas -fir and grand fir, and increasing the amount of western larch and ponderosa pine, is also an objective to reduce the incidence of root rot caused damage.

### **ALTERNATIVE 1**

## **Direct and Indirect Effects**

No steps would be taken to control stocking levels and thereby reduce the presence of ladder and down fuels. As a result a variety of effects to the areas vegetation can be expected:

- 1) Increased risk of high-intensity wildfire through continued build-up of dead fuels.
- 2) Increased multi-layering within stands and susceptibility to crown fires, spread of root diseases, dwarf mistletoe and risk of future tussock moth and western spruce budworm defoliation.

Following is a description of the biophysical groups in the area, including a general condition of each:

Cold/Dry Subalpine fir Groups (G1, 2) - 932 acres

This higher elevation group typically has a mix of grand fir, subalpine fir, Engelmann spruce, western larch, Douglas -fir and lodgepole, much in a multi stratum condition susceptible to insect/diseases and stand replacement fires. No acres would be treated and approximately 600

acres of these stands would remain in a low vigor condition, many with elevated fuel loadings due to die-off of subalpine fir from the balsalm wooley adelgid, root disease and blowdown. Tomentosus root/butt disease and subsequent breakage would continue unabated in engelmann spruce. Fire and insect/disease risks would increase. Structural stages would mostly be multi-stratum with large trees (MSLT) and understory re-initiation (UR), until a stand replacement wildfire creates stand initiation (SI) conditions. No actions would be taken to facilitate development of late and old structure, however, (LOS) is currently 612 acres above the average historic range of variability (HRV).

#### Cool, Dry-Wet Grand Fir Group (G4) – 3,637 acres

This group typically has a mix of grand fir, Douglas-fir, western larch, ponderosa pine and lodgepole pine, with occasional spruce near the riparian areas. Density related mortality and root diseases would continue to increase and much of the understory component would be suppressed. Note that armillaria root disease was observed in ponderosa pine as well as Douglas-fir and grand fir in this group. No acres would be treated and approximately 2,500 acres of these stands would remain overstocked and in a condition of low vigor, until a disturbance occurs. Under this alternative, stands in the group would experience reduced growth and an increased spread of insect and disease (particularly root disease and dwarf mistletoe) damage and wildfire. Competition would also affect the larger tree component by increasing their risk of mortality. There would be a delay in attaining a healthy viable structural condition in these stands. Fire and insect and disease risks would not be reduced and structural stages would be mostly understory re-initiation until a wildfire creates stand initiation conditions.

#### Warmer Grand Fir/Douglas-fir Groups – Hot/Dry Ponderosa pine. (G5, G6, G7 and G8) - 951 acres

In this group, fir would continue to occupy parts of Warm/Dry types reducing the regeneration of desired larch and ponderosa pine. Without some type of disturbance these stands would continue to have an excessive fir (ladder fuel) component. No acres would be treated and approximately 600 acres of these stands would continue to exhibit reduced growth rates and become more susceptible to diseases and insects. Fire and insect/disease risks would increase and structural stages would be largely understory re-initiation and multi-stratum with large trees. Fuel loadings would continue to be excessive and contribute to higher fire intensities than those that would have occurred historically.

## Cumulative Effects

The logical resource unit for cumulative effects on this resource area is the project area plus the adjacent private and industrial lands between Hunter and Fruitdale lanes to the NFS boundary.

Under this alternative, overstocked stands would not be treated, nor would other stands with excessive standing and down dead fuels. This alternative would result in continued decline in overall forest health as described by stand and tree health, and increases in fire intensity should there be a wildfire. 3,700 overstocked acres would continue to be selected for natural stocking reduction by insect and disease. There would be an increased potential for spread of insect and disease damage to adjacent private and industrial forest lands. The warmer biophysical groups would continue to be in an overstocked, low vigor condition. The risk of damage from defoliators (e.g. western spruce budworm and Douglas-fir Tussock moth) the balsalm wooley adelgid, root rots, dwarf mistletoe and bark beetles would increase. Accelerated growth to trees would be foregone and movement towards larger diameter trees would be delayed. The desired future condition of meeting stocking levels and species composition objectives are not addressed by this alternative.

## **ALTERNATIVES 2 AND 3**

### **Introduction**

Action Alternatives Two and Three are compared by the key indicator –“Overstocked stands need density reduction to remove ladder fuels, standing dead, and down fuels, to reduce the risk of uncharacteristic wildfire.” The key indicator for alternative comparison is “acres of reduced risk of uncharacteristic wildfire.” Risk of uncharacteristic wildfire are measured by parameters such as crown base height, crown bulk density, and flame length which are modeled for representative stands and described in detail in the Fuel Effects document in the Analysis File.

Treatment under Alternatives Two and Three would address the desired condition to maintain tree stocking at acceptable levels and species composition within the historic ranges that are sustainable. Treatment in these alternatives would reduce densities and create conditions favoring establishment of larch and pine, where applicable. Treatment in both action alternatives would provide stocking levels and trend towards a species composition compatible with site potential to promote healthy, vigorous, stand conditions and reduced probability of damaging wildfire. Treatment in these alternatives would accelerate movement of the landscape toward structural stages and patch sizes that are within the HRV.

### **Direct and Indirect Effects**

#### Cold/Dry Subalpine Fir Group (G1, 2)

Treatments in this group would remove suppressed trees, reduce basal area to an acceptable density, and remove trees (less than 21” DBH) with poor live crown ratios (generally less than 30 -40% live crown ratio). Treatments would reduce the risk of insect and disease problems for 20-30 years in alternative 2 and 10-15 years in Alternative Three.

- Alternative Two treats 277 acres in overstocked stands in G1 and 43 acres in G2
- Alternative Three treats 270 acres in overstocked stands in G1 and 43 acres in G2

Alternative Two treats seven more acres than Alternative Three in this biophysical environment. This margin is so slim when spread across the 7,295 acre analysis area that effects of treatment when comparing alternatives are negligible.

Fuels Reduction Units (HFU) in this biophysical group would immediately effect a change in fire behavior by reducing the rate of spread and intensity. Treatment would reduce standing and down dead fuels and ladder fuels. This treatment would reduce rate of spread and intensity and also help reduce the risk of fire consuming the healthy, residual stand.

Removing the dead, ladder fuels would provide reduced fire risk for over 20 years (based on Forest Vegetation Simulation (FVS) from sampled stands; see spreadsheets in Appendix C) in Alternative Two and 10-15 years in Alternative Three. (These estimates are based on years to attain a basal area greater than the ULMZ).

#### Cool, Dry-Wet Grand Fir Group (G4)



Photos of biophysical group G4

Treatment under both action alternatives in this group would reduce stand densities with commercial thinning from below and stand cleaning of precommercial sized material. In addition, strategic locations would have roadside and ridge treatments to remove dead standing and down fuels. These treatments would enhance stand and landscape health, while helping to create conditions in some stands that would allow a healthy seral species understory to develop. Many of these stands would provide large structure single and multistory canopy across the landscape. Treatments would reduce the risk of insect and disease problems for 20 years in Alternative Two and 10-15 years in Alternative Three.

- Alternative Two treats 1295 acres in overstocked stands.
- Alternative Three treats 1131 acres in overstocked stands.

Fuels reduction (HFU) treatment would reduce standing and down dead fuels to less than 25 tons per acre. Treatment would cause a change in fire behavior by reducing rate of spread and intensity. This treatment would help to reduce the risk of fire consuming a healthy, residual understory. Removing the dead, ladder fuels and suppressed green trees less than seven inches in diameter would provide reduced fire risk for 10-20 years depending upon the level of removal.

Intermediate treatments such as thinning would reduce existing tree density but could lead to long term insect and disease impacts and higher fire risks if stands are allowed to proceed toward shade tolerant species. This condition would prevail until a disturbance creates openings that fill in with seral species.

#### Warm Grand Fir/Douglas-fir and Hot, Dry Ponderosa pine groups (G5, G6, G7 and G8)

Photo of biophysical group G5



Treatments in this group would provide more disease resistance and develop stand structures more consistent with natural disturbance regimes. Many of these stands would begin to provide more open conditions dominated by ponderosa pine, with Douglas-fir and western larch. Post harvest burning of these stands would play an important role in maintaining reduced fuel conditions. Density levels, as well as the amount of grand fir and Douglas-fir in the stands, would be reduced. Treatments would reduce the risk of insect/disease problems for 20 years in Alternative Two and 10-15 years in Alternative Three.

- Alternative Two treats 354 acres in overstocked stands.
- Alternative Three treats 295 acres in overstocked stands.

Fuels reduction units (HFU) in this group would effect an immediate change in fire behavior by reducing rates of spread and intensity and create conditions that support desirable fire behavior. Treatments would provide a reduced fire risk for 20 years or more.

**Blow down Potential** – The potential for blow down in treatment areas was evaluated for each action alternative (there would be no increase of potential blow down under Alternative One). The potential for blow down is higher in stands that are adjacent to previous clear cuts from the Fiddler and Big Valley Timber Sales. Units affected are located in the south half of the project area primarily in priority treatment areas two and three. This determination is based on field observations and documented in a memo to the analysis file under silviculture.

The blow down potential is based on exposure to winds (including observations that Mt. Emily is prone to high wind events), occurrence of Englemann Spruce (a shallow rooted species), evidence of tomentosa root and butt rot in Englemann Spruce and Sub-Alpine fir mortality due primarily to Balsalm Wooley Adelgid (an aphid).

The project activity most likely to affect risk of blow down is thinning of commercial size trees (over seven inches diameter). Other project activities would not contribute to an increased risk of blow down. Alternative Two would be more susceptible to blow down when thinned in the areas mentioned above. Alternative Two would leave fewer trees, increasing blow down susceptibility for the trees left standing. There is a moderate to high risk of blow down within the first 100 feet adjacent to clear cut areas. Blow down risk in thinned areas under this alternative would persist until adjacent clear cut areas have regeneration tall enough to provide adequate protection from high wind events (estimated at 20-40 more years).

Stocking levels prescribed under Alternative Three would provide more protection from blow down when compared to Alternative Two. With additional protection from higher density levels left in high risk areas, the potential for blow down in both alternatives is greatly diminished. Blow down risk in thinned areas under this alternative is low to moderate within the first 100 feet adjacent to clear cut areas. In 20-40 years, tree heights of adjacent clear cut areas would further protect thinned areas from blow down risk.

Under both alternatives, Larch and ponderosa pine would be favored for leave trees. Larch and ponderosa pine are more wind firm than Englemann Spruce, Grand fir or Sub-Alpine fir. Leaving dominant trees of these species is less likely to result in wind throw as they are already exposed prior to the proposed thinning activity.

## Cumulative Effects

Overstocked stand conditions can have a major impact on landscape health and managements attempts to move toward desired future conditions (DFC). In a healthy landscape there are areas of high density and low vigor, but to develop the DFC on a landscape level, many of the overstocked stands need to be treated. Both action alternatives would reduce densities, alter stand compositions and provide for a more sustainable landscape on approximately 28% of the analysis area for

Alternative Two and 24% of the analysis area for Alternative Three. Treatment under both alternatives would allow management to stay current with stocking and forest health needs and provide for a structure and species composition mix that is more sustainable.

Management on these acres would supplement fuels reduction objectives on adjacent ownerships. All private projects share a similar goal of treating fuels to reduce damaging wildfire potential. The cumulative effects of all projects would promote and encourage prescribed fire use in fire-adapted plant communities, accelerate development of LOS, reduce risks of insects and disease, promote sustainable species composition, and trend toward development of structural stages consistent with HRVs. The above projects would affect these impacts to the landscape for up to thirty years.

Both action alternatives would utilize, if possible sub-merchantable 4-7" dbh material (CHIP/PULP). Without utilization or slash treatment of sub-merchantable material fire hazard would be increased due to higher fuel loadings, and there may also be an increased cost to site preparation and/or a delay in acquiring acceptable regeneration. However, fuels reduction of this small material is planned on 2,041 acres in Alternative Two and 1,757 acres in Alternative Three.

## ALTERNATIVE TWO

This alternative is designed to alter stand densities, structures, and species composition to improve overall tree vigor and ability of trees to withstand uncharacteristic wildfire, diseases, insects, and drought. This alternative treats the maximum number of stands with density related problems, increasing growth and yield, reducing competition, minimizing losses to insect and disease mortality and reducing fuel loadings and the risk of uncharacteristic wildfire. Thinning from below is targeted to the lower level of the management zone (LLMZ). This level varies by plant association from 13 square feet per acre in the Hot/Dry Pine type to 120 square feet per acre in the subalpine fir/queens cup bead lily plant association. A common target for most plant associations is 70 square feet per acre.

