USDA FOREST SERVICE
CROWN PACIFIC LIMITED PARTNERSHIP
LAND EXCHANGE

SUMMARY OF FINAL EIS

INTRODUCTION

In compliance with the National Environmental Policy Act (NEPA) and other relevant federal laws and regulations, the Forest Service has prepared an Environmental Impact Statement on a proposed land exchange between the Forest Service and Crown Pacific Limited Partnership (Crown Pacific). This summary provides a concise description of key portions of the FEIS. For complete details, please refer to the FEIS.

The proposed exchange involves lands within the vicinity of the Deschutes, Fremont, and Winema National Forests. The FEIS is designed to:

- inform the public of the Proposed Action,
- provide response to comments received on the Draft EIS,
- disclose direct, indirect, and cumulative environmental effects of the Proposed Action, and
- indicate any irreversible commitment of resources that would result from each alternative proposed.

The FEIS analyzes two alternatives and discusses the short and long-term environmental effects of each alternative. Six other alternatives were considered and eliminated from detailed study.

PROPOSED ACTION

The Forest Service proposes to exchange approximately 32,936 acres of National Forest System (NFS) lands for approximately 38,745 acres of Crown Pacific lands. The lands included in this proposed exchange are located within Deschutes, Jefferson, Klamath and Lake counties in Oregon. The proposed action would authorize the transfer of land ownership and management authority between the two parties. The proposed action would not authorize any site-specific management activities by either party.

DECISION TO BE MADE / SCOPE OF DECISION

Based on the analysis in the FEIS, the Responsible Officials (the Forest Supervisors of the Deschutes, Fremont, and Winema National Forests) will decide whether to proceed with the proposed exchange and if so, under what conditions. No Forest Plan amendments will be needed in order to incorporate lands into the respective National Forests. The implementing regulations for the Federal Land Exchange Facilitation act (found at 36 CFR 254.3), state that lands acquired by the National Forest system within areas of existing administrative designations will become part of the area within which they are located, without further action needed by the Forest Service. However, this decision includes non-significant Forest Plan amendments for the Deschutes and Fremont National Forests because the Proposed Action establishes new old-growth management areas.

The scope of the decision to be made is whether it is in the interest of the public to exchange lands currently in federal ownership for those currently in private ownership. The scope of the project's analysis has focused on the exchange, describing differences between expected management and the resulting effects to the physical, biological, and social aspects of the human environment. The analysis is limited to the expected effects of reasonably foreseeable future activities by the respective land owners and their management objectives.

PURPOSE OF AND NEED FOR ACTION

The purpose of this proposed land exchange is to consolidate land ownership and enhance long-term resource conservation and management. Exchanging parcels of National Forest System lands for Crown Pacific lands achieves the purpose and need in the following ways:

- reducing intermingled ownerships, by reducing the amount of urban/wildland interface,
- reducing the number of inholdings (small parcels of land of one ownership surrounded by lands of different ownership), and
- acquiring key parcels to meet specific resource needs.

Areas that are desirable for inclusion in the National Forest System (NFS) include:

- lands along the Little Deschutes River, Tumalo Creek, and the South Fork of the Sprague River (currently under consideration for inclusion in the Wild and Scenic River System),
- lands surrounding Corral Springs,
- lands near Moffit Butte (an unusual geologic area with scenic qualities along U.S. Highway 31), and
- lands within the Fort Rock, Metolius, and Tumalo mule deer winter ranges.

Currently, lands proposed for trading are characterized by intermingled ownerships, irregular boundaries, and inholdings. Areas that are less desirable for inclusion in the NFS (and therefore available for trade) typically include isolated parcels situated away from contiguous blocks of federal land.

The desired condition for NFS lands is large consolidated blocks that will provide for efficient and effective conservation and management of natural resources. Large, consolidated blocks will also help minimize administrative costs. Efficiencies are realized by reducing boundaries requiring survey and maintenance, reducing amounts of joint-use roads, reducing the number of easements and the number of agreements necessary to access inholdings. The current intermingled ownership pattern has made it necessary for both the Forest Service and large private timber company landowners to exchange rights-of-way and enter into shared road systems.

The current intermingled ownership pattern has a considerable effect on NFS management. Contrasting management practices on private land influence resource management efforts on National Forest System lands and reduces the ability to apply ecosystem management principles across the landscape. Effective conservation and management of natural resources can be realized by increasing the contiguous land base (ecosystem) where consistent objectives may be applied, and increasing ownership of important riparian and wetland areas or wildlife and fisheries habitats. Large areas of intermingled ownership currently exist in Klamath and Lake Counties. These areas are generally east of U.S. Highway 97 and south of U.S. Highway 31.

Crown Pacific land management objectives are benefited by reducing costs and improving efficiencies associated with timber land management. Cost reductions can be realized by reducing the amount of joint-use roads and boundary maintenance associated with the management of inholdings. Reducing the amount of NFS inholdings would allow Crown Pacific to more effectively manage their road systems.

This land exchange proposal is consistent with the standards and guidelines in the Forest Plans. Each Forest Plan includes some type of land adjustment plan. The land adjustment plans identify areas desirable for inclusion in the NFS and lands that are available for disposal. Typically, the objectives are to achieve a land ownership pattern that will best meet resource management needs, minimize administrative costs, and dispose of lands which are difficult to manage, isolated, or unsuitable for National Forest purposes. Priorities are to acquire inholdings and eliminate isolated and extruding parcels of lands.

SCOPING AND PUBLIC INVOLVEMENT

The NEPA scoping process (40 CFR 1501.7) was followed to determine the scope of issues and opportunities to be addressed in the environmental analysis and to identify major concerns related to the Proposed Action. Scoping and public involvement are ongoing processes used to invite public participation and to obtain input on the scope of the analysis, alternatives to be evaluated, and issues to be addressed. Public comment was sought through several means: public legal notices, mailings, public meetings, television, and inclusion of this exchange project in the Forests' *Schedule of Proposed Actions* that are mailed quarterly to the public. Public involvement was begun in the Fall of 1995, with the first set of public meetings held in the Fall of 1996, following the first major news coverage of the proposed land exchange in the Bend Bulletin in

July of the same year.

Dean Carrier and Associates (DCA), through a third party contract, prepared a preliminary assessment of the proposed land exchange. The preliminary assessment indicated that the analysis might be accomplished through an Environmental Assessment (EA), and Finding of No Significant Impact. DCA then prepared a preliminary EA documenting the expected effects of the proposed land exchange. As a result of agency review of the preliminary EA, the Responsible Officials determined that a more in-depth analysis was needed. Once the Forest Service determined that an Environmental Impact Statement (EIS) was warranted, the scoping and public involvement process was renewed with a new scoping letter, sent in September of 1997. This was followed by a series of public meetings during November and December of 1997.

Individuals and agencies contacted include identified stakeholders; elected officials; federal, state, and local agency personnel; respondents to a telephone line recorder; press and media in communities affected; and others on mailing lists provided by the three National Forests. In addition, consultation with affected tribes was performed at a government-to-government level. As a result, neither the Confederated Tribes of the Warm Springs Reservation nor the Burns Paiute Indian Tribe raised any concerns or specific issues regarding the proposed action. The Klamath Tribes raised issues concerning mule deer and cultural resources, and government-to-government consultation with them continued throughout the EA and EIS planning process.

A 60-day comment period was provided for interested and affected publics, including appropriate local, State, and Federal governments and agencies. This period lasted from November 1997 until January 9, 1998. During this period, the Forest Service received a broad range of comments from many sectors of the public.

Approximately 1,040 separate pieces of mail were received during the comment period. Comments were categorized into 21 general categories, with most of these categories being divided into subcategories. Of the 21 categories, the bulk of the comments focused on 11 specific areas:

- NEPA: Concerns about too few alternatives or flaws in the analysis or process,
- Social: Concerns for loss of quality of life, property values, and greenbelts,
- Recreation: Concern for loss of opportunities in general, and near specific places such as Tumalo Reservoir, Ponderosa Pines subdivision, and others),
- Future Management: Concerns about logging on newly acquired Crown Pacific lands. Concerns about development of residential tracts within these newly acquired Crown Pacific lands,
- Wildlife: Concerns that the exchange will have an impact on wildlife habitat, including late/old-growth associated species (LOS), mule deer, elk, winter range and migration corridors,
- Late and Old Structure (LOS): Commonly referred to as "old-growth" habitat, these types of stands with large trees making up some component of the trees received attention from commenters who wanted to ensure that large trees currently in the public ownership would not be traded away for lands with few of these trees,

- Appraisal: Comments were received raising concerns about the fairness and public interest of the trade, which was difficult for reviewers to gauge because of lack of appraisal information,
- Access: Concerns were raised about loss of public access to lands for a variety of uses, including recreation, fire control (and escape from wildland fires).

As discussed in the Record of Decision (ROD), comments were incorporated into the decision by the responsible officials. Some comments resulted in additional analysis, such as more study of the recreational use in the Tumalo area. Comments also resulted in modifications to the Proposed Action Alternative, as described in the ROD. Ultimately, the responsible officials weighed the comments in the context of the benefits of meeting the project purpose and need.

Appendix G of the FEIS contains a detailed description of the comments and responses to those comments.

KEY ISSUES

The USDA Forest Service/Crown Pacific Limited Partnership Land Exchange has been under general consideration by the Forest Service since 1994 and under detailed discussion since 1995. Based on review of past documents, consultation with members of the public and government agencies, public and internal Forest Service scoping input, and discussions with Crown Pacific, four issues were determined to be significant. These issues were utilized in considering alternatives, and are analyzed in the environmental consequences section of the FEIS.

Old Growth Allocations

Under the Forest Plans, land exchanges should be considered if they achieve the land ownership pattern that best accommodates the resource direction contained in the Forest Plans and if they improve the administrative efficiency of the management of the resources, especially where public and private lands are intermingled. Much of the land to be acquired from Crown Pacific has been previously managed for timber production and is roaded. These timber stands tend to be in earlier successional stages containing seedlings, saplings, and poles. Even though these stands tend to be in an earlier successional stage, many still contain a large tree component.

The proposed land exchange includes areas which were allocated as old growth under the Deschutes and Fremont Forest Plans. These allocations were designed to provide retention of old-growth habitat in all forest types distributed across the landscape to insure the viability of native and desired non-native wildlife species. The two Forests have identified replacement stands. The unit of measurement is the number of acres allocated to old growth management.

Late and Old Structure (LOS) Stands

LOS stands are those forest seral stages that include mature and old growth age classes. Characteristics of LOS habitat include the presence of large trees, multiple canopy layers, and abundant snags and down logs. LOS habitat supports a multitude of plant and animal species. In 1994, the Regional Forester established the Eastside Screens. The Eastside Screens were revised in 1995. Even though the Eastside Screens apply only to timber sales, the intent was to retain future options for wildlife habitat. The unit of measurement is number of acres of LOS habitat.

Mule Deer Winter Range

Mule deer winter range and migration corridors were identified by the Oregon Department of Fish and Wildlife (ODFW), and in the Deschutes and Lake County Comprehensive Plans. County comprehensive plans protect mule deer winter range and migration corridors by conserving important wintering areas and limiting conflicting uses within these areas. The project area contains lands located in the Fort Rock, Tumalo, and Metolius deer winter ranges. In addition, deer from the Devil's Garden, Fort Rock, Hole-in-the-Ground, Metolius, North Paulina, and Tumalo winter ranges migrate across project lands on their way to and from summering areas. Mule deer populations utilizing the winter range within the project area may provide subsistence to the various tribes (e.g., the Klamath Tribes have hunting rights to deer populations that migrate into the former reservation boundary within the vicinity of the project area). The unit of measurement is the number of acres of land managed for mule deer habitat.

Sensitive Plants

There is a potential for a change of ownership of lands containing sensitive plant species resulting from the land exchange. The specific species of interest are Peck's milkvetch (*Astragalus peckii*), pumice grape-fern (*Botrychium pumicola*), and Estes' Artemesia (*Artemesia ludoviciana)*. Peck's milkvetch is listed on the Regional Forester's sensitive plant list and by the State of Oregon as a threatened species. Populations of Peck's milkvetch occur from the Bend area to south of Chiloquin. The pumice grape-fern is listed on the Regional Forester's sensitive plant list and by the State of Oregon as a threatened species. Pumice grape-fern is endemic to Deschutes, Klamath, and Lake Counties in Oregon. Estes' Artemesia is listed on the Regional Forester's sensitive plant list and by the U.S. Fish and Wildlife Service as a species of concern. The unit of measurement is percent of known populations.

OTHER ISSUES

Other issues were identified and discussed and analyzed as part of the planning process. These issues were identified by the planning team and through the scoping process:

- Treaty Rights
- Cultural Resources
- Wildlife (including Threatened, Endangered, and Sensitive Species)
- Wetland/Riparian Areas

- Watersheds and Hydrology
- Fisheries
- Timber Resources
- Payments to Counties
- Survey and Maintenance Costs
- Recreation
- Access
- Range Resources
- Visual Resources
- Geology and Mineral Resources
- Soils
- Economic and Social Environment

The FEIS describes these issues. It also provides a discussion of the affected environment, and the effects of the No Action Alternative and the Proposed Action Alternative in terms of these issues.

DEVELOPMENT OF ALTERNATIVES

The process used to develop alternatives began with a review of the purpose of and need for action by the Interdisciplinary (ID) Team. The ID Team also relied on the history of land acquisition and exchanges on the three National Forests, the Preliminary Report (DCA 1996) prepared for the exchange, comments received during the scoping process, and the applicable direction within the three Forest Plans.

The ID Team originally considered several preliminary alternatives. As a result of comments received during the comment period for the Draft EIS, the ID Team considered the concept of two additional alternatives. These alternatives were eliminated from detailed study for the reasons listed below. Alternatives carried forward for detailed study had to meet the purpose of and need for action and also reflect the Agreement to Initiate a land exchange between the Forest Service and Crown Pacific. Consequently, one action alternative was carried forward for detailed analysis.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Six alternatives were considered but eliminated from detailed analysis:

Primarily Deschutes National Forest Exchange

An initial land exchange was proposed which primarily involved the Deschutes National Forest. During the same time period, the Fremont NF was also considering a proposed land exchange with Crown Pacific Ltd. In a letter from the Fremont National Forest dated March 1, 1994, it was recommended that the scale of the proposed exchange be expanded to include lands on the Fremont and Winema National Forests. This recommendation added approximately 19,000 acres of National Forest System lands and an equivalent amount of Crown Pacific lands for consideration. An analysis of time and costs to complete such an exchange indicated that there would be substantial long-term savings to both the Forest Service and to Crown Pacific if all of the desired exchanges between these entities were consolidated into one exchange effort. Therefore, the decision was made to eliminate these separate alternatives and have one proposal to include the exchange lands for all three National Forests.

Restrict Exchange to Noncontroversial Lands

The preliminary analysis indicated that the exchange of certain lands might generate public controversy due to special interests involving certain parcels. This included ecological concerns (e.g., late-seral forests and wildlife habitats), cultural resource concerns (e.g., American Indian and historical issues) and social and economic concerns (e.g., urban/wildland interface and public access). The removal of these controversial parcels from the exchange proposal was considered and would have expedited the exchange process. However, this alternative would not have achieved the desired results of consolidating land ownership. Eliminating all parcels that might generate public controversy would not reduce the intermingled ownership pattern, eliminate isolated tracts and inholdings, or reduce administrative costs. Since this is the purpose of the exchange, this alternative was not considered further.

Forest Service Purchase Crown Pacific Lands

One suggested alternative was for the National Forest System to acquire Crown Pacific lands through direct purchase by the federal government. This alternative was not analyzed in detail because it would not meet the need for Crown Pacific to consolidate its ownership and to better mange its timber resources. In addition, it is unlikely that the Forest Service would be able to secure the type of funding needed to acquire Crown Pacific lands.

Maximum Acres for Exchange

This alternative included all lands that were originally studied for potential exchange between the Forest Service and Crown Pacific. During the scoping process, this combination of lands under consideration was referred to as a "pool" of possible lands. This alternative would have included approximately 62,653 acres of Crown Pacific lands in exchange for approximately 55,365 acres of National Forest System lands. This alternative as a whole was eliminated from detailed study because of conflicts with other resource values (i.e., old growth forests); conflicts with habitat of species protected under the Endangered Species Act; conflicts with potentially significant cultural sites; and concerns of local residents and county administrators. This alternative as modified during the scoping process became the proposed action.