**TABLE 22**  
Summary of Acres Treated

Harvest Prescription	Acres Proposed
Commercial Thinning from Below (HTH)	1,669
Fuels Reduction (HFU)	1,969 (Includes the 1,669 ac. above)
Stand Cleaning (SCN)	1,669 (includes both categories above)

**Alternative Three:** Similar to Alternative Two but thinning from below is to higher residual tree stocking levels to maintain additional wildlife cover in selected stands. Target levels are typically the mid point between the ULMZ and LLMZ. Where model results showed that fuels objectives would be met by thinning to the ULMZ, the ULMZ was selected. Basal areas are typically 120 -130 square feet per acre.

To restore and maintain the landscape, silvicultural means would be used to modify and rejuvenate stand conditions. Commercial thinning (HTH), and harvest for fuels (HFU) are types of silvicultural methods that can improve landscape health, reduce the risk of insect mortality and wildfire, begin to provide a range of structures for the long term, release growth potential of the sites, and alter species composition. Treatments in stands, especially in the understory reinitiation stage, will anchor habitats of late and old structure across the landscape.

**TABLE 23**  
Summary of Acres Treated

Harvest Prescription	Acres Proposed
Commercial thinning from below to between the LLMZ and ULMZ	1,257
Commercial thinning from below to the ULMZ	229
Fuels Reduction (HFU)	1,739 (Includes the acres in above categories)
Stand cleaning (SCN)	1,739 (Includes all categories above)

#### **Associated Projects**

Following are the silvicultural effects of the associated projects , required KV, enhancement and mitigation measures:

- Cleaning treatments (non-commercial thinning, cleaning) –would have positive silvicultural effects by reducing competition, increasing growth rates and helping to maintain a more desired species composition.
- Road reconstruction – There are no adverse silvicultural effects from this activity.
- Prescribed burning – Burning would provide for additional openings within stands to assist natural and artificial regeneration and reduce the possibility of fire damage to a residual stand. Alternative Two and three burn 1,622 acres. Approximately 400 acres would receive mechanical pre-treatment prior to burning.
- Inter-Planting - this would have positive silvicultural effects by providing regeneration in stands that have few viable seedlings or saplings, a structural component that is lacking in some stands, and tree densities at appropriate numbers. Both alternatives would have approximately 50 acres of planting resulting in similar effects.

## **Issue: Economic Effects**

### ***Introduction***

This economic analysis was completed to provide the decision maker an economic basis to consider for evaluation and comparison of alternatives. The primary purpose of the Mt. Emily Fuels Reduction Project is to modify vegetative conditions in the planning area which would directly affect fire behavior potential over time. A comparison of costs based upon anticipated treatments by alternative provides a relative measure of economic efficiency related to the effectiveness of treatments to risk reduction or fire behavior potential over time.

Both action alternatives were developed irrespective of cost, and focused primarily upon varied levels of vegetative treatments to alter fire behavior potential over time and to address issues identified in the scoping portion of the planning process. Action alternatives utilize similar methods of treatment common to fuels reduction projects, which includes biomass reduction with mechanical removal, mechanical treatment and burning, burning alone or combination of all. All treatment areas have the potential to provide forest products, which may be available to offset costs associated with the fuels reduction work. Mechanical removal treatment methods are limited in the priority one area due to topographic and access limitations, therefore costs are accordingly high in both action alternatives within the priority one area. Effectiveness over time is an important item for consideration, which is addressed in the fire and fuels effects analysis.

## Assumptions/Methodology

Treatments within both action alternatives include thinning to reduce ladder fuels and crown bulk densities, and removals to reduce fuel loadings. Thinning and removal may be achieved by mechanical means or through the application of fire. Alternative Two and Alternative Three have been developed with similar combinations of methods. Mechanical thinning provides the opportunity to select individual trees for retention in the future to meet overall objectives. Mechanical removal also would assure fuel loadings are adequately reduced to accept either wildfire or prescribed fire. Design of burn units without mechanical pretreatment along the face of Mt. Emily would be impractical because of heavy concentrations of fuels and slope position of treatment units.

The primary difference between developed action Alternatives Two and Three is the degree of thinning prescribed. Prescriptions in Alternative Two thin more aggressively throughout all tree size classes resulting in greater reductions in crown bulk densities, and a higher level of mechanical removal needs. Alternative Two also treats more acres overall than Alternative Three. There is also some variation in the areas treated within each alternative, i.e. Alternative Two treats portions of priority two area east of 3120 road, where as Alternative Three treats portions of priority two areas west of 3120.

Main cost factors evaluated by this analysis relate to the level of fuel treatment performed as well as to the method of fuel treatment utilized. Alternative Two thins more aggressively and would therefore necessitate greater volumes of biomass treatment. Overall removal treatment costs would rise as volume to be treated increases, especially where helicopter yarding systems are utilized. Helicopter yarding treatments on fuels reduction projects are a high cost item, as experienced on Washington Watershed Project and Elk Creek Fuels Project on Baker Ranger District of the Wallowa-Whitman National Forest.

This analysis will focus upon mechanical treatment costs with emphasis upon mechanical removal off site. Mechanical removal is an important aspect of the treatments in order to adequately meet fuels reduction objectives as well as protection of residual stand conditions for future management.

## Acres/Volumes/Removal Systems/Costs

Alternative Two treats approximately 1969 acres with mechanical treatments, either removal or pile and burn. Volumes are based upon trees anticipated to be cut and yarded which includes trees greater than 7 inches DBH on helicopter areas and trees greater than 5 inches on ground based areas.

	ACRES	Volume	Sawtimber	Non-saw
Helicopter Removal	762	18943 CCF	21890 CCF	3789 CCF
Ground Removal	1021	36483 CCF	15154 CCF	14593 CCF
No removal	186	0	0	0
TOTAL	1969	55426 CCF	37044 CCF	18382 CCF

Alternative Three treats approximately 1737 acres with mechanical treatments, either removal or pile and burn. Volumes are based upon trees anticipated to be cut and yarded which includes trees greater than 7 inches DBH on helicopter base removal areas and trees greater than 5 inches on ground based removal areas.

	ACRES	Volume	Sawtimber	Non-saw
Helicopter Removal	622	11318 CCF	7583 CCF	3735 CCF
Ground Removal	878	13378 CCF	8027 CCF	5351 CCF
No removal	237	0	0	0
TOTAL	1737	24696 CCF	15610 CCF	9086 CCF

Stump to truck ground based logging costs are based upon local experienced costs for typical treatments on La Grande Ranger District, Wallowa-Whitman National Forest. Typical costs are estimated at \$100/CCF for analysis purposes.

Stump to truck helicopter logging costs are based upon information obtained from a local helicopter logging contractor assuming an average flight distance of ½ mile and average tree size 12 inches for sawtimber material. Normal helicopter logging costs typically include only those costs associated with removal of bole wood from trees, i.e. no tops and limbs. When additional slash is required to be removed to the landing, costs can be expected to be 40 to 50 % higher. For this analysis, \$135/CCF is utilized for bole wood removal and \$205/CCF is utilized for whole tree removal.

TEA.ECON is the economic analysis tool utilized to perform this evaluation. TEA.ECON evaluates timber sale economics at the planning level. This spreadsheet tracks costs associated with the project and generates gross timber values. These timber values are used to provide a relative comparison of costs and possible needs for supplemental to implement the project.

#### Cost estimations – Alternative 2

	Stump to truck \$/ccf	Log Haul \$/ccf	Road Mt.c \$/ccf	Slash Work \$/ccf	Rd Work \$/ccf	Temp Rds \$/ccf
Ground Base	100.00	21.00	5.00	4.00	1.37	.01
Heli Base	205.00	15.00	1.00	12.07	0	0
Avg	135.89	18.95	3.63	6.76	.90	.01

#### Cost estimations – Alternative 3

	Stump to truck \$/ccf	Log Haul \$/ccf	Road Mt.c \$/ccf	Slash Work \$/ccf	Rd Work \$/ccf	Temp Rds \$/ccf
Ground Base	100.00	21.00	5.00	4.00	1.37	.01
Heli Base	205.00	15.00	1.00	19.82	0	0
Avg	148.12	18.25	3.17	11.25	.74	.01

## Effects Analysis

### ALTERNATIVE 1

Alternative One is the no action alternative. Timber sale viability is a non-issue as there would be no sale.

### ALTERNATIVES 2 AND 3

## Direct, Indirect and Cumulative Effects

The area proposed for treatment within the Mt. Emily project was analyzed for timber sale viability. A timber sale can accomplish a large portion of the vegetation management needs identified in the project area. Both action alternatives produce a significant amount of potential product. These products would be produced wherever trees are cut to meet stocking levels critical to fuels objectives and where mechanical fuels reduction methods with removal are used. Both action alternatives have been developed with varied levels of product utilization. Therefore, timber sale viability would be used as a relative measure of comparison to evaluate costs between alternatives.

The potential advertised rates per hundred cubic feet (\$/CCF) are calculated based upon estimates of volume, species composition, the amount of saw timber and non-saw timber material, logging system requirements, haul costs, contractual costs, and road construction costs.

The preliminary value of timber was based on the prices for the same species and saw timber/non-saw timber material of all sales actually sold within Appraisal Zone 3 (Malheur, Ochoco, Umatilla, and Wallowa-Whitman National Forests) during the last year. The estimated costs of logging for the

purchaser (logging systems and yarding costs, haul costs, road maintenance costs, road reconstruction costs, contractual costs and temporary road construction) were adjusted from the base period prices to determine the predicted bid rate.

The following table displays the total volume of products, acres treated by timber sale, indicated advertised rates and total timber value at indicated advertised rates, calculated bid rates, advertised rates, and base rates associated with each alternative.

Appraisal Entries	Alt 2	Alt 3
Volume (CCF)	55426	24696
Acres	1783	1500
Indicated advertised rate	-\$15.96	-\$33.89
Total timber value at indicated advertised rate	-\$884,575	-\$839,438

## Summary

Both alternatives would require supplemental funding in order to fully implement. Neither alternative would produce a viable timber sale opportunity as designed.

Alternative Two would cost more than Alternative Three to implement. Costs include work performed as well as value of product removed, which may be used to offset work. More acres are treated with Alternative Two than with Alternative Three. Effectiveness of treatments over time is expected to be for a longer time frame for Alternative Two than Alternative Three (see fuels effects analysis). Alternative Three would require future maintenance treatments sooner than Alternative Two.

Helicopter treatments are a significant cost item for both alternatives. Alternative Two has 762 acres of helicopter yarding vs. Alternative Three with 622 acres. Treatment costs may be reduced for both alternatives at the time of contract formation. Costs may be reduced by providing the "right mix" of removal with helicopter vs. slash treatment of pile and burn in the woods. This situation is common to both action alternatives. Also, it should be recognized that the priority one area has a high percentage of helicopter logging work. This area, if treated under a separate contract (as planned) would need a large amount of supplemental dollars in order to implement. Less expensive ground based areas within other priority areas and the positive value material would not be available at the time of contract award.

Small diameter treatments also significantly increase costs. Both alternatives treat similar amounts of small diameter material. Amounts differ by alternative by acres treated and not tree size within the individual units.

## Issue: Soil Quality and Productivity

### Introduction

Management activities can result in direct and indirect effects upon the soil resource. Processes known to cause the greatest adverse effects on soil physical, chemical, and biological properties include soil compaction, displacement, puddling, burning, erosion, mass wasting, and deposition/sedimentation. Direct effects of management activities commonly include compaction, displacement, puddling, and burning, which may include loss of organic ground cover. Erosion, mass wasting, deposition/sedimentation, and changes in water table, soil biology, organic detritus recruitment, and fertility (such as the fertilization effects of ash the year after a light intensity fire) usually occur as indirect effects.

The primary concern is the impact of direct and indirect effects of management activities on soil quality, productivity and soil stability (*Forest Plan Soils Standard and Guideline #1*).

## EFFECTS ANALYSIS

### Direct and Indirect Effects on Soils Quality and Productivity

#### ALTERNATIVE 1

The potential for high intensity wildfires in the absence of density management would remain elevated. In the event of a wildfire, the potential effects upon soil productivity, extent of post-fire soil erosion, and the ability of the soil to recover from these impacts would depend upon the intensity and duration of the fires. The ability of the soil to recover depends upon the soil's residual organic content, post-fire erodibility, and the speed with which groundcover is established. High intensity wildfires could reduce the long-term site productivity of the soils by removing large downed woody debris and surface organic matter. Surface soils and their associated nutrient reserves could also be lost through increased erosion as a result of cover loss and reduction in infiltration capacity.