Tumalo Alternative

This alternative would retain almost all National Forest System lands in the Tumalo Reservoir area, and add Crown Pacific lands in the same area. The Crown Pacific lands proposed for acquisition include Bull Springs. Other CP lands would be eliminated to balance the values of Federal and non-Federal lands. This alternative would meet the purpose of and need for action, in part, by consolidating land ownership in the Tumalo Reservoir area. It would not meet the overall purpose of and need for action, which is to reduce intermingled ownerships, reduce the number of inholdings, and minimize administrative costs. A review of possible lands to be retained by Crown Pacific indicated unacceptable trade-offs (minimal reductions in joint boundaries, minimal reductions in joint-use road systems, minimal reductions in the number of inholdings, minimal gains in riparian/wetland areas, minimal overall gains in deer winter range) that in and of themselves, would not meet the purpose and need for the exchange. Successful land exchanges are dependent upon the "willing buyer, willing seller" principle. This alternative includes lands not offered for exchange by Crown Pacific. In addition, this alternative would not meet the need for Crown Pacific to consolidate its ownership to better manage its timber resources.

Subdivision Alternative

This alternative would retain National Forest System lands surrounding and adjacent to the Ponderosa Pines and Jack Pine Village subdivisions. This alternative was not considered in detail because it did not meet the purpose of and need for action, including consolidation of land ownership, applying ecosystem management principles across the landscape, and reducing the urban/wildland interface. Crown Pacific has met with the Ponderosa Pines Property Owners Association and has offered to meet with home owner at Jack Pine Village. Crown Pacific has outlined a proposal for a "Community Interface Management Area" which addresses many of the concerns raised by area residents.

ALTERNATIVES CONSIDERED IN DETAIL

Two alternatives were considered in detail.

No Action Alternative

The land exchange between the Forest Service and Crown Pacific would not occur under the No Action Alternative. If this alternative were selected, the current land ownership pattern and resource management practices would continue within the project area. Federal lands would continue to be managed as directed by the appropriate Forest Plans; private lands would continue to be managed under existing Crown Pacific policies and applicable state and federal laws and regulations.

Proposed Action Alternative

The Proposed Action is the jointly proposed Forest Service/Crown Pacific Land Exchange Project in Deschutes, Jefferson, Klamath, and Lake Counties in east central Oregon. The land exchange involves approximately 32,936 acres of Forest Service land under the jurisdiction of the Deschutes and Fremont National Forests and approximately 38,745 acres of land owned by Crown Pacific. The exchange lands include discontinuous parcels of National Forest System lands that are surrounded by Crown Pacific land, parcels of Crown Pacific land that are surrounded by National Forest System lands, and parcels along irregular edges separating the two ownerships. The Winema National Forest, while not offering lands for exchange, would receive lands from Crown Pacific.

Table S-1 provides a summary of the changes in land ownership by National Forest and Table S-2 provides the same information by county. All numbers are approximate acreages and totals may not be exact.

Table S-1 Exchange Lands by National Forest

National Forest	County	CP acres to NFS	NFS acres to CP	Net Gain (Loss) of NFS Acres
Deschutes	Deschutes	12,054	7,286	4,768
	Jefferson	1,440	0	1,440
	Klamath	7,826	19,020	(11,194)
	Lake	80	0	80
	Total	**21,400**	**26,307**	**(4,906)**
Fremont	Klamath	9,525	4,307	5,217
	Lake	1,756	2,320	(564)
	Total	**11,281**	**6,628**	**4,653**

Winema	Klamath	6,062	0	6,062
	Total	**6,062**	**0**	**6,062**
GRAND TOTAL		**38,743**	**32,935**	**5,809**

Table S-2 Exchange Lands by County

County	National Forest	CP acres to NFS	NFS acres to CP	Net Gain (Loss) of NFS Acres
Deschutes	Deschutes	12,054	7,286	4,768
	Total	**12,054**	**7,286**	**4,768**
Jefferson	Deschutes	1,440	0	1,440
	Total	**1,440**	**0**	**1,440**
Klamath	Deschutes	7,826	19,020	(11,194)
	Fremont	9,525	4,307	5,217
	Winema	6,062	0	6,062
	Total	**23,413**	**23,327**	**86**

Lake	Deschutes	80	0	80
	Fremont	1,756	2,320	(564)
	Total	**1,836**	**2,320**	**(484)**

COMPARISON OF ALTERNATIVES

This section presents a comparison of the two alternatives that were considered in detail. First, Table S-3 presents a summary of the consequences by Key Issue and Other considerations (physical, biological and administrative consequences) of the alternatives. Second, the two alternatives are compared and evaluated in relation to Key Issues and a selection of the "Other Issues" discussed above.

Table S-3 Comparison of the Alternatives

	No Action	**Proposed Action**
Key Issues	Consequences	
Allocated Old-Growth (acres)	No Change	1152
Late/Old Structure (acres)	No Change	(4028)
Sensitive Plants (% of known population affected)		
Peck's Milkvetch (ASPE)	0%	2%
Pumice Grape-Fern (BOPU)	0%	3.6%
Estes' Artemesia	0%	0.007%
Mule Deer Winter Range (acres)	No Change	6307

Other Resource and Administrative Considerations		
T. E. S. Faunal and Floral Species	No Effect	No Significant Effects
Cultural Resources	No Effect	No Adverse Effect
Perennial Streams (miles)	No Change	8.9
Intermittent Streams (miles)	No Change	11.5
Wetlands (acres)	No Change	502
# of miles of Joint Use Roads	No Change	(220)
# of miles of joint boundaries	490.6	170.6
NFS Acres	3,828,580	3,834,389

Old Growth Allocations

Under the No Action alternative, the existing Forest Plan Management Allocations (Deschutes NF, MA-15; Fremont NF, MA-14) would remain unchanged; the Winema NF is only acquiring land under the Proposed Action. Under the Proposed Action, 338 and 231 acres allocated to old growth management on the Fremont NF and Deschutes NF respectively, would be transferred to Crown Pacific. However the two Forests have identified replacement stands and will allocate 1,721 acres to old growth management, 1413 on the Fremont NF and 308 on the Deschutes NF. Thus under No Action there would be no change in acres, while the Proposed Action would actually result in a net increase of 1152 acres allocated to old management on the two Forests. There are beneficial effects as the result of the Proposed Action in both acres and quality of allocated old growth management on both the Deschutes and Fremont National Forests.

Late and Old Structure (LOS habitat)

Under the No Action alternative the current amount and distribution of LOS habitat for wildlife species would be maintained. In the short term, the intermingled ownership of lands containing LOS habitat between the Forest Service and Crown Pacific, provides biological diversity, refugia and population dispersal. In the long term, as Crown Pacific continues the uneven-aged harvesting of LOS on their lands, there would be a reduction in the quality of LOS habitat on

private lands, and the Forest Service would not have the opportunity to perform improvements to LOS habitat on acquired lands.

The Proposed Action would result in 3,793 acres of ponderosa pine LOS habitat and 676 acres of lodgepole pine being transferred to Crown Pacific. There would be a net gain of 441 acres of mixed conifer LOS habitat on National Forest System lands under the Proposed Action. For additional clarification, the amount of ponderosa pine LOS habitat on the Deschutes NF affected under the Proposed Action (3281 acres) is approximately 2% of the Forest's total ponderosa pine LOS habitat (160,967 acres).

Habitat varies by species, thus the Proposed Action has differential affects on wildlife species. For example, while there would be net losses in habitat acres for black-backed woodpecker (-4678), there are gains for the three-toed woodpecker (+1032) and northern spotted owl (+2825). Thus while there are localized effects, the Proposed Action would not result in significant effects to LOS on National Forest System lands in the project area. Data from the Winema and Fremont National Forest or Crown Pacific lands is not available in the geographic information system (GIS). This allows the comparison of parcels to be exchanged with the structural stages and shows that the majority of lands proposed to be conveyed are in the early structural stage (mostly plantations or previously harvested areas).

Mule Deer Winter Range

Under the No Action Alternative there would be no change in the amount and distribution of mule deer winter range habitat on the three Forests. This alternative would retain high quality winter range habitat for the Tumalo herd, but it forego the opportunity to consolidate ownership and increase acres of habitat on National Forest System lands across the project area.