There would be no direct increase in detrimental soil conditions (DSC), compaction, displacement, or puddling, if this alternative were implemented. In the absence of land management, soil productivity within these units would continue to improve (20 to 50 years or longer). Compaction and displacement is being ameliorated through natural restoration processes, for example freeze/thaw, tree root expansion, ground cover root mass expansion, and organic matter, leaf, and litter layer development. The project area has very little DSC based on the Level I surveys and where it occurs is only in isolated spots.

The Mt. Emily Analysis Area is generally a stable landscape, except the areas underlined with soft clay producing bedrocks. However, if a high intensity wildfire were to occur, soil properties could be severely altered and damaged. These situations could, in turn, lead to reduced site productivity, increased sediment production, and reduced water quality. The likelihood of increased mass failure following a stand replacement fire event within the analysis area is low given the stability of the area, and the limited areas underlined with soft clay producing bedrocks.

#### ALTERNATIVE 2

Soils issues relating to soil productivity and disturbance are analyzed by each potential ground-disturbing activity proposed. Elements that affect soil productivity include: sheet and rill erosion, gully erosion and landslide erosion, organic matter loss, and the amount of large woody material left. Disturbance elements include compaction, displacement, puddling, and severe burning.

Direct impacts could be from sheet and rill erosion, gully erosion and landside erosion, soil compaction, displacement and puddling. Indirect affects are the reduction of organic matter and large woody debris.

**Sheet and Rill Erosion**--Soil erosion is a natural process that can be accelerated by land management activities. Soils on steep slopes with poor vegetative cover and lack of structural development are more susceptible to erosion than are soils on flatter terrain. Vegetation protects the soil surface from raindrop impact, dissipates the energy of overland flow, and binds soil particles together.

Slopes proposed for mechanical treatment, i.e., mechanized (grappler) fuel reduction are usually below 30 percent (with inclusions greater than 30%) and have well-established existing groundcover. Ground cover within these treatment areas exceeds 85 percent (see soils existing conditions report). Major soil complexes represented within the analysis area exhibit moderate permeability rates and are well drained. It is not anticipated that the proposed mechanical treatment activities would increase surface erosion given the high infiltration rates, relatively flat topography, and density of

effective ground cover. Mitigation measures would be imposed to minimize the potential extent of bare ground exposed during skidding, mechanized fuel reduction operations, or cable or helicopter yarding.

Groundcover on lightly used summer skid trails (1 or 2 passes) is not anticipated to be reduced along the entire length of the trail because operations would occur over slash mats (if using in-woods processors), or the material would be whole-tree-yarded. Protection of groundcover would reduce surface erosion and protect soil productivity. Groundcover along a greater length of main skid trails would likely be reduced. This impact would be mitigated through the use of slash mats, designating skid trails, one-end log suspension, and ceasing operations if detrimental puddling or displacement becomes excessive.

Main skid trails would be reviewed for restoration needs following removal and fuel reduction treatments. Restoration may include constructing water bars, creating brush sediment traps, seeding or planting, tilling or subsoiling, or doing nothing depending on the extent and amount of ground cover reduction. In the long-term, greater than 5 years, it is anticipated that ground cover would become re-established, with or without post activity restoration.

Reintroduction of prescribed burning (ranging from low to moderate intensities) would occur under a variety of slope conditions. Surface soil erosion potential is not changed as a result of fire (*Bliss, 2000*). Natural fuel reduction prescriptions call for light/low underburn intensities. More than 80 percent of the burned area would exhibit light-intensity burn conditions. Vegetation that has been burned at a low intensity exhibits the following characteristics:

- Surface duff layer charred by fire, but not removed.
- Less than 15 percent moderately burned and less than 2 percent severely burned sites (*USDA, Forest Service, Wallowa-Whitman N.F. 1988 and Forest Plan, Page 4-22*).
- Root crowns and surface roots of perennial grasses are not dead; current and previous year's growth may be completely consumed.
- Short, thin-barked shrubs and trees are often burned or needles/leaves are heat-killed. Trunks of large trees may be lightly charred, but the cambium layer is unaffected. Needles of lower branches may be heat killed.
- Short-term loss of some grass and litter cover; long-term loss of some shrub and short tree cover, no loss of large tree canopy covers.
- Duff, crumbled wood, or other woody material partially burned- logs not deeply charred.

The following guidelines would be imposed to minimize the effects of burning on the soils.

- Use existing roads or other natural barriers as firelines wherever possible.
- Rehabilitate firelines as soon as possible after burning.
- Cease direct ignition within the RHCA of streams channels or draws. Allow the fire to back down into these areas.

It is not anticipated that prescribed fire of low intensity would result in long-term alteration of soil chemical or physical properties. Detrimental soil conditions resulting from prescribed burning under controlled conditions would be small, as burning activities would not take place if burn parameters were outside prescription. The highest likelihood of occurrence of detrimental soil conditions would be in localized areas of heavy fuel concentrations (primarily associated with harvest generated slash or old slash piles). Long flame lengths and high residence times could cause severe burning of soils. However, severe soil conditions are not expected to exceed 2 percent of the land base, be well distributed throughout treatment areas, and be relatively small in size. As such, discrete areas of severely burned soils would recover naturally over time.

Activity-generated slash (activity fuels) would be treated in all thinning units. Underburning consists of burning slash concentrations and would occur on approximately 1,620 acres under both action alternatives.

Road maintenance, reconstruction and closing ineffective closed roads would improve soil productivity in the long term. Road maintenance reduces road-related sediments by shaping the roadbed and cleaning drainage structures. Closing roads reduces road-related sediment because roadbeds are waterbared, allowed to re-vegetate, and are not used while wet (reducing rutting and water channelization). Road reconstruction would produce a short-term increase of erosion until the cut banks and fill slopes have vegetated. Road maintenance is estimated at approximately 14.50 miles resulting in reduced sediment sources. Re-establishing road closures would occur on approximately 3.57 mile within the project area. Application of best management practices and mitigations assist in reducing impacts of these activities.

Reconstruction would occur on 2.5 miles of the 3120500 road. Temporary road construction is estimated at approximately 1.0 miles (one road segment). The segment of Road 3120500 would have a greater chance of producing sediment and erosion from the cut slopes, as the average slope is 15 to 20 percent. The reconstruction would have an impact for 1 to 2 years, until vegetation is established; after that there would be little impact from this reconstructed road. The temporary road construction would have the same impact as the road reconstruction, until vegetation is re-established following obliteration.

**Gully and Landslide Erosion**—As noted in the existing condition discussion, the project area is in generally a stable landscape. The potential for landslides to occur is generally low.

Intermittent tributaries and ephemeral swales are found within most units. The swales have good establishment of vegetation and ground cover and are not showing signs of conversion to intermittent channels. Vegetation regrowth and biological activity is breaking up the surface compaction (0-4 inches) of soil on the historic skid trails.

The following mitigation measures would be implemented to ensure long-term soil productivity:

- Limit equipment crossings of the draws (ephemeral swales), adhering to Blue Book standards; sale administrator would approve any crossing.
- Pre-designate skid trails. Adhere to Blue Book standards for skidding operations adjacent to the draws.

It is not anticipated that prescribed fire (landscape and activity fuel) of low intensity would result in increased gully and landslide erosion. Refer to discussion of "Sheet and Rill Erosion" above.

**Organic Matter and Large Woody Material**—Organic surface litter and duff currently approximates 0.25-2.0 inches in depth within the units proposed for treatment. Amounts of down woody material are variable across the entire unit. Vegetation management (fuels reduction) would retain down wood at levels specified in the Forest Plan "Screens". All sale activities would maintain snags (see mitigation measures, chapter two) and green tree replacement trees.

Fuel treatments and prescribed fire may result in shortages of down wood in the short term. However, prescriptions would attempt to minimize consumption of large diameter logs by achieving low fire intensities. Burning prescriptions would be designed so that consumption would not exceed 3 inches total (1 ½ inch per side) of diameter reduction in the featured large logs (*Forest Plan*). Depending on specific conditions during burning, log consumption would occur in a mosaic pattern.

Fuel treatments may also result in the short-term reduction of surface soil organic matter. Under light burn intensities; the litter/humus layer is expected to remain partially intact. Potential surface erosion would not change as a result of the burn.

Whole-tree yarding would have an impact on the organic matter left on the site. Under this method of logging the entire tree (with limbs attached) is removed and concentrated at the landing. In the long term

(greater than 3 years) there would be a reduction of organic matter on the unit.

**Soil Compaction and Displacement**-- Ground based equipment has the potential to cause detrimental soil compaction and displacement and subsequently reduce site productivity. Soil compaction is the result of an increase in the density of the soil due to applied loads, mechanical pressure or vibration. Soil compaction increases soil density, reduces soil porosity, and consequently affects air and water movement within the rooting zone. This limits root development and affects the volume of soil available for plant growth. Displacement is the physical removal of soil from one place to another by mechanical forces. Removal of surface soils (displacement) reduces amounts of available nutrients and affects soil biological activity.

Level I Surveys field observations were done for all units proposed for treatment. They indicated that there was little or no soil compaction. All units are estimated to be at 0-5% DSC existing condition (see existing soils existing condition in the analysis file). Mitigation measures in chapter two are designed to prevent DSCs from exceeding 20%. Should DSCs exceed 20% on any treatment unit due to unforeseen circumstances, a restoration plan would be implemented. Restoration may include subsoiling, seeding, pull berms back, reforestation, or other means designed by the Silviculturist and/or Soil Scientist.

The use of lightweight (low ground pressure) equipment on designated and existing skid trails is not anticipated to measurably increase detrimental soil conditions. Based on the type of equipment used, the operator's and sale administrator's adherence to mitigation measures, and the implementation of restoration activities (where needed) it is the professional judgment of the soil scientist that the activities proposed would result in minimal measurable increase in detrimental soil conditions. Natural restoration activities would move the unit toward an improving trend over the next 5-20 years.

Grapple-machinery used for piling is not expected to exceed Forest Plan standards and guidelines for DSC's. It is not anticipated to measurably increase detrimental soil conditions because, the operator would use pre-existing skid trails and the machine has low ground pressure. This determination is based on the type of equipment used in the past, the operator's and sale administrator's adherence to mitigation measures, and the implementation of restoration activities if needed. Once these activities are completed, natural restoration activities would move the soils toward an improving trend over the next 5-20 years.

Grapple piles are generally scattered throughout a unit. These piles are generally larger than hand piles; they are often windrowed rather than heaped, reducing the impacts of burning. Burned grapple piles are not as damaging to soils as burned piles at landing sites and soils would recover faster (within 3-5 years).

Studies have documented the impact of commonly used equipment on soils. Largest increases in soil bulk density generally occur during the first five passes when using feller bunchers or rubber tired/tracked skidders. However, detrimental compaction was not encountered with 1-4 passes of the feller buncher or conventional skidders (*Zaborske 1989*). *Froehlich (1978)* found that soil density at the 2-inch depth increased greatest during the first two passes with little change in density after 6 passes. At the 10-inch depth, *Froehlich (1978)* found little change in soil bulk density regardless of the number of passes. *McNeil (1996)* found that feller-bunchers compacted 10 to 20 percent of the activity areas on the Malheur National Forest in eastern Oregon. Degree of compaction from summer logging over dry ground was significantly reduced when equipment was operated over slash (*Froehlich 1978; Zaborske 1989*). Harvester/forwarder operations on the Limber Jim Fuel Reduction Study conducted on the La Grande Ranger District (1998) resulted in detrimental soil conditions on 3 to 8 percent of treated stands. In comparison, harvester/skidder operations resulted in approximately 20 percent of the treated areas in detrimental conditions (*McIver 1996*). The grappeler used in piling produces little change in soil bulk density as it is more like low ground pressure equipment.

There is little impact on soil from cable or helicopter logging, as the impacted areas are small compared to use of skid trails. Landing sites may be larger, but generally located on or along roads, areas that are

already compacted. A number of landings are associated with either cable or helicopter yarding for this project.

Effects of mechanical crushing include soil productivity loss through compaction or displacement. If mechanical crushing treatments were prescribed, equipment would be limited to existing skid trails on slopes less than 30 percent with a slash mat sufficient to buffer the equipment weight. These skid trails would be the same ones used for harvest operations. No observable change in soil compaction or displacement was noted with equipment use over a sufficient slash mat.

Whole-tree yarding and leaving the top attached may increase detrimental soil compaction, as the skids trails are usually less than 100 apart. Landing sites would need to be expanded to accommodate the accumulated slash, therefore increasing the DSC at landing sites.

It is anticipated that the units (even with the availability of existing skid roads and landings) could experience a 3 to 8 percent increase in detrimental soil conditions (*McIver 1996*). Added to the existing condition of 0-5 percent DSC, Forest Plan standard of 20% detrimental soil condition is not anticipated in any mechanical treatment unit. Adherence to the mitigation measures (see Chapter Two) is integral to the validity of this assumption. Unacceptable compaction and displacement is not anticipated to be of concern within the remainder of the proposed units for treatment.

It is not anticipated that the prescribed burning and activity fuels of 1,620 acres with low burn intensity would result in long-term alteration of soil chemical or physical properties.

**Puddling**—Puddling would occur at isolated locations in association with roads where vehicles had used the native surface during wet conditions. Detrimental puddling is not expected to occur within activity units if mitigation measures are adhered to.

### **ALTERNATIVE 3**

Alternative Three is very similar to Alternative Two, with the same types of treatments proposed across the landscape. The only difference is the aerial extent of proposed ground based treatment. Alternative Two proposes 1,021 acres of ground based removal, Alternative Three proposes 878 acres of ground based removal. These activities have the greatest potential to increase DSCs across the landscape, if the mitigation measures are not applied. Burning would have the same impacts as Alternative Two, as approximately the same acres would be burned. This alternative would have less impact on the landscape as there are fewer acres proposed for treatment.

## **Cumulative Effects on Soils Quality and Productivity**

### **ALTERNATIVE 1**

There would be no direct increase in detrimental soil conditions (compaction, displacement, puddling) if this alternative was selected. Existing conditions would remain the same in the short term. Mechanical soil damage that currently exists as a result of previous entries would recover naturally over the next 20 to 50 years, or longer.

Soil structure and productivity would continue to be altered by on-going activities. On-going activities in the subwatersheds include, but are not limited to, minor livestock grazing, reconstruction of stock watering facilities, off-road vehicle use, hunting, recreation, firewood collection, and vehicle use of roads when the roads are wet or soft. These actions are dispersed throughout the planning area with detrimental soil damage most evident where use is concentrated and the acreage is minimal within the project area. Since these actions are ongoing, detrimental soil conditions associated with these activities are not being ameliorated and would persist into the future.

## **ALTERNATIVE 2**

In addition to the identified effects of the proposed action as described above, there would be additional cumulative effects on the soils resource as a result of the on-going activities within the analysis area. Activities of hunters, firewood cutters, other forest users, and domestic grazing contribute to the amount of soil damage within the Mt. Emily project area. These activities would continue into the future. The human impact (hunters, firewood cutters, and other forest users) to the soils resource would be concentrated in discrete areas and would not likely add appreciable amounts of soil damage above present levels. In the terms of snags and large down wood retention, closing ineffectively closed roads would help to limit firewood availability, especially in deficient areas.

There is no overlap of activity and therefore no cumulative effects of domestic grazing associated with underburning (as it relates to surface erosion). No detrimental soil conditions are expected from the Boundary Fuels Reduction project as no mechanized equipment would be used (hand tools only).

## **ALTERNATIVE 3**

Cumulative effects are similar to those described under Alternative Two as treatment is similar, with the exception of fewer acres impacted by treatments.

## **Issue: Proposed, Endangered, Threatened, and Sensitive Species (PETS)**

### ***Introduction***

Evaluation of effects to terrestrial PETS species is discussed below and covered in the biological evaluations and assessments for PETS wildlife and plant species, residing in the analysis file of this project. Evaluation of effects to aquatic PETS species has been covered earlier under "High water quality, fisheries, and riparian habitat".

### ***Effects Analysis***

#### **A. Plants PETS**

##### **Direct, Indirect Cumulative Effects**

There is no known potential habitat or species within the project area for federally listed threatened, endangered, or proposed plant species. There are no direct, indirect or cumulative effects.

Only one currently listed Region 6 Sensitive plant species is documented within the Mt. Emily Fuels Reduction analysis area; located outside of all proposed activity for both action alternatives. No new populations or species were found during field surveys. Because project activity is outside of the sensitive plant species location, there are no direct or indirect effects from either alternative.

The cumulative effects logical resource boundary is the project area boundary. There are no cumulative effects from Alternative Two/Three or from livestock grazing in the Tie Creek allotment. The only listed sensitive plant species is outside of all these activities and all federally listed plant species are as well.

#### **B. Wildlife PETS**

The following endangered, threatened or sensitive wildlife species are on the Regional Forester's sensitive species list. They were selected for discussion because they are known or suspected (based on habitat

characteristics) to exist within the Mt. Emily project area. (Refer to Wildlife Biological Evaluation and the Lynx Biological Assessment in the Analysis File for specifics related to TES species).

## Direct Indirect and Cumulative Effects

### ALTERNATIVES 1, 2 and 3

#### Federally Listed Species

##### Northern Bald Eagle

The bald eagle is classified as threatened under the Endangered Species Act. The Existing Condition report for this project identified potential habitat for Northern bald eagle. However, once the analysis area boundary was finalized no potential habitat for bald eagles remained within or immediately adjacent to the analysis area. All identified bald eagle habitat exists several miles to the west in the lower Five Points Creek drainage. Therefore, this project will have “no effect” on bald eagles.

##### Gray Wolf

The gray wolf is listed as endangered under the Endangered Species Act. Gray wolves are not believed to exist in Oregon with the exception of an occasional stray from the experimental population in Idaho. No populations currently occupy these forests; no denning or rendezvous sites have been identified or are known to exist on the Wallowa-Whitman National Forest (USFWS Reference #1-7-04-SP-0098).

Generally, land management activities are compatible with wolf protection and recovery, especially actions that manage ungulate populations. Habitat and disturbance effects are of concern in denning and rendezvous areas. No such habitat is currently occupied in Oregon. Therefore, this project will have a no effect on gray wolves.

##### Canada Lynx

The U.S. Fish and Wildlife Service proposed the Canada lynx for federal listing in March 1999. The lynx was listed in March 2000 as threatened. Lynx surveys were conducted on the Forest from 1999 through 2001 and no lynx were found (Schommer 2003). The Mt. Emily analysis area provides habitat for the Canada lynx (Grande Ronde River/Hilgard Lynx Analysis Unit and Meachum Lynx Analysis Unit). There are 7,209 acres of lynx habitat and all alternatives exceed the minimum standards identified in the Lynx Conservation Assessment and Strategy (Table 24; Ruediger et al. 2000). This species is addressed in a biological assessment for the Mt. Emily area and the effects determination is based on the Conservation Strategy.

Table 24. Effects of Mt. Emily alternatives on lynx habitat.

	<b>Suitable</b>	<b>Unsuitable</b>	<b>Denning</b>
Conservation Strategy	≥ 70%	≤ 30%	≥ 10%
Alternative 1	89%	11%	51%
Alternative 2	84%	16%	47%
Alternative 3	85%	15%	48%

Alternative One prescribes no activities; therefore, initiates no actions that would be inconsistent with the LCAS. Lynx habitat would remain at current levels within the LAU until stand replacement events occur.

Fuel reduction treatments in both action alternatives converted suitable lynx habitat (i.e., denning and forage habitat) to unsuitable habitat. Alternative Two converts 381 suitable acres, of which 300

acres are denning habitat, to unsuitable and Alternative Three converts 290 suitable acres, of which 195 acres are denning habitat, to unsuitable. Alternative Two would convert 5% suitable lynx habitat and Alternative Three would affect 4% suitable lynx habitat. Action alternatives that convert suitable lynx habitat to unsuitable would be maintained in this condition for as long as the fuel reduction treatments are maintained. Treatments will not preclude return of suitable habitat in the future; without management, the stand could return to forage habitat in 15-20 years.

Action alternatives meet the standards identified in the Lynx Conservation Assessment and Strategy; the differences between the alternatives are marginal. However, Alternative Three excludes treatment along the 3120-450 road system (units 301 – 306) thus providing contiguous lynx habitat adjacent to the Mt. Emily roadless area. Because these units were deferred treatment, providing a large block of connective habitat within the project area to the adjacent lynx habitat in the Mt. Emily IRA, Alternative Three better meets the LCAS.

The Forest Plan would be amended by adopting standards and guides relative to the project from the LCAS to mechanically treat and prescribe burn within lynx habitat for Alternative Two and Three. The direct and indirect effects of this site-specific Forest Plan amendment would provide greater protection for lynx and lynx habitat than currently provided in the Plan. The Forest Plan provided indirect standards and guidelines for lynx conservation through old growth, down wood, snag levels and cover requirements. None of these were designed specifically for conservation of lynx habitat. Following the Federal listing of lynx, the LCAS provided measures intended to produce or eliminate adverse effects from the spectrum of management activities on federal lands. This site-specific amendment to include applicable standards and guidelines for Alternatives Two and Three would provide a specific design for protecting and developing lynx habitat.

Action alternatives would result in a may affect not likely to adversely affect determination for Canada lynx (see BA for complete effects determination). Alternative One would result in a no effect determination for Canada lynx. However, retaining high fuel loadings in this area pose an increased risk to stand replacement wildfires, potentially affecting lynx habitat.

### **Sensitive Species**

#### Peregrine Falcon

A falcon eyrie is located immediately adjacent to this analysis area, south of Mt. Emily. This eyrie has been active for more than ten years and consistently fledges falcons each year.

Habitat modifications resulting from the temporary road construction, prescribed burning and vegetation treatments would not affect the viability of this nest site. The Mt. Emily project area likely represents a very small percentage of these peregrines' foraging range. The majority of foraging is likely to occur in the Grande Ronde Valley where ducks, pigeons, and other birds are abundant and easily seen. Therefore, changes to habitat that alters bird abundance and diversity in the analysis area will have minimal, if any effect to peregrines using this site.

Mechanical treatment and burning within approximately one mile of the eyrie should avoid disturbing nesting falcons (prairie or peregrine). Helicopter operations on the southern face of Mt. Emily represent the greatest risk to nesting peregrines. A seasonal restriction from February 1 through August 15 should apply to potentially disturbing activities within a mile of the eyrie. This restriction may be waived if nesting has not occurred or has failed by June 15.

This project, including an operating restriction as specified above, would not reduce the viability of this nest site or move the species toward federal listing. Alternatives Two and Three as proposed would have no impact on individuals or their habitat. This conclusion is based on the location of the project and the distance from the active eyrie.

### Spotted Bat

Surveys have not been conducted specifically for this species on La Grande Ranger District. However, no spotted bats were captured during general mist netting efforts to sample bat populations in the early 1990's.

It is difficult to determine whether habitat exists in the project area since so little is known about habitat use by this species. The mention of ponderosa pine forests, rock features and permanent water indicate that potential habitat exists in small quantities in this project area.

The mechanical treatment and prescribed burning within or near potential habitat is not expected to change the character or function of these areas in regards to potential prey base, water availability, or roosting habitat. Alternatives Two and Three may impact individuals or habitat but will not likely contribute to a trend towards Federal listing or cause a loss of viability to the population or species for individuals or habitat.

### California Wolverine

The wolverine may periodically pass through portions of this analysis area, but the area likely does not support a breeding population. The rationale for addressing wolverine in regard to this project is the contiguousness of this analysis area with the Meachum Creek area, Tollgate, and the Weneha - Tucannon Wilderness to the north. These areas contain several relatively large, unroaded areas that experience little human intrusion.

The mechanical treatment and burning activities involved in the Mt. Emily project are likely to reduce habitat suitability at the stand scale for wolverines. Potential use by wolverines during winter will not likely be affected. Summer habitat will be reduced, but not to a scale that would influence the occurrence of wolverines in the area. This assertion is based on the large home range of wolverines compared to the relatively small acreage being affected by this project. Additionally, all treated forest stands will continue to provide some level of habitat, but with less structural complexity than currently exists.

Alternatives Two and Three may impact individuals or habitat but will not likely contribute to a trend towards Federal Listing or cause a loss of viability to the population or species for individuals or habitat.

## **Issue: Management Indicator Species (MIS)**

### ***Introduction***

The management indicator species (MIS) of the Wallowa-Whitman Forest and the habitat component they represent are shown in the following table. All of these species are known or suspected to inhabit the analysis area.