As the result of the Proposed Action, there would be a net increase of 6,307 acres of mule deer winter range. The Tumalo herd would receive 3,616 acres of additional habitat on National Forest System lands, the Metolious herd would receive an additional 2,081 acres and 610 acres would accrue to the Fort Rock herd. Thus under the No Action alternative the opportunity to increase mule deer habitat on the three Forests would be foreclosed.

Sensitive Plants

Under the No Action alternative there would be no change in habitat acres or population numbers for the three sensitive plant species of concern, Peck's milkvetch (*Astragalus peckii*), Pumice grape-fern (*Botrychium pumicola*) and Estes' Artemesia (*Artemisia ludovicianna ssp estesii*).

The impacts and findings of the Biological Evaluations to these sensitive plants as the result of the Proposed Action would range from no significant effects, to no significant effects but may affect individuals (Peck's milkvetch and pumice grape-fern).

Approximately 2% of the known population of Peck's milkvetch with the project area would be affected by the Proposed Action. Of this amount, 75% would be maintained under federal control

under protective clause with the Bonneville Power Administration. There is no evidence that plant populations on Crown Pacific lands are adversely affected by their management activities, as the openings in the forest canopy created by uneven-aged timber harvest appear to benefit Peck's milkvetch.

Approximately 3.6% of the known population of the pumice grape-fern will be affected by the Proposed Action. The global population of the rare and localized pumice grape-fern is thought to contain approximately 14,700 fronds. Population estimates of this species are problematic, as the fronds do not necessarily emerge annually and do so only seasonally when certain factors are present.

There is no known occupied habitat for Peck's penstemon or Jepson's monkeyflower on National Forest System lands proposed for transfer under the Proposed Action. However two parcels of Crown Pacific lands proposed for transfer to the Forest Service contain occupied and potential habitat for Jepson's monkeyflower.

Approximately 700 stems or 0.0007% of the known population of Estes' artemesia on National Forest System lands would be affected by transfer under the Proposed Action. The parcel containing this small population is currently a Forest Service campground, and under the Proposed Action will be transferred to La Pine Parks and Recreation District by Crown Pacific once acquired, to be managed as a park and similar management will continue under Park District management as under the Forest Service. Thus, there are no significant effects to sensitive plant species under the Proposed Action.

COMPARISON OF ALTERNATIVES ON OTHER ISSUES

Treaty Rights

Under the No Action alternative the current land ownership pattern would remain unchanged, as would the Treaty rights of the Klamath Tribes and the Treaty and Ceded land rights of the Confederated Tribes of the Warm Springs Reservation (CTWSR). The Proposed Action would result in no change to treaty rights and ceded land rights, however there would be a net gain of 8,816 acres with the ceded lands of the CTWSR.

Cultural Resources

The selection of the No Action alternative would result in no change to known historic and archaeological sites located on National Forest System lands, of which there are 26, with 12 eligible to the National Register of Historic Places. The Proposed Action would result in a finding of No Adverse Effect, based on required mitigation. Five sites would require mitigation and historic preservation treatments as the result of this alternative. The mitigation would be carried out under Deed Reservations, with full title being transferred to Crown Pacific on those parcels containing these sites only upon completion of the required treatments.

Payments to Counties

Under the No Action alternative the number of National Forest System acres in each of the four counties, Deschutes, Jefferson, Klamath and Lake, would remain unchanged. The Proposed Action would result in a net increase of National Forest System lands, of 5,810 acres. All the counties, save Lake, gain National Forest System lands under this alternative; Lake County would loose 484 acres of National Forest System lands. This would result in a loss of only $629.00 in Forest Service payment to counties under the 25% fund. Crown Pacific would continue to pay ad valorem taxes and in addition harvest taxes based on the amount of timber harvest in that county.

Survey and Maintenance Costs

Under the No Action alternative due to the nature of intermingled ownership between National Forest System and Crown Pacific lands their are over 470 miles of exterior and interior boundaries between the two ownerships. The cost of maintaining these National Forest System exterior and interior boundaries would be approximately $150,000 over the next ten years. When looking at the next one hundred years this cost would be $1.5 million. The consolidation of National Forest System ownership under the Proposed Action would result in the reduction of 320 miles of exterior and interior boundaries and the Forest Service would realize a savings of $100,000 over the next ten years, or $1.0 million over the next 100 years in 1997 dollars. The new costs associated with posting new boundaries would be less than $15,000. Thus there are beneficial effects to survey and maintenance costs through their substantial reduction in both the short and long-term.

Access

Access was analyzed in two broad categories, general public road access to and through National Forest System lands and access specific to dispersed recreation areas. There would be no changes to existing road locations, management and ownership as the result of the No Action alternative. The overall amount of joint-use roads, administered by the Forest Service and Crown Pacific would remain the same, as would the number of total road miles in the project area (approximately 790). However, the Proposed Action would result in the elimination 220 miles of joint use roads, while the remainder would be managed as single-owner roads, or as joint-use roads depending on whose lands the roads were located.

Another point of analysis is road densities: the Forests have a management goal of reducing road densities on National Forest System lands to no more than 2.5 miles of road per square mile. The reduction of road densities is for the purpose of enhancing or maintaining wildlife habitat, reducing erosion and protecting watersheds. Road densities in the project area range from a high of 7.2 miles/sq. mile in the Dorrance subwatershed, to a low of 1.0 in the Forks subwatershed, with an average across the project area of 4.1 miles/sq. mile. The No Action alternative would not result in any changes to the road density. The Forests would continue to seek opportunities to reduce road densities throughout the project area. The Proposed Action will result in a slight

increase in average road densities on National Forest System lands. The average increase of 0.1 to 0.2 miles/sq. mile does not significantly change the amount of miles to be reduced on National Forest System lands (or the cost of doing so) over the long run to meet the goal of 2.5 miles/sq. mile. In addition, the Forest Service is in the midst of developing a new National policy on Forest roads, that will address such issues as road access, maintenance and road densities.

The No Action alternative would not result in any changes to existing public access to dispersed recreation areas in the project area. Some areas, such as Tumalo Creek, would remain relatively inaccessible and opportunities to provide road and recreation trail access would be foreclosed. The Proposed Action would not likely result in any changes to roaded access in the project area either. As discussed above some roads would revert to single-owner management, but no roads would be closed as the result of this alternative. Areas, such a Tumalo Reservoir, would continue to have recreational access provided by Deschutes County roads such as Sisemore and Tumalo Reservoir Road.

Wildlife

Wildlife species were analyzed by habitat type, such as LOS (see above, under Key Issues), riparian/wetlands, rock outcrop, cliff and talus, habitat generalists and big game habitats.

Under the No Action alternative there would be no change in the management of these habitat types on National Forest System lands. In some cases, such riparian/wetlands, opportunities to increase acres of that habitat would be foreclosed under this alternative (see Riparian and Wetlands below).

In general, the Proposed Action alternative would result in no significant effects to habitat types and the species who occupy them, in the project area, while there would, in some cases, be net decreases of habitat type acres at the local scale (subwatersheds). For example, there will be a net gain of rock outcrop, cliff, and talus habitat in the project area, yet there will be decrease of such habitat in the Sellers subwatershed. Similarly, there will be a net gain for habitat generalists, such as the California wolverine, Canada lynx, and bald eagle, while there will be a decrease of such habitat in the in the Bull, Dorrance, Sellers and Toast subwatersheds. Big game habitat would be increased in the project area as the result of the Propose Action. There would be a net gain of 1388 acres of significant elk habitat and 640 acres in the Fall Creek Key Elk Area (a management allocation in the Deschutes NF LRMP), while there would be a decrease in significant elk habitat in the Sellers and Toast subwatersheds.

Riparian and Wetlands

There would be no change to either riparian areas or wetlands under the No Action alternative. Those riparian areas and wetlands owned by Crown Pacific have limited timber production value to them and would be likely sold or traded. Thus the opportunity for the Forest Service to acquire those wetlands or riparian areas owned by Crown Pacific would be foreclosed. Under the Proposed Action the Forest Service would acquire a net increase of both riparian areas and wetlands. Over 20 miles of perennial and intermittent streams and 502 acres of wetlands would

be acquired by the Forest Service. This includes the highly valued upper watershed of Tumalo Creek adjacent to Bend, Oregon, a section of the Sprague River, a Wild and Scenic Study River, as well as three meadow complexes and a seasonal lake.