SPECIES	HABITAT
Pileated woodpecker	Old growth and mature forest
Primary cavity excavators*	Snag and log habitat
Northern goshawk	Old growth and mature forest
Rocky Mountain elk	Arrangement of cover and forage
American marten	Old growth and mature forest

\*flicker, Lewis woodpecker, yellow-bellied sapsucker, Williamson's sapsucker, hairy woodpecker, down woodpecker, white-headed woodpecker, Northern three-toed woodpecker, black-backed woodpecker, mountain chickadee, white-breasted nuthatch, red-breasted nuthatch, pygmy nuthatch

Management indicator species are addressed in separate sections of the EA. Pileated woodpecker, Northern goshawk, and American marten are addressed under "Old Growth", Rocky Mt. Elk is addressed under "Elk Security Habitat", and primary cavity excavators are addressed under "Snags and Down Wood".

## Primary Cavity Excavators (Snag and Log Habitat)

Fire suppression has allowed the development of dense stands of shade-tolerant and fire-intolerant trees. These stands are stressed, resulting in high mortality of small trees and increased levels of small dead wood; overall, however, densities of smaller snags have declined slightly from historical level in the Columbia River Basin as a whole (Korol et al. 2002). Large snags have declined from historical conditions due to timber harvest and firewood cutting (Korol et al. 2002). Amounts of both large and small down wood are above historical levels due to the long-lived nature of down wood and fire suppression (Korol et al. 2002).

Thirteen species of primary cavity excavating birds are found in the Mt. Emily project area (Thomas 1979). Habitat structure and diversity strongly influence the composition and diversity of avian communities (Cody 1968). Timber harvest generally reduces the density of live trees, the percentage of canopy closure, and the density of dead trees. Therefore, forest management normally changes habitat structure and has major effects on cavity excavators. Franzeb (1977) found similar numbers of avian species in selectively logged and control areas, however, species composition changed. Species preferring open habitats took advantage of the increase in insects after logging. Primary cavity excavators declined in logged areas. Marshall (1977) summarizes the decline of white-headed woodpecker populations in the last 30 years due primarily to overharvest of ponderosa pine.

Field reconnaissance in the project area indicates higher levels of snags and down wood on the Mt. Emily face compared with the ridge. The ridge portion of the project area has lower numbers of large snags due to fire wood cutting and past management activity compared to the face portion where access is limited. Overall, snags and down wood meet or exceed Forest Plan standards due to mortality from insects, disease and timber management activity. Based on field recon, stand exam data and knowledge of forest stand dynamics (Oliver and Larson 1996) the following table describes how each structure stage compares with the Forest Plan standards and guides for meeting snag densities.

Table 24.1. Snag levels in the Mt. Emily project area.

	Structure Stage	Acres	Percent
Exceeds Forest Plan	MSLT, MSLTU, 50% UR	3,079	57
Meets Forest Plan	SSLT, 50% UR	1,106	20
Below Forest Plan	SE, SI	1,234	23

Primary cavity excavators are Management Indicator Species on the Wallowa-Whitman National Forest. These species rely heavily on decadent trees, snags and down logs. DecAID (Mellen et al. 2003), a planning tool was consulted for information on snag and down wood habitat (see Wildlife Effects). Based on this review of Blue Mt. literature (see Korol et al. 2002), La Grande Ranger Districts' Snag Policy was determined to be within the range of recommended levels. Chapter Two of this EA describes the La Grande Ranger District snag policy; action alternatives meet the policy direction.

Current Forest direction says to maintain snags and green tree replacements at the 100% potential population levels of primary cavity excavators (Regional Forester's Forest Plan Amendment #2). A District policy assigns minimum snag densities to three broad forest community types; dry, moist, and cold (District Snag Policy, March 1997). Dry forest types should have at least 2 snags/acre, moist should have 4-6 snags/acre, and 6-8 snags/acre in cold types. Snags should be  $\geq 21$  in. dbh or at least 12 in. dbh if larger ones are not present.

Because snags are lost in harvest and prescribed burn units from direct removal, skid trail and landing placement, safety reasons, and post sale treatments, an increase in acres treated would result in a greater reduction in snags and logs. Although snag densities within treatment units would not differ between action alternatives, the effectiveness of snag habitat is reduced when a closed canopy is converted to an open setting. A few species (e.g., Northern flicker, great horned owl, bluebird) seem to do as well in either setting, but others (e.g., pileated woodpecker, nuthatch, black-backed woodpecker) avoid snags in open settings.

Prescribed burning in closed canopies would affect snags and logs and overall canopy structure. It is important that snags and logs being retained to meet standards ( $\geq 12$  in. dbh) be protected during prescribed burning. Although some snags would be lost during prescribed burning operations, a small percentage (less than 5%) would be created by fire mortality. Creation of new snags would help offset loss of snag habitat and benefit primary cavity excavators.

## Effects Analysis

### Direct and Indirect Effects on Snag and Log Habitat

#### ALTERNATIVE 1

Without disturbance, Mt. Emily would continue to provide snag and down wood habitat to meet habitat requirements of primary cavity nesters at least through the short-term (15-25 years, Table 24.2). Snag replacements would be provided over several decades by mortality from existing live trees to provide long term (25 + years) habitat for primary cavity nesters. Overstocking and high fuel loadings would cause stands to become increasingly susceptible to insect and disease outbreaks and stand replacement fires. Fuelwood removal would continue to reduce snag habitat, especially on the Mt. Emily ridge.

A large stand replacement fire would have a negative impact on habitat for primary cavity excavators. A high intensity fire would consume a large percentage of live trees, snags and down wood.

#### ALTERNATIVES 2 AND 3

Snag and down wood densities would be met in all proposed treatment units. Constraints and mitigation (see Chapter Two under Wildlife) require snag and down wood levels retained to Forest Plan standards. Snag requirements for primary cavity nesters would be provided over time. Alternative Three maintains higher tree densities than Alternative Two and would provide more options for snag recruitment and habitat for primary cavity nesters.

Table 24.2. Snag levels by alternative in the Mt. Emily project area.

	<b>Alternative 1 Acres (Percent)</b>	<b>Alternative 2 Acres (Percent)</b>	<b>Alternative 3 Acres (Percent)</b>
Exceeds Forest Plan	3,079 (57)	1,963 (36)	2,096 (39)
Meets Forest Plan	1,106 (20)	2,222 (41)	2,089 (38)
Below Forest Plan	1,234 (23)	1,234 (23)	1,234 (23)

Based on treatment acres, Alternative two would have a slightly greater risk of reducing snags and logs compared to Alternative three and a much higher risk compared to Alternative one (Table 24.2). Alternative two and meet or exceed the 100% level for snag habitat on approximately 77% of the forested habitat in the Mt. Emily area. Both alternatives should not appreciably change snag habitat or population levels of primary cavity excavators over the next 10 years. Stands that are currently below Forest Plan standards are expected to provide snag habitat within 50 to 100 years.

## Cumulative Effects on Snag and Log Habitat

### ALTERNATIVE 1

The cumulative effects on snag and log habitat (primary cavity excavators) include the effects of wood cutting in the project area. Access management is not addressed in this EA, therefore, fuelwood removal would continue to reduce snag habitat. Snag densities exceed Forest Plan standards and guides on approximately 57% of the forested area.

### ALTERNATIVES 2 AND 3

The cumulative effects on snag and log habitat (primary cavity excavators) include the effects of wood cutting in the project area, closing 3.57 miles of inadequately closed roads, snag and log removal from both action alternatives, and potential road closures under a future environmental analysis. Wood cutting would continue reducing snag and log levels along open road systems. Snags along the 3.57 miles of inadequately closed roads would be better retained and protected from woodcutters, once roads are effectively closed. Snags would also be better retained along road closures planned under a separate Environmental Assessment to be completed and implemented within the next 5 years.

Snag levels are not expected to go below Forest Plan levels due to the high existing snag levels, mitigation measures to retain Forest Plan levels under both action levels, road closures and no new areas opened to wood cutting via road construction. Snag loss from one mile of temporary road construction would be limited to any snags within the road clearing limits. Continued loss of snags and logs would diminish upon closing and obliterating the road. Overall, the Mt. Emily project area will continue to exceed the Forest Plan standards and guides on over 35% of the forested area. If the snag habitat level is maintained over time, there would be little negative impact on primary cavity excavators.

## Elk and Elk Security Habitat

Mt. Emily provides quality elk habitat due to high cover quantity and quality and high security habitat along the face (winter range) of Mt. Emily due to the limited motorized access. The elk habitat effectiveness is 0.64 HEI and meets the 0.50 HEI standard in the Record of Decision of the Forest Plan. The limiting factor in the Mt. Emily big game summer range is the disturbance caused by motorized vehicles. The ridge top is heavily used by recreational OHV users and fuelwood gatherers.

Dense cover acts as thermal cover, regulating body temperature changes as well as providing security cover. Cover exists on 55% of the analysis area (24% marginal and 32% satisfactory; Table 25) resulting in a Habitat Effectiveness cover quality value of 0.78.

Table 25. Mt. Emily elk cover conditions.

Cover Types	Existing Condition	Alternative 2	Alternative 3
Forage Acres	3,232	3,691	3,651
Marginal Cover Acres	1,719 (43%)	1,971 (55%)	1,893 (53%)
Satisfactory Cover Acres	2,294 (57%)	1,583 (45%)	1,701 (47%)
Cover:Forage Percent (40:60 optimal)	55:45	49:51	50:50

Open road densities meet Forest Plan standards and guidelines (See Chapter One – Access and Travel Management). Rowland et al. (in press) found road densities to be a poor indicator of habitat effectiveness for elk and that habitat effectiveness increased with increasing distance from open roads. Elk security habitat is provided along the face of Mt. Emily, including the North Mt. Emily roadless area (5,400 acres) that extends to the north of the project area and the adjacent Mt. Emily roadless area (8,822 acres)

The Mt. Emily area receives high recreation by big game hunters, berry pickers, fuelwood gatherers and OHV users. Unregulated use of off highway vehicles continues to have a deleterious effect on elk distribution. This EA does not address woodcutting access and OHV use; a road management proposal will be completed under a separate EA.

## **Effects Analysis**

### **Direct and Indirect Effects**

#### **ALTERNATIVE 1**

Without disturbance, Mt. Emily would continue to provide high quality big game habitat conditions at least through the short-term (15-25 years). Overstocking and high fuel loadings would cause stands to become increasingly susceptible to insect and disease outbreaks and stand replacement fires.

Open road densities meet Forest Plan standards and guidelines (1.5 mi/sq mi; see Chapter One, Access and Travel Management); however, 3.57 miles are ineffectively closed (see Engineer roads report). In addition, unregulated access by OHVs and fuelwood gatherers, primarily on the Mt. Emily ridge, would have a negative effect on elk distribution. The low motorized access along the face and adjacent roadless areas would continue to provide security habitat for big game.

#### **ALTERNATIVES 2 AND 3**

Alternatives Two and Three would move the cover to forage ratio closer to optimum of 40:60 (see table 25). Alternative Two proposes to convert 711 acres of satisfactory thermal cover to marginal cover (12% reduction). However, 45% of the cover in the Mt. Emily area is comprised of satisfactory cover; and 49% of the Mt. Emily area would remain in a cover condition ( $\geq 40\%$  canopy closure; Table 25). Marginal cover would slightly increase and satisfactory cover would slightly decrease. The change in habitat effectiveness would be negligible. Alternative Three would apply fuel reduction treatments that would convert 593 acres of satisfactory thermal cover to marginal cover. Marginal cover would slightly increase and satisfactory cover would slightly decrease. Both alternatives would continue to provide big game cover.

Prescribe fire will enhance forage for elk (Franklin and Dyrness 1973). Fire releases nutrients from plant matter that is used by sprouting herbs and shrubs. These plants are likely to be more nutritious than pre-fire plants and more available as mature plant material has been removed (Hobbs and Spowart 1984).

Alternatives Two and Three would create one mile of temporary roads along the face of Mt. Emily. These temporary roads would be closed to public access. Approximately 1.5 acres of wildlife habitat would be affected (based on a 12 foot wide road). Cover quality and security habitat would be reduced on these acres for approximately 25 years until vegetation is well established. Mitigation measures include closing and obliterating the road. This would benefit wildlife habitat by eliminating vehicle access.

There are 3.57 miles of ineffective road closures that would be closed under both action alternatives. The elk habitat effectiveness for roads under both alternatives would slightly increase as a result of closing these roads.

Alternatives Two and Three would reduce tree density and fuel loadings that may reduce the risk of a large fire and maintain big game cover habitat in the long-term.

## Cumulative Effects

The logical resource area for cumulative effects analysis on elk habitat includes the project area and adjacent forested private lands to the east and south. This area is large enough to evaluate cumulative effects to elk.