Recreation

Under the No Action alternative there would be change to existing dispersed recreation use which occurs on both National Forest System and Crown Pacific lands in the Tumalo Reservoir area and at other locations adjacent to National Forest System lands, such as rural subdivisions, like Ponderosa Estates or Jack Pine Village. The Rosland Campground, the only developed recreation site in their entire proposed exchange would continue under Forest Service management. However, the lack of sufficient revenues have prevented the full operation of that facility. In all locales recreation use would continue to grow with population. Tumalo Creek above Shevlin Park in Bend, would remain in Crown Pacific ownership, and foreclosing the opportunity for the public to acquire this desirable parcel with the National Forest System.

The Proposed Action would result in no change to recreation access in the Tumalo area, but trails located on National Forest System lands would now be on lands owned by Crown Pacific. Under Crown Pacific's land use policy recreation use would continue to be allowed, with the exception that no overnight camping would be allowed. The National Forest System lands adjacent to subdivisions, such as Ponderosa Estates and Jack Pine Village, would be transferred to Crown Pacific. While Crown Pacific's land use policy would allow continued use of the surrounding areas, aesthetic characteristics of the experience may be effected as uneven-aged timber harvest activities occur adjacent to subdivisions. The Proposed Action would also result in the transfer of Rosland Campground to LaPine Parks and Recreation District, with Crown Pacific acting as intermediary in the transaction via donation to the park district. The campground would continue in operation on a seasonal basis and managed by the park district.

Economic and Social

The economic and social analysis performed for this project area examined a variety of factors, a number of which were of concern to the public. The issue of adjacent property values and the likelihood of development were two of the greatest and related concerns expressed by the public during our scoping and analysis. The No Action alternative would not result in any changes of land ownership per se, nor county zoning. However lands purchased by Crown Pacific for this exchange, and other lands outside of their key timber management units (Bull Spring Tree Farm, and Gilchrist Tree Farm) would be subject to sale and disposal by Crown Pacific. In addition, National Forest System lands, determined under the existing Forest Plans to be candidates for exchange, would be subject to future land exchange proposals. The Proposed Action would not result in any changes to county zoning in the project area, the existing and acquired lands owned by Crown Pacific would remain in primary forest zone classification and the company has no stated interest in developing their lands for other than timber production. The degree to which adjacent private property values would be affected is not expected to be significant at this time. Crown Pacific has negotiated 1/4 mile Community Interface Management Areas with the two subdivisions affected by the Proposed Action, Ponderosa Pines Estates and Jack Pine Village.

Crown Pacific will maintain a fire resistent boundary with those subdivisions, reserve a large tree component for aesthetic purposes and post no new fencing.

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USDA FOREST SERVICE/CROWN PACIFIC LIMITED PARTNERSHIP LAND EXCHANGE PROJECT

FINAL ENVIRONMENTAL IMPACT STATEMENT

CHAPTER 1

PURPOSE AND NEED FOR ACTION

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INTRODUCTION

In compliance with the National Environmental Policy Act (NEPA) and other relevant federal laws and regulations, the Forest Service has prepared this Environmental Impact Statement (EIS) on a proposed land exchange between the Forest Service and Crown Pacific Limited Partnership (Crown Pacific (CP)). The proposed exchange involves lands within the vicinity of the Deschutes, Fremont, and Winema National Forests. This EIS is designed to:

- inform the public of the Proposed Action;
- provide response to comments received on the Draft EIS;
- disclose the direct, indirect, and cumulative environmental effects of the Proposed Action; and
- indicate any irreversible commitment of resources that would result from each alternative proposed.

This document analyzes two alternatives and discusses the short and long-term environmental effects of each alternative. Additional alternatives were considered and eliminated from detailed study (see Chapter 2).

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PROPOSED ACTION

The Forest Service proposes to exchange approximately 32,936 acres of National Forest System (NFS) lands for approximately 38,745 acres of Crown Pacific lands. The lands included in this proposed exchange are located within Deschutes, Jefferson, Klamath and Lake Counties in Oregon. The proposed action would authorize the transfer of land ownership and management authority between the two parties. The proposed action would not authorize any site-specific management activities by either party.

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LAND EXCHANGE PROCESS

Introduction

Land exchanges involve three phases that overlap slightly in time: 1) the Land Exchange Proposal Phase, 2) the NEPA Phase, and 3) the Final Appraisal and Land Exchange Phase. The first phase involves initial discussions and an agreement to consider exchange of certain lands, along with the completion of various technical studies. The second phase involves the completion of the environmental analysis, documented either in an Environmental Assessment (EA) or an Environmental Impact Statement (EIS), if the Proposed Action is not categorically excluded from such documentation, as per Forest Service Handbook 1909.15, Chapter 30. The third phase involves the final appraisal and evaluation, culminating in the final exchange agreement and the actual exchange of lands. These three phases are discussed in more detail below.

The land exchange process includes some procedures that are open for public review and others that are confidential. A land exchange is a federal action that requires environmental analysis under NEPA. The NEPA process and the associated Forest Service implementing regulations provide for an open public review process. The process of developing a land exchange proposal, however, is essentially a business negotiation between the non-federal and federal landowners. In this process, non-federal landowners share confidential or proprietary information with the federal landowner. Additionally, prior to signing the exchange agreement, either party to a land exchange may withdraw from the proposal.

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Land Exchange Proposal Phase

The first phase of the land exchange process leads to an Agreement To Initiate (ATI) an exchange. The first step involves the negotiations that take place between the Forest Service and the non-federal landowner. Land exchanges are voluntary agreements and must be advantageous to both parties in order to take place. Based on these negotiations, the parties develop a mutually agreeable exchange proposal.

When an ATI is reached, the Forest Service appraiser prepares a mini-appraisal. This is

not a formal appraisal and is used for negotiating purposes only. It is essentially an initial feasibility test used to balance the value of the federal and non-federal lands through the addition or deletion of parcels. The mini-appraisal is usually agreed to by both parties. Under the Federal Land Policy and Management Act (FLPMA) of 1976, all exchanges must be equal in value. Forest Service regulations in 36 CFR 254.11 also indicate that exchanges should be of approximately equal value.

After an ATI has been signed, environmental responses are prepared concerning pertinent issues Normally, as soon as the non-federal lands are identified, the non-federal landowner will obtain a preliminary title report, which lists all outstanding rights of record.

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NEPA Phase

The second phase begins when the draft exchange proposal and the environmental responses are nearing completion and the potential for the land exchange to actually occur becomes apparent. With initiation of the NEPA process, public and agency scoping and public involvement continues. Issues are identified, alternatives are developed, and the environmental analysis is conducted and documented. In this instance, the analysis is documented in an EIS and the final decision will be documented in a Record of Decision. Early analysis and public scoping led to a reconfiguration of the initial proposal to ensure that the proposed land exchange was in the public interest.

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Final Appraisal and Land Exchange Phase

During or after the NEPA phase, the third phase of the land exchange process begins. It is during this final phase when the value of the lands that will be included in the actual exchange is determined. Once these values are known, the final distribution of land parcels is assembled.

The appraisal is prepared in accordance with the Uniform Standards of Professional

Appraisal Practice and the Uniform Appraisal Standards for Federal Land Acquisition. These documents require that the land and everything associated with the land be appraised to the highest and best use. The appraisal prepared for the land exchange is reviewed by a qualified review appraiser to ensure that it is fair and it complies with the appropriate standards. Once the appraisal has been reviewed by the Forest Service, and both parties agree to the mix of lands and/or cash equalization, an exchange agreement is prepared and signed. Additionally, at this stage there is a review of the exchange agreement by the appropriate Regional Office of the Forest Service. These approvals are necessary for the exchange agreement to be implemented. Final land conveyance involves the exchanging of Deeds and Patent, obtaining final title insurance to assure clear title, final title opinion by the Forest Service and the Office of General Counsel, and posting of records.

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DECISION TO BE MADE

Based on the analysis in the EIS, the Responsible Officials (the Forest Supervisors of the Deschutes, Fremont, and Winema National Forests) will decide whether to proceed with the proposed exchange and if so, under what conditions. This decision may include non-significant Forest Plan amendments for the Deschutes and Fremont National Forests. The proposed Forest Plan amendments will be to allocate certain areas to old-growth management.

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SCOPE OF THE DECISION

The scope of the decision to be made is whether it is in the interest of the public to exchange lands currently in federal ownership for those currently in private ownership. The scope of the project is focused on the exchange itself, and the analysis is limited to the expected effects of reasonably foreseeable future activities by the parties on lands currently or anticipated to be under their control.

The implementing regulations for the Federal Land Exchange Facilitation Act (36 CFR 254.3) states that lands acquired by the National Forest System within areas of existing administrative designation will "...automatically become part of the area within which they are located, without further action by the Forest Service, and shall be managed in accordance with the laws, rules, regulations, and land and resource management plan applicable to such area." The regulations further state, "*lands conveyed out of federal ownership shall be subject to local government laws, regulations, and zoning."

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PURPOSE AND NEED FOR ACTION

The purpose of this proposed land exchange is to consolidate land ownership and enhance long-term resource conservation and management. This purpose can be achieved by acquiring key parcels to meet specific resource needs, reducing intermingled ownerships, reducing the amount of urban/wildland interface, and reducing the number of inholdings (small parcels of land of one ownership surrounded by lands of different ownership) by exchanging parcels of NFS lands for Crown Pacific lands. Currently, lands proposed for trade are characterized by intermingled ownerships, irregular boundaries, and inholdings.

Areas that are desirable for inclusion in the NFS include: lands along the Little Deschutes River, Tumalo Creek, and the South Fork of the Sprague River (currently under consideration for inclusion in the Wild and Scenic River System); lands surrounding Corral Springs; Moffit Butte (an unusual geologic area with scenic qualities along U.S. Highway 31); and lands within the Fort Rock, Metolius, and Tumalo mule deer winter ranges. Areas that are not desirable for inclusion in the NFS typically include isolated parcels situated away from contiguous blocks of federal land.

The desired condition for NFS lands is large consolidated blocks which will provide for efficient and effective conservation and management of natural resources. Large, consolidated blocks will also help minimize administrative costs. Efficiencies are realized by reducing boundaries requiring survey and maintenance, reducing amounts of joint-use roads, reducing the number of easements and the number of agreements necessary to access inholdings. The current intermingled ownership pattern has made it necessary for both the Forest Service and large private timber company landowners to exchange rights-of-way and enter into shared road systems.

The current intermingled ownership pattern has a considerable effect on NFS management. Contrasting management practices on private land influence resource

management efforts on NFS lands and often reduces the ability to apply ecosystem management principles across the landscape. Effective conservation and management of natural resources can be realized by increasing the contiguous land base (ecosystem) where consistent objectives may be applied, and increasing ownership of important riparian and wetland areas or wildlife and fisheries habitats. Large areas of intermingled ownership currently exist in Klamath and Lake Counties. These areas are generally east of U.S. Highway 97 and south of U.S. Highway 31.

Crown Pacific land management objectives are benefited by reducing costs and improving efficiencies associated with timber land management. Cost reductions can be realized by reducing the amount of joint-use roads and boundary maintenance associated with the management of inholdings. Reducing the amount of NFS inholdings would allow Crown Pacific to more effectively manage their road systems.

The lands considered for exchange consist of approximately 32,936 acres of NFS lands for approximately 38,745 acres of Crown Pacific lands.

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PROJECT LOCATION

The lands proposed for exchange are located within Deschutes, Jefferson, Klamath and Lake Counties, and in the Deschutes, Little Deschutes, and Klamath River drainages. Appendix A identifies the current owners of these lands, along with the township, range, and section. See MAP A, located at the end of Chapter 1 for a vicinity location of the project.

Lands proposed for exchange to Crown Pacific generally extend from north of Sisters, Oregon, southward along the east side of the Cascades to the vicinity of Wing Butte, located 11 miles northwest of Silver Lake, Oregon. The proposed exchange parcels are loosely clustered into three primary groups. The first, most northern of these groups is located a short distance northwest of Bend, within the drainage of Bull Creek near the Upper Deschutes River. The second group is located southwest of Bend and west of the community of La Pine. The third group extends from Mowich Butte in the southwest, northward through Crescent and Gilchrist to Wing Butte in the southeast. This cluster also includes parcels in the exchange that are located within the Fremont National Forest.

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RELATIONSHIP TO THE FOREST PLANS

This document is tiered to the three National Forest Land and Resource Management Plans (Forest Plans) and their accompanying Environmental Impact Statements as amended by the Revised Continuation of Interim Management Direction Establishing Riparian, Ecosystem, and Wildlife Standards for Timber Sales (Eastside Screens) and the Inland Native Fish Strategy (INFISH). The Forest Plan documents are incorporated by reference at the appropriate places throughout this document.

NFS lands offered for exchange are within various Management Allocations (MAs) described in the Forest Plans. These allocations include General Forest, Old-Growth, Intensive Recreation, Front Country, and Scenic Views on the Deschutes NF, and Timber/ Range Production, Dedicated Old-Growth, F/W Habitat/Water Quality, and Minimum Management on the Fremont NF. These MAs are detailed in Appendix B. No Congressionally Designated Areas (i.e., Wilderness, Wild and Scenic Rivers) are proposed for exchange. The regulations for land exchanges (36 CFR 254.3(f)) state: "Lands acquired by exchange that are located within areas having an administrative designation established through the land management planning process shall automatically become part of the area within which they are located without further action by the Forest Service, and shall be managed in accordance with the laws, rules, and regulations, and land and resource management plan applicable to such area."

The Crown Pacific lands offered for exchange are managed primarily for a timber emphasis in accordance with the Oregon State Forest Practices Act. Forest Plan land allocations proposed for these tracts of land will vary with how they are situated within and adjacent to NFS lands. Appendix B lists the estimated acreages and the MAs for the lands offered for exchange.

This land exchange proposal is consistent with the standards and guidelines in the Forest Plans. Each Forest Plan includes some type of land adjustment plan. The land adjustment plans identify areas desirable for inclusion in the NFS and lands that are available for disposal. Typically, the objectives are to achieve a land ownership pattern that will best meet resource management needs, minimize administrative costs, and dispose of lands which are difficult to manage, isolated, or unsuitable for National Forest purposes. Priorities are to acquire inholdings and eliminate isolated and extruding parcels of lands.

The Crown Pacific lands proposed for exchange are suitable and desirable for inclusion in the National Forest System. Consolidated ownership of these lands with NFS lands would enhance the Forest Service's ability to implement ecosystem management and would increase the amount of wetlands in the National Forest System.

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SCOPING AND PUBLIC INVOLVEMENT

Scoping

Pertinent portions of the NEPA scoping process (40 CFR 1501.7) were followed to determine the scope of issues and opportunities to be addressed in the environmental analysis and to identify major concerns related to the Proposed Action. Scoping and public involvement are ongoing processes used to invite public participation and to obtain input on the scope of the analysis, alternatives to be evaluated, and issues to be addressed. Public comment was sought through several means, including those summarized below.

Early in the analysis process, Dean Carrier and Associates (DCA), through a third party contract, prepared a preliminary assessment of the proposed land exchange. The preliminary assessment indicated that the analysis might be accomplished through an Environmental Assessment (EA), and Finding of No Significant Impact. DCA then prepared a preliminary EA documenting the expected effects of the proposed land exchange. As a result of agency review of the preliminary EA, the Responsible Officials determined that a more in-depth analysis was needed. As announced in September 1997, the Forest Service determined that an EIS was warranted.

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Individuals and Agencies Contacted

Individuals and agencies contacted include identified stakeholders; elected officials; federal, state, and local agency personnel; respondents to a telephone line recorder; press and media in communities affected; and others on mailing lists provided by the three National Forests.