### ALTERNATIVE 1

Past timber sales and roads on the ridge portion of the project area have resulted in reduced hiding cover, reduced security habitat and increased disturbance to elk. The limiting factor in the Mt. Emily big game summer range (Mt. Emily ridge) is the disturbance caused by motorized vehicles. Unregulated access by OHVs, primarily on the Mt. Emily ridge, would have a negative effect on elk distribution. High security habitat would continue to be provided by adjacent roadless areas and the Mt. Emily face.

Without disturbance, Mt. Emily would continue to provide high quality big game habitat conditions at least through the short-term (15-25 years). Overstocking and high fuel loadings would cause stands to become increasingly susceptible to insect and disease outbreaks and stand replacement fires. Crown fires that reduce large areas of cover would redistribute elk away from the burned areas, displacing elk for approximately 20 to 40 years until the area provides hiding cover.

A road management plan to be completed within the next 5 years would benefit elk by increasing security areas adjacent to the road closures.

### ALTERNATIVES 2 AND 3

Past timber sales and roads on the ridge portion of the project area have resulted in reduced hiding cover, reduced security habitat and increased disturbance to elk. The Mt. Emily project and adjacent management activities (Boise timber sales, Oregon Department of Forestry and private land fuels reduction) are in the process of implementation or planned for implementation within the next five years.

Elk winter feeding ground traditionally is closer to the valley bottom with less use on the steeper slopes of the project area (Leonard Erickson – Oregon Department of Fish and Wildlife, pers. comm). Treatments in the project area would have minimal impact to winter elk distributions and prescribed burning treatments would enhance elk forage. Project activities combined with motorized vehicle use during summer and fall months may redistribute elk to more secure areas such as the adjacent roadless areas. A road management plan would be completed under a separate EA to be completed within 5 years.

Effectively closing roads under Alternatives 2 and 3 would provide additional elk habitat by increasing security areas adjacent to the closures. This would last as long as the closures are effective and would include 3.57 miles plus additional road closure miles from future projects.

Overall, the Mt. Emily area will continue to provide quality big game habitat due to high cover quality, adequate security habitat and an improvement of forage conditions.

## Issue: Neotropical Migratory Birds

### Introduction

Neotropical migratory birds are those that breed in the United States and winter primarily south of the United States-Mexico border. They include a large group of species, including many hawks, shorebirds, warblers, and other song birds, with diverse habitat needs spanning nearly all successional stages of most plant community types. Of the 225 migratory birds that are known to occur in the western hemisphere, about 102

are known to breed in Oregon. Nationwide declines in population trends for neotropical migrants have developed into an international concern. Habitat loss is considered the primary factor in decline of neotropical migratory birds.

In 2000, the Oregon-Washington Chapter of Partners in Flight published its Landbird Conservation Plan (PIF,2000). The Plan uses a "Priority Habitats and Species" approach. By managing for a group of species representative of important components in a functioning coniferous forest ecosystem, many other species and elements of biodiversity will be conserved. The Mt. Emily project area lies in a mesic mixed conifer (late-successional) habitat although portions of the face could be classified as dry forest (ponderosa pine and ponderosa pine/Douglas-fir/grand fir). These focal species (Table 25.1) were selected based in part on their conservation need and degree of association with important habitat attributes in coniferous forests in the Blue Mountains.

Table 25.1. Forest conditions and associated habitat attributes and focal species for landbird conservation in the Mt. Emily area.

Forest condition	Habitat Attribute	Focal Species
Dry Forest	Large trees and snags	White-headed woodpecker
Dry Forest	Old forest with openings	Flammulated owl
Dry Forest	Open understory with pine regen	Chipping sparrow
Mesic Mixed Conifer	Large snags	Vaux's swift
Mesic Mixed Conifer	Overstory canopy closure	Townsend's warbler**
Mesic Mixed Conifer	Structurally diverse	Varied thrush
Mesic Mixed Conifer	Dense shrub layer	MacGillivray's warbler
Mesic Mixed Conifer	Edge and openings	Olive-sided flycatcher*

\* significantly declining population trends in the Central Rocky Mountain BBS physiographic region.

\*\* significantly increasing population trends in the Central Rocky Mountain BBS physiographic region

Fuel reduction activities that occur in the spring through early summer would directly affect nesting neotropical migratory bird species (NTMBS). The potential exists for direct mortality from logging, as well as displacement. The changing habitat conditions after treatment could favor other, more competitive species, forcing NTMBS to nest elsewhere. The greater removal of trees, the greater impact to neotropical migrants, especially species preferring the upper forest canopy (Sallabanks 1996). McIntyre (1995) found the highest number of birds in large contiguous forests.

Fire will have mixed effects, depending the species and fire intensity. For most upper forest canopy birds, large stand replacement fires will have long term negative effects. Wildfire results in loss of habitat for many species requiring young, mature and old growth forest stand conditions. If burns are smaller and of lower intensity, they will tend to have a positive effect on the majority of NTMBS. Shrub levels will increase in the next 10 years favoring NTMBS that prefer early-seral forest conditions such as the olive-sided flycatcher, where there are residual canopy trees.

## Direct and Indirect Effects

### ALTERNATIVE 1

In the absence of large scale disturbances, Alternative 1 will provide long-term habitat for migratory birds at the same level that exists today. Habitat for old growth associated bird species is met in the Mt. Emily area due to the abundance and distribution of large structure across the landscape. Overstocking and high fuel loadings would cause stands to become increasingly susceptible to insect and disease outbreaks and stand replacement fires.

The no action alternative may result in increased fuel loading, especially after snags begin to fall. The higher fuel loading may put remaining habitat at risk from disturbance (i.e. fire).

## **ALTERNATIVES 2 and 3**

Fuel reduction treatments will increase the amount of habitat available for species that prefer more open areas with limited ground cover. Openings will either be enlarged or created, which will increase foraging habitat for certain species. Removal of snags will decrease potential perch sites. Logging will decrease habitat for cavity nesters in some areas. Alternative 2, which affects more acres and reduces stocking levels would create the greatest direct benefit to those NTMBS that prefer more open stand conditions such as the chipping sparrow and flammulated owl, but would negatively effect species that prefer more closed canopies such as the varied thrush. Untreated areas in alternatives 2 and 3 would help assure that habitat is provided for a variety of NTMBS species.

Logging between May and August may have direct effects on neotropical migratory bird nesting. Although little is known about the effects of logging on neotropical migratory birds, it is expected that removal of snags under these alternatives could have a negative effect on potential population numbers of cavity nesting birds in certain areas. Overall, potential population numbers for forest nesting birds across the landscape is not expected to decline.

Fuel treatments associated with harvest and prescribed burns will have direct short term impacts to NTMBS. Hand piling is the least impactful to NTMBS. Although under burning would result in the greatest direct impact to neotropical birds, it also provides the greatest risk reduction for residual stands. Alternatives 2 and 3 reduce the risk for future high severity fire. This will indirectly benefit those NTMBS that prefer old growth and mature forest conditions such as the pileated woodpecker and Vaux's swift.

NTMBS associated with riparian areas are not expected to be affected by this project due to the no-treatment buffers. Prescribed burning would be allowed to back into the riparian areas; however, this is not expected to lead to a decline of neotropical migratory bird habitat or populations. This is based on the limited area of reduced grasses and shrubs and the short duration until revegetation (1 to 5 years).

## Cumulative Effects

All of the activities in the Mt. Emily project have been considered for their cumulative effects on neotropical migratory birds, and the following activities have the potential to produce cumulative effects. Because neotropical birds include such a wide range of species, all activities benefit some species while negatively impacting others.

Several factors have influenced NTMBS within the Mt. Emily project area including past harvest activity, fire suppression, recreation and roads. Past timber management activities including regeneration harvest, commercial thinning, precommercial thinning and salvage have resulted in fewer mature and old growth stands, with fewer large trees and large snags. These activities have favored NTMBS that prefer early-seral stand conditions. Recreation, wood cutting and roads have led to a reduction in snag habitat in parts of the Mt. Emily area. Fire suppression has resulted in increased shrub layers and conifer undergrowth.

### Issue: Noxious Weeds

#### Introduction

An analysis was conducted which considered prevention, correction, or maintenance measures. Decision elements pertaining to vegetation management have been incorporated into the alternatives included in this EA (reference analysis file for existing condition survey information).

#### *Effects Analysis*

### Direct, Indirect and Cumulative Effects on Noxious Weeds

#### **ALTERNATIVE ONE**

Under this alternative, no land disturbance would occur and no major change in noxious weed populations on National Forest lands within the project area is expected.

#### **ALTERNATIVES 2 and 3**

Establishment of new noxious weed populations as a result of project activity from either action alternative is a low to moderate risk to occur because of incorporation of the following: Use of an early treatment strategy (manual methods as defined in the INWMP); mitigation measures to prevent seed spread from project vehicle use, annual inspections for noxious weed infestations; utilization of other methods to prevent spread (refer to constraints and mitigation section); and, increased efforts regarding identification and education of noxious weed infestations and spread.

Fuels treatment in the action alternatives would result in a low to moderate amount of (ground) site disturbance and a low to moderate potential for the introduction of off-site noxious weed propagules. The incorporation of mitigation measures limits both the intensity and amount of ground disturbance, and reduces the duration until vegetation recovery occurs. The associated desirable vegetation (including seeding of disturbed sites) would provide deterrence to noxious weed infestation.

Known sites of diffuse knapweed occur along forest roads 1400100, 123, and 130 within the project area. All of these roads have the potential to be used during project activity. Noxious weeds on these sites are being hand treated and would continue to receive hand treatment prior to project implementation. Vehicle use most likely to occur would be pick-up trucks. Log trucks, loading and yarding equipment, and transportation vehicles could potentially use these roads as well. Mitigation

measures to clean equipment operating within the project area prior to entering National Forest lands would reduce the risk of seed spread. Passenger vehicles such as pick-up trucks are expected to remain on road systems, reducing the risk of spread to treated areas with recent ground disturbance. The risk is low to moderate for seed spread due to mitigation measures and increasing awareness of noxious weed potential to spread.

The intensity of the disturbance created by Alternatives Two and Three is very similar; the magnitude varies by 230 acres difference in fuels treatment. There are other disturbance factors that differ somewhat between the two alternatives. Following is a comparative list of the ground disturbing activities:

<b>Table 26 – Alternative Activity Summary</b>			
<b>Alternative Elements</b>	<b>Alternative 1</b>	<b>Alternative 2</b>	<b>Alternative 3</b>
Mechanical Fuels Treatment Acres	0	1,969	1,739
Prescribed Fire Acres	0	1,622	1,622
Acres Mechanical Treat then Burn	0	1,038	1,038
Temporary Road Construction	0	1.0	1.0
Road Reconstruction	0	2.5	2.5

Even with the incorporation of the prevention strategy described in Chapter Two, there is still some small risk of noxious weed infestation associated with the activity. Project activity in Alternative Two disturbs more acres resulting in a slightly higher risk of noxious weed introduction.

Known sites of diffuse knapweed and sulfur cinquefoil occur east and south of the project area on private and industrial land. Many of these sites occur along road systems. Right-of-way access across private transportation routes is necessary to access the Mt. Emily project area. Therefore, there is a concern that spread of noxious weeds may occur from project vehicles driving past sites on private land. The risk of spread is low assuming that project vehicles remain on road surfaces. Cooperation by local landowners to treat sites would further reduce the risk of seed spread from project activity. Treatment of these sites is under the jurisdiction of the Union County Weed Master.

Temporary Road Construction – The temporary road construction would occur outside of any known noxious weed location; however, the potential for spread is moderate due to established weeds species (diffuse knapweed) within one mile. The temporary road, located at the end of the 1400100 road, would be obliterated and returned to land base productivity at the close of the operating season. Prevention and mitigation measures outlined in this EA would be followed during construction and obliteration, reducing the risk of spread to low to moderate. Pre-treatment (hand pulling) of the existing plants have occurred and would continue prior to temporary road construction to further reduce the risk of spread.

## **Cumulative Effects on Noxious Weeds**

The cumulative effects of past and present management activities, including logging; grazing, burning and recreation were considered in the above analysis of direct and indirect effects of the action alternatives. Planned projects in and adjacent to the analysis area include noxious weed treatment for 2004 - 2007. Reasonably foreseeable future activities within the project area would include grazing by domestic livestock and wild ungulates, utilization of hiking and ATV trails, and fire woodcutting. The incorporation of the mitigation measures which provide for inspection, improved recognition of noxious weed species, and early treatment of noxious weed infestations would be expected to dramatically reduce the possibility of project-induced establishment of new noxious weed populations within the project area.