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Public Notices

Public notices concerning the Proposed Action included the following:

- September 28, 1995 - Legal Notice, Lands Considered for Exchange, Bend Bulletin
- October 5, 12, 19, 1995 - Legal Notice, Lands Considered for Exchange, Bend Bulletin
- October 5, 12, 19, 26, 1995 - Legal Notice, Lands Considered for Exchange, Klamath Falls Herald and News
- October 5, 12, 19, 26, 1995 - Legal Notice, Lands Considered for Exchange, Lake County Examiner
- October 4, 11, 18, 25, 1995 - Legal Notice, Lands Considered for Exchange, Madras Pioneer
- Fall 1995 - Deschutes NF Schedule of Proposed Actions
- August 1995 - Winema NF Schedule of Proposed Actions
- Fall 1995 - Deschutes NF Schedule of Proposed Actions
- Winter 1995 - Deschutes NF Schedule of Proposed Actions
- November 1995 - Winema NF Schedule of Proposed Actions
- February 1996 - Winema NF Schedule of Proposed Actions
- February 1996 - Fremont NF Schedule of Proposed Actions
- Spring 1996 - Deschutes NF Schedule of Proposed Actions
- April 22, 1996 - Notice of Agreement to Initiate
- May 1996 - Winema NF Schedule of Proposed Actions
- May 8, 1996 - Fremont NF Schedule of Proposed Actions
- June 26, 1996 - News Release "EA Process Begins"
- Summer 1996 - Deschutes NF Schedule of Proposed Actions
- July 8, 1996 - Overview #1 to Forest Service employees and the public
- August 1996 - Fremont NF Schedule of Proposed Actions
- August 1, 1996 - Winema NF Schedule of Proposed Actions
- September 24, 1996 - Overview #2 to Forest Service employees and the public
- September 26-30, 1996 - Scoping letter with attachments to entire mailing list
- Fall 1996 - Deschutes NF Schedule of Proposed Actions
- November 1996 - Fremont NF Schedule of Proposed Actions
- November 9, 1996 - Winema NF Schedule of Proposed Actions
- February 1997 - Fremont NF Schedule of Proposed Actions
- February 8, 1997 - Winema NF Schedule of Proposed Actions
- Spring 1997 - Deschutes NF Schedule of Proposed Actions
- May 1997 - Fremont NF Schedule of Proposed Actions
- May 17, 1997 - Winema NF Schedule of Proposed Actions
- Summer 1997 - Deschutes NF Schedule of Proposed Actions
- June 16, 1997 - Informational letter to entire mailing list
- August 1997 - Fremont NF Schedule of Proposed Actions

- August 22, 1997 - Winema NF Schedule of Proposed Actions
- Fall 1997 - Deschutes NF Schedule of Proposed Actions
- September 5, 1997 - Scoping letter
- November 7-10, 1997 - DEIS mailing
- November 19, 1997, Winema NF Schedule of Proposed Actions
- Winter 1997 - Deschutes NF Schedule of Proposed Actions

The proposed land exchange has also appeared in various newspaper articles.

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Scoping Meetings

The following scoping meetings have been held concerning the Proposed Action:

- July 15, 1996 - Deschutes National Forest Supervisor's office
- July 16, 1996 - Crescent Ranger District employees
- July 16, 1996 - Silver Lake Ranger District employees
- July 17, 1996 - Chemult Ranger District employees
- July 26, 1996 - The Klamath Tribes Chairman and Vice Chairman
- August 11, 1996 - Fremont National Forest Supervisor and land staff
- August 14, 1996 - La Pine Community Meeting
- August 20, 1996 - Bend Ranger District employees
- August 20, 1996 - Deschutes County Commissioners
- August 20, 1996 - Sisters Ranger District employees
- September 18, 1996 - Lake County Commissioners, North Lake County School Board
- September 24, 1996 - Bend Community Meeting
- October 15, 1996 - Gilchrist/Crescent Community Meeting
- October 22, 1996 - Gilchrist/Crescent Community Meeting
- October 23, 1996 - Bend Community Meeting
- November 14, 1996 - Deschutes National Forest Fall Forum, Bend Armory
- September 18, 1997 - La Pine Community Meeting
- November 5, 1997 - Deschutes National Forest Fall Forum, Bend Armory
- November 20, 1997 - La Pine Community Meeting
- December 17, 1997 - Bend Community Meeting

In addition, numerous individual contacts have been made throughout the process.

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Consultation with Affected Tribes

As the result of scoping at a government-to-government level regarding the proposed action, neither the Confederated Tribes of the Warm Springs Reservation nor the Burns Paiute Indian Colony raised any concerns or specific issues regarding the proposed action.

The Klamath Tribes

Consultation for this project began in 1995. The Klamath Tribes raised issues concerning mule deer and cultural resources, which are addressed in Chapter 3. A complete description of all Klamath Tribal scoping and consultation can be found in the analysis file.

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KEY ISSUES

The USDA Forest Service/Crown Pacific Limited Partnership Land Exchange has been under general consideration by the Forest Service since 1994 and under detailed discussion since 1995. Based on review of past documents, consultation with members of the public and government agencies, public and internal Forest Service scoping input, and discussions with Crown Pacific, four issues were determined to be significant. These issues were utilized in considering alternatives, and were analyzed in the environmental consequences section. Other issues (see below) are also addressed in Chapter 3.

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Old Growth Allocations

What is the effect of exchanging lands containing old-growth management areas designated by the Forest Plans? Under the Forest Plans, land exchanges should be considered if they achieve the landownership pattern that best accommodates the resource direction contained in the Forest Plans and if they improve the administrative efficiency of the management of the resources, especially where public and private lands are intermingled. Much of the land to be acquired from Crown Pacific has been previously managed for timber production and is roaded. These timber stands tend to be in earlier successional stages containing seedlings, saplings, and poles. Even though these stands tend to be in an earlier successional stage, many still contain a large tree component.

The proposed land exchange includes areas which were allocated as old-growth under the Deschutes and Fremont Forest Plans. These allocations were designed to provide retention of old-growth habitat in all forest types distributed across the landscape to insure the viability of native and desired non-native wildlife species. The unit of measurement is the number of acres allocated to old-growth management.

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Late and Old Structure (LOS) Stands

What would be the effect of the loss of existing LOS forest habitat on associated animal species? LOS stands are those forest seral stages that include mature and old-growth age classes. Characteristics of LOS habitat include the presence of large trees, multiple canopy layers, and abundant snags and down logs. LOS habitat supports a multitude of plant and animal species. In 1994, the Regional Forester established the Eastside Screens. The Eastside Screens were revised in 1995. Even though the Eastside Screens apply only to timber sales, the intent was to retain future options for wildlife habitat. The unit of measurement is number of acres of LOS habitat.

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Mule Deer Winter Range

Would disposal of National Forest System lands affect mule deer habitat, and is

there an opportunity to improve this habitat (both short and long-term) by acquiring parcels of Crown Pacific lands? Mule deer winter range and migration corridors were identified by the Oregon Department of Fish and Wildlife (ODFW), and in the Deschutes and Lake County Comprehensive Plans. County comprehensive plans protect mule deer winter range and migration corridors by conserving important wintering areas and limiting conflicting uses within these areas. The project area contains lands located in the Fort Rock, Tumalo, and Metolius deer winter ranges. In addition, deer from the Devil's Garden, Fort Rock, Hole-in-the-Ground, Metolius, North Paulina, and Tumalo winter ranges migrate across project lands on their way to and from summering areas. Mule deer populations utilizing the winter range within the project area may provide subsistence to the various tribes (e.g., the Klamath Tribes have hunting rights to deer populations that migrate into the former reservation boundary within the vicinity of the project area). The unit of measurement is the number of acres of land managed for mule deer habitat.

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Sensitive Plants

What would the effect of a change of ownership be on known populations of sensitive plant species? There is a potential for a change of ownership of lands containing sensitive plant species resulting from the land exchange. The specific species of interest are Peck's milkvetch (*Astragalus peckii*), pumice grape-fern (*Botrychium pumicola*), and Estes' Artemesia (*Artemesia ludoviciana)*. Peck's milkvetch is listed on the Regional Forester's sensitive plant list and by the State of Oregon as a threatened species. Populations of Peck's milkvetch occur from the Bend area to south of Chiloquin. The pumice grape-fern is listed on the Regional Forester's sensitive plant list and by the State of Oregon as a threatened species. Pumice grape-fern is endemic to Deschutes, Klamath, and Lake Counties in Oregon. Estes' Artemesia is listed on the Regional Forester's sensitive plant list and by the U.S. Fish and Wildlife Service as a species of concern. The unit of measurement is percent of known populations.

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Other Issues

Other issues (identified by the Interdisciplinary (ID) Team or through the scoping process)

were identified and have been tracked through the process.

These issues relate to:

- Treaty Rights
- Cultural Resources
- Wildlife (including Threatened, Endangered, and Sensitive Species)
- Wetland/Riparian Areas
- Watersheds and Hydrology
- Fisheries
- Timber Resources
- Payments to Counties
- Survey and Maintenance Costs
- Recreation
- Access
- Range Resources
- Visual Resources
- Lands
- Geology and Mineral Resources
- Soils
- Economic and Social Environment

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LEGISLATIVE AND EXECUTIVE ORDERS RELATED TO THIS EIS

Below is a list of laws and Executive Orders relating to land exchanges and the preparation of environmental analyses on federal actions. This list is not all inclusive.