## **Issue: Access and Travel Management**

### **Direct, Indirect and Cumulative Effects**

#### **ALTERNATIVE 1**

Alternative One would not change the current access and travel management plan. This includes 3.57 miles of ineffective road closure that would not be effectively closed.

Direct, indirect and cumulative effects of not closing or obliterating any roads within the analysis area include:

1. There would be no change in current ground access for fire suppression activities, initial attack times, and method of attack options. A maintained road system will provide timely ground access to wildfires.
2. Areas that currently have restricted access would remain the same.
3. No change in current and long-term prescribed fire opportunities to use road systems for access and unit boundaries/control lines; and maintain management opportunities to return fire to fire adapted ecosystems. Maintained access for equipment will lessen risks of prescribed fire escapes and increase holding and contingency options.

#### **ALTERNATIVES 2 and 3**

The Mt. Emily project would not change the current access and travel management plan. There are no road closures or decommissioning proposed with either action alternative. Approximately one mile of temporary road construction would be decommissioned during the same operating season following project use. Road densities would not increase as temporary roads are not added to the District's transportation system.

Approximately 2.5 miles of road reconstruction would bring to standard the 3120500 as a level two maintenance road (open for high clearance vehicles). Reconstruction would also reduce runoff, rutting and severe erosion. The effects of reconstruction and temporary road construction are addressed separately in this chapter under each resource area.

Five road segments in the project area have been identified as ineffectively closed (portions of 3120600, 610, 620, 810, and 812), for an estimated 3.57 miles. These roads are planned for use associated with fuels reduction and would be effectively closed following project activities. This does not result in a proposed change to the access and travel management plan as these road segments are considered closed in the A&TM plan. For estimated costs of reconstruction and creating effective closures see the analysis file, Access and Travel Management Summary.

As stated in chapter one of the EA, a roads analysis has been completed for the project area. Proposals to decommission or close a few roads in the project area would be introduced in a separate road project scheduled for fiscal year 2004 or 2005. It is unknown at this time which roads would be proposed for closure, however, should this project be implemented, the cumulative effects would be a decrease in road mileages and densities, resulting in a change to the access and travel management plan.

## **Issue: Recreation**

### ***Introduction***

Recreation, cultural and viewing resources are of local significance within the project area. Because no developed recreation facilities exist within the project area, recreation is primarily focused day trip activities such as OHV riding, firewood gathering, and huckleberry and mushroom picking during the summer months. The highest use in this area is experienced during the big game hunting seasons when hunters occupy many of the dispersed campsites within the area.

The following effects analysis is based on field surveys, data review and professional judgment.

## **Effects Analysis**

### **Direct, Indirect and Cumulative Effects**

#### ***ALTERNATIVE 1***

The risk of a high intensity crown fire in the area would continue. Results of a high intensity crown fire would likely be unfavorable to recreation opportunities. The attractiveness for camping and berry picking would be diminished. Hunting conditions would be altered as cover would be removed for several years.

The poor condition of 3120500 road would remain the same, with potential over time to become further rutted and more difficult to travel. This road accesses several dispersed camping sites and scenic vistas along the face of Mt. Emily. Alternative One would not improve access to these sites.

Recreation activities would continue at current levels in the absence of a large disturbance such as crownfire. This includes the continued use of five ineffectively closed roads in the project area.

#### ***ALTERNATIVES 2 and 3***

The fuels reduction treatments would remove dead fuel and thin and clean trees to meet objectives of the project. The acres vary slightly between alternatives and Alternative Two thins to higher level. Prescribed burning acres would not change between Alternative Two and three.

The direct effects of project activity would be a delay in recreational activities during project implementation. Mushroom, berry picking or hunting activities may need to be postponed as equipment and contractors work in the area. User sites would remain functional following project activities. Dispersed sites would not be impacted. Some gathering sites may receive slight ground disturbance and loss of some vegetation, but would recuperate within two to five years.

The areas along the 3120500, 3120450 and 3120 road that receive fuels reduction may be more attractive in appearance as large concentrations of dead fuels are removed. This may attract more users to the area, but would attract fewer woodcutters.

Alternatives Two and Three could prolong the use of the Mt. Emily area as a high recreation use area should treatments assist in reducing probabilities of a large stand replacement fires. Reducing fuels, modifying fire behavior, and returning fire intervals (through prescribed burning) closer to historic conditions would help sustain ecosystem health and provide a more pleasant experience for the recreation user.

Alternatives Two and Three would effectively close 3.57 miles of ineffectively closed roads. This would bring the area back to desired management levels for access and discourage closure violations by users.

Alternatives Two and Three would improve 2.5 miles of Forest Road 3120500 to the maintenance level at which it is designated (level two – open for high clearance vehicles). Maintenance would improve drainage and smooth the severe rutting that has occurred. This would provide continued access to dispersed campground, scenic vistas, hunting and gathering locations.

The cumulative effects include ongoing or planned projects within the project area. The cumulative effects of livestock grazing and project activities would not diminish recreation opportunities. Project activities would not increase livestock, as grazing already is very limited. Recreation opportunities have and would continue to co-exist with the limited grazing, following project activities.

Additional road closures are planned for proposal in 2004 or 2005. It is unknown at this time which roads would be selected, but the roads analysis for the Mt. Emily project would be the guiding document. Additional road closures would limit vehicle access and some hunting and gathering opportunities. It is unknown whether dispersed campsites would be affected by road closures. The cumulative effects of project activities with additional road closures would be just the effects of closing roads, as project activities would not necessarily compound the closures.

## **Issues: Fire-fighter/Public Safety, Cost of Fire Suppression, and Air Quality**

### **Direct, Indirect and Cumulative Effects**

#### ***ALTERNATIVE 1, 2, and 3***

**Fire-fighter and public safety** - Both action Alternatives Two and Three would increase fire-fighter and public safety by reducing potential for high intensity fast moving crown fires on treated acres on high risk acres and maintaining low to moderate crown fire risk on other acres. Alternative One would do nothing to prevent the area from moving into a higher risk category for safety.

**Cost of suppression** - Both action Alternatives Two and Three would decrease the cost of wildfire suppression. Treatments would reduce the likelihood of high intensity crown fires, allowing for more direct attack with hand crews and tools. Alternative One provides no treatment and potential reduction of crown fires. Fire intensity levels in areas with heavy fuel loading would exceed the level of safe direct attack with hand tools. Indirect attack would require more costly mechanized equipment such as bulldozers and air support. Cost of firefighting would be reduced with smaller less intense wildfires. Fuel treatment costs over the next 20 to 30 years are expected to be reduced.

**Air quality** - Huff, Ottmar, et al (1995) found PM10 smoke production was twice as high for wildfires as for prescribed fire. This is because wildfires generally occur during drought periods in which there are low fuel moistures. Alternatives Two and Three would produce smoke through prescribed burning that may impact nearby sensitive areas (see chapter for list of areas). However, smoke emissions could be managed to stay under the 15,000 tons PM10 per year agreed to under the Memorandum of Understanding (October 27, 1994). Alternative One would result in a higher risk of wildfire smoke emissions, which would be more difficult to manage.

Maximizing removal and utilization of small diameter trees and dead standing and down trees would decrease the amount of pollutants generated during prescribed burning. Areas that are primarily grass and have low fuel loadings would generate smoke that would be of low intensity and for a short duration – less than 5 tons per acre.

Smoke generating activities on the La Grande Ranger District would be coordinated with the Oregon Department of Forestry and the Oregon Department of Environmental quality. The following areas are considered smoke sensitive:

1. Class I (and II) Wilderness areas. Visibility protection during the peak recreational period of July 1, through September 15.
2. The City of La Grande. Health impairment due to exposure to excessive quantities of smoke and dust particulate are of concern. There are five major sources of PM-10 within the Urban Growth Boundary of La Grande, one being slash burning.

Estimated amount of emissions released during prescribed burning:

1. Grass would contribute less than 5 tons per acre of emissions.
2. Average tons per acre for underburning are approximately 17 tons per acre.

Smoke from prescribed burning may impact nearby sensitive areas including:

- I 84
- Highway 82, 203, 204, and 237
- Forest Roads 31 and 3120
- Communities: La Grande, Elgin, Union, Cove, Imbler, and Summerville
- Eagle Cap Wilderness Area (Class I Airshed)
- 

Prescribed fire smoke intrusions may have short-term impacts (few hours, possibly two days).

Prescribed burning opportunities may be limited at times due to weather and smoke management forecasts; or because of the combined effects of multiple ignitions within the general area.

## **D. Required and Additional Disclosures**

This section discloses the effects of the alternatives on the human environment as specified by law, regulation, policy, or Executive Order.

### **Cultural Resources**

No impacts to any known cultural resource site would result from implementation of any of the action alternatives. This responds to the non-key issue of protection of cultural resources.

### **Tribal Treaty Rights**

Treaties provide that Native Americans will continue to have the right to erect suitable buildings for fish curing, privileges of hunting, gathering roots and berries, and pasturing stock on unclaimed lands. Indian treaty rights and privileges were considered throughout this analysis and maintained through appropriate design and layout features, especially related to resources such as fish, wildlife, and riparian areas. All alternatives are relatively equal in their treatment of treaty rights and are expected to maintain treaty rights and opportunities into the future. This responds to the non-key issue of Indian treaty rights and trust responsibilities.

### **Biological Diversity**

All existing native and desirable introduced species and communities are maintained with all alternatives. Erosion control measures (seeding) would use native species when possible (EA, section two). Biological diversity is not expected to be affected.

### **Public Safety**

No long-term public safety problems are anticipated with any of the alternatives. Short-term safety hazards such as log truck traffic and falling trees near roads would be mitigated through contract safety provisions and are not anticipated to impact public safety.

### **Research Natural Areas, Experimental Forests, Wilderness and Federal State and Local Laws**

There is no research natural area, Experimental Forest or Wilderness area within or adjacent to the project area.

There are no known significant cumulative effects between the project and other projects implemented or planned on areas separated from the affected area of the project beyond those evaluated in Chapter IV of the FEIS of the Forest Plan. The physical and biological effects are limited to this analysis area. No actions are proposed which are considered precedent setting.

There are no known effects on the human environment that are highly uncertain or involve unique or unknown risks. None of the actions threaten a violation of Federal, State, or local law. Action alternatives would comply with air and water quality regulations (laws). Although the effects on the quality of the human environment are not likely to be highly controversial, based on public participation, the project proposals themselves are highly controversial.

There is no expectation that there would be a change to public health and safety. Mitigation and precautions apply to all the action alternatives. Should there be a wildfire under any alternative, there could be an adverse impact to public health in terms of a change in the water quality. Other safety measures are discussed or are a standard part of sale contracts.

There are no known plant communities containing y ew species within the analysis area.

### **Probable Adverse Environmental Effects that Cannot Be Avoided**

Some impacts caused by implementation of management activities proposed in this analysis that cannot be avoided may be considered adverse according to individual interpretations. Stumps and disturbed areas are not a pleasing sight to some people, visually or environmentally. Truck traffic would compete with public traffic on roads used in common. Traffic and removal activities would also create dust and noise. Smoke from prescribed burning, fuels reduction, and slash disposal is an irritant and an unpleasant sight to some people. Recreation users may find changes to the areas they have visited in the past, either through reduced or increased access, changed landscape, or changes in vegetation.

### **Irreversible and Irretrievable Commitment of Resources**

Irreversible resource commitments are actions that either deplete a non-renewable resource or disturb another resource to the point that it cannot be renewed within 100 years. There are no known significant irreversible resource commitments or irretrievable loss of timber production, wildlife habitats, soil production, or water quality from actions initiated under any of the alternatives. No heritage sites are known to be affected.

Impacts to soil and water are controlled by management practices and mitigation measures and would not represent an irreversible resource commitment, except for the minor acreage involved in log landing sites used for decking logs and in temporary road construction. For all practical purposes, rock is a non-renewable resource. Use of rock as surfacing represents an irretrievable commitment of a resource, although due to quantities of supply, it is not a significant commitment. Existing roads and newly constructed roads constitute a more-or-less permanent commitment of a portion of land to a purpose other than timber production.

Some designated and non-designated old growth may be affected under the action alternatives. In addition, some loss of snag habitat would occur under all action alternatives. It is not known whether this is an irretrievable or irreversible action at this time. It is also not known what impact this type of change may have on unidentified nest sites of management indicator species.

### **Energy Requirements of Alternatives**

Management alternatives that require less energy efficient methods such as helicopter logging are less energy-efficient. The need for less energy-efficient and more expensive techniques, such as helicopter logging is often due to the need to mitigate soil damage or adverse effects on watershed and other resources that would occur if more energy-efficient means, such as tractor yarding systems were employed. In this analysis, a combination of yarding systems was developed in order to evaluate the tradeoffs of implementing various options.

### **Wild and Scenic Rivers, Prime Farmlands, Range Land, Forest Land**

Actions taken under any of the alternatives would have no impact on farmland, rangeland, or forestland inside of outside the National Forest. There are no prime farmlands affected by the proposal. Wetlands and floodplains associated with streams and springs would be protected using mitigation guidelines previously identified. No designated Wild and Scenic rivers would be affected by this project proposal.

### **Civil Rights, Women, Minorities, Environmental Justice**

There are no known direct or adverse effects on women, minority groups, or civil rights of individuals or groups. Action alternatives are governed by sale or service contracts, which contain nondiscrimination requirements to prevent adverse impacts to these groups. The no action alternative may have some

short-term adverse impacts on the local community by not providing project receipts. To the greatest extent possible all populations have been provided the opportunity to comment before decisions are rendered on proposals and activities affecting human health or the environment. The proposals within this EA would not have a direct or indirect negative effect on minority or low-income populations.

#### **Wetlands and Floodplains**

Executive Orders 11988 and 11190 require protection of wetlands and floodplains. Wetlands in the project area are generally stream channel-associated seeps and springs. With the exception of those units proposed for RHCA treatment, most are protected by the PACFISH RHCAs in the action alternatives. Isolated seeps and springs would be protected with appropriate buffers. The floodplains within the area are generally very narrow, due to the steep topography. Nearly all floodplains are avoided or protected by RHCAs in this project.

### **IV. CONSULTATION WITH OTHERS**

Formal consultation for this project will be completed in spring of 2004 with National Marine Fisheries Service for the endangered spring-summer Chinook salmon and summer steelhead, and with the US Fish and Wildlife Service for the threatened Canada lynx.

The La Grande Ranger District Schedule of Proposed Actions (SOPA) is a quarterly publication mailed to those individuals and organizations interested in the management of National Forest lands on the La Grande Ranger District. This publication identifies all of the projects currently undergoing analysis on the District. A description of this project has appeared in each of the SOPAs since April 2002.

Scoping and consultation for the project was initiated and is on-going with the Confederated Tribes of the Umatilla Indian Reservation.

The proposed action for this project was mailed to approximately 280 individuals and organizations soliciting comments and concerns related to this project.

The Oregon State Forestry, Rural Community Volunteer Firefighters, and Oregon Department of Fish and Wildlife (ODFW) office was contacted as part of the Proposed Action scoping process.

Permittees who graze cattle within the project area were notified of project planning activities.

The Union County Community Forestry Board has received several presentations on this project and visited the project area in July 2003 to discuss the Purpose and Need and the Alternatives being considered within the project area.

This project has been submitted to The State Historical Preservation Officer (SHPO) for review.

## V. INTERDISCIPLINARY PARTICIPATION

We have participated in this analysis and believe the significant issues have been identified and addressed:

Title

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

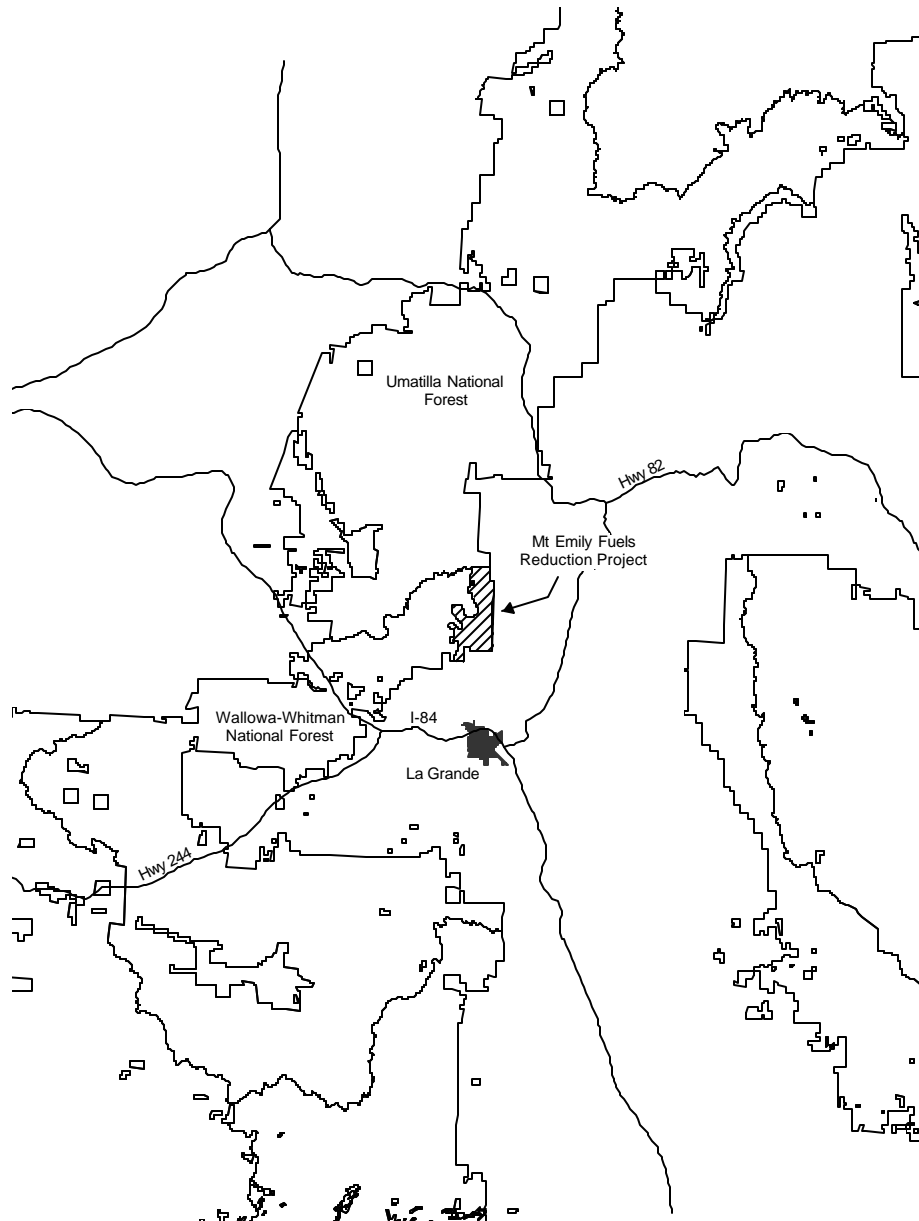
Recommended:

District Ranger – LGRD

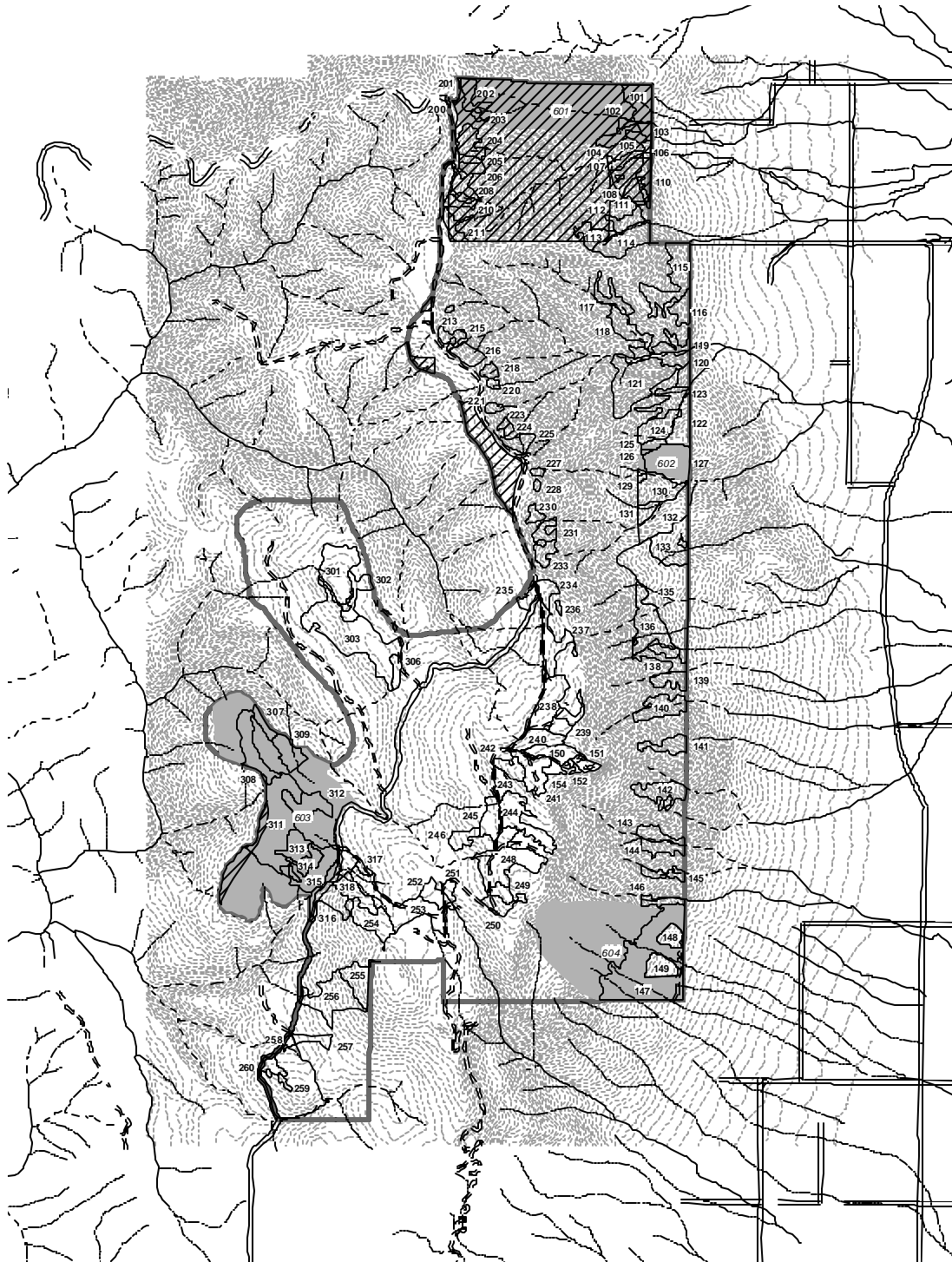
I believe this assessment meets the requirements of the National Environmental Policy Act of 1969.

Env. Coordinator

# Mt Emily Fuels Reduction Environmental Assessment Vicinity Map



# Mt Emily Fuels Reduction Project





**File Code:** 1920/1950

**Date:** February 25, 2005

**Subject:** Mt. Emily Fuels Reduction Decision Modification

**To:** Interested Parties

I have decided to modify my decision of December 15, 2004, on the Mt. Emily Fuels Reduction Project. I am dropping the treatment of 63 acres of prescribed burning (Unit 309) and 290 acres of mechanical fuels reduction treatments from this decision. The 290 acres are located in the Grande Ronde River/Hilgard Lynx Analysis Unit habitat. Mechanical treatment units which will not be carried forward in this decision are as follows:

Alternative 3 – Mechanical Treatments in Lynx Habitat		
Unit Numbers	Habitat Type	Prescription
150, 235, 240, 241, 244, 252, 268, 271, 317	Forage	Combination of all following treatments: HTH/HFU/SCN/RMP/RPB
237, 238, 239, 242, 243, 245, 246, 248, 262, 264, 265, 267, 309	Denning	Combination of all following treatments: HTH/HFU/SCN/RMP/RPB
207	Denning	Combination of all following treatments: HFU/SCN/RMP/RPB

I also clarify that in the Mt. Emily Fuels Reduction Project Environmental Assessment approximately 300 feet of a temporary spur road accessing Unit 312 appeared to go through lynx habitat. Unit 312 is outside of lynx habitat. However, field reconnaissance of this location indicated that this was a mapping error and the actual temporary road location is also outside of lynx habitat.

The Mt. Emily Fuels Reduction Project decision also included Forest Plan Amendment #32, which consisted of three sections. The modification of this decision changes Forest Plan Amendment #32 to exclude the adoption of the Canada Lynx Conservation Assessment and Strategy, August 2000, for the Mt. Emily project area.

If you should have any questions, please feel free to contact Kurt Wiedenmann at the La Grande Ranger District at 541-962-8582.

/s/ Steven A. Ellis  
STEVEN A. ELLIS  
Forest Supervisor

cc: Joyce Casey, Kathleen H Countryman, Kurt Wiedenmann