- The General Exchange Act of 1922 (as amended)
- The Federal Land Policy and Management Act of 1976
- The Federal Land Exchange Facilitation Act (1988)
- Executive Order 11990 (wetlands)
- Executive Order 11593 (cultural)
- Executive Order 11988 (floodplains)
- American Indian Religious Freedom Act of 1978
- Archaeological Resources Protection Act of 1980
- The Endangered Species Act of 1973
- The National Environmental Policy Act (NEPA) of 1969

- The National Forest Management Act (NFMA) of 1976 (as amended)
- The National Historic Preservation Act of 1966
- The Native American Graves Protection and Repatriation Act of 1990

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AFFECTED TRIBES

The Klamath Tribes

The Klamath Tribes had, at one time, rights to hunt and gather edible roots and berries in a vast portion of what is now southeastern Oregon. The original Klamath Tribes Treaty, dated 1864, has been modified several times throughout history. The result of subsequent actions was the reduction in the reservation by several million acres to make way for non-Indian settlement. Some provisions of the treaty have been litigated due to questions about treaty rights and the Termination Act of 1954. Through these actions the Tribes have maintained their treaty rights of hunting, fishing, and gathering on former reservation land. The Termination Act was a congressional action to sever the Federal/Tribal relationship. The Restoration Act of 1986 restored the Klamath Tribes to federally recognized tribal status.

Treaty rights are the activities of hunting, fishing, gathering, and trapping. Deer, fish, plants, and animals are the resources upon which these rights depend. And in turn, the habitat (i.e., the forage, water, and cover) are the natural resources upon which the treaty resources depend. Tribal members can hunt, fish, and gather traditional foods for personal use and for barter with other tribes. Treaty rights were reserved for the purpose of subsistence uses.

Most project lands occur outside the boundaries of the 1864 Treaty Reservation. Under the proposed land exchange, one 320-acre parcel would be acquired by the Winema National Forest that lies within the former reservation boundary at the time of termination (1954).

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Confederated Tribes of the Warm Springs Reservation

The Confederated Tribes of the Warm Springs Reservation of Oregon (CTWSR) obtained legal status (inherent sovereignty and aboriginal rights) under the Treaty with the Tribes of Middle Oregon in 1855 (12 STAT 963). The following Bands and Tribes were confederated under and signatory to the 1855 Treaty: Wasco Bands-Dalles, Ki-ga-twal-la, and Dog River; Warm Springs-Taih or Upper Deschutes, Wyam (Lower Deschutes) Tenino, Dock-Spus (John Day River); and Northern Paiutes who were removed from ancestral lands in Central and Eastern Oregon and placed on the CTWSR in the 1880's.

Under the 1855 Treaty, the CTWSR retain ceded lands treaty rights to public (federal) lands north of the 44th Parallel. In the proposed land exchange area this would apply to lands within the Deschutes National Forest that are north of the 44th parallel. The 44th parallel runs east-west just above Lava Butte, south of Bend, Oregon. Under treaty and subsequent actions in Federal Court, the Confederated Tribes retain rights off-reservation within the ceded lands and other "usual and accustomed places" (as defined by the treaty), which distinguishes their 1855 Treaty rights with the Klamath Tribes discussed above.

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Burns Paiute Indian Tribe

The Burns Paiutes are descendents of Northern Paiute whose aboriginal homeland included much of central and eastern Oregon east of the Cascade Range and south of the confluence of the Deschutes River and the Crooked River near the project area. As a result of the Snake Indian Wars (1866), treaties were negotiated and an actual reserve (Malheur Indian Reservation) was granted under Executive Order in 1872. Strife continued, and by the late 1870's most Northern Paiute had abandoned the area. The federal government terminated the reservation in Harney County by Executive Order in 1882-3 and again in 1889. Bands and families of homeless Paiutes joined the treaty tribes of the Confederated Tribes of the Warm Springs Reservation and the Klamath Tribes in the 1860's and 1880's. By 1897 those remaining homeless Paiutes who returned to the Burns, Oregon area were granted 115 allotments. A small reservation was granted by an act of Congress in 1972. They gained federal recognition as a Tribe in 1968, but do not have any reservation boundaries within the proposed action nor any ceded lands/treaty rights. Due to their tribal status, they only have inherent sovereignty and rights to their reservation proper. Their rights and reservation lands would remain unchanged.

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USDA FOREST SERVICE
CROWN PACIFIC LIMITED PARTNERSHIP
LAND EXCHANGE

FINAL ENVIRONMENTAL IMPACT STATEMENT

CHAPTER 2

ALTERNATIVES, INCLUDING THE PROPOSED ACTION

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Last Update: 3/13/98
R.A. Jensen

INTRODUCTION

The purpose of this chapter is to describe how the alternatives were generated, reviewed, and either eliminated or further analyzed. Various alternatives proposed by the project participants and generated through the public scoping process are discussed. Also described in the following is the process followed to formulate the alternatives, descriptions of alternatives that were eliminated from detailed study, and presentations of the alternatives considered in detail.

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DEVELOPMENT OF ALTERNATIVES

The process used in developing the alternatives began with a review of the purpose of and need for action by the Interdisciplinary (ID) Team. The ID Team also relied on the history of land acquisition and exchanges on the three National Forests, the Preliminary Report (DCA 1996) prepared for the exchange, comments received during the scoping process, and the applicable direction within the three Forest Plans.

The ID Team originally considered several preliminary alternatives. As a result of comments received during the comment period for the Draft EIS, the ID Team considered the concept of two additional alternatives. These alternatives were eliminated from detailed study for the reasons listed below. Alternatives carried forward for detailed study had to meet the purpose of and need for action and also reflect the Agreement to Initiate a land exchange between the Forest Service and Crown Pacific. Consequently, one action alternative was carried forward for detailed analysis.

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ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Primarily Deschutes National Forest Exchange

An initial land exchange was proposed which primarily involved the Deschutes National Forest. During the same time period, the Fremont NF was also considering a proposed land exchange with Crown Pacific. In a letter from the Fremont National Forest dated March 1, 1994, it was recommended that the scale of the proposed exchange be expanded to include lands on the Fremont and Winema National Forests. This recommendation added approximately 19,000 acres of National Forest System lands and an equivalent amount of Crown Pacific lands for

consideration. An analysis of time and costs to complete such an exchange indicated that there would be substantial long-term savings to both the Forest Service and to Crown Pacific if all of the desired exchanges between these entities were consolidated into one exchange effort. Therefore, the decision was made to eliminate these separate alternatives and have one proposal to include the exchange lands for all three National Forests.

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Restrict Exchange to Only Include Noncontroversial Lands

The preliminary analysis indicated that the exchange of certain lands might generate public controversy due to special interests involving certain parcels. This included ecological concerns (e.g., late-seral forests and wildlife habitats), cultural resource concerns (e.g., American Indian and historical issues) and social and economic concerns (e.g., urban/wildland interface and public access). The removal of these controversial parcels from the exchange proposal was considered and would have expedited the exchange process. However, this alternative would not have achieved the desired results of consolidating land ownership. Eliminating all parcels that might generate public controversy would not reduce the intermingled ownership pattern, eliminate isolated tracts and inholdings, or reduce administrative costs. Since this is the purpose of the exchange, this alternative was not considered further.

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Forest Service Purchase Crown Pacific Lands

One suggested alternative was for the National Forest System to acquire Crown Pacific lands through direct purchase by the Federal Government. This alternative was not analyzed in detail because it would not meet the need for Crown Pacific to consolidate its ownership and to better mange its timber resources. In addition, it is unlikely that the Forest Service would be able to secure the type of funding needed to acquire Crown Pacific lands.

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Maximum Acres for Exchange

This alternative included all lands that were originally studied for potential exchange between the Forest Service and Crown Pacific. During the scoping process, this combination of lands under consideration was referred to as a "pool" of possible lands. This alternative would have included approximately 62,653 acres of Crown Pacific lands in exchange for approximately 55,365 acres of NFS lands. This alternative as a whole was eliminated from detailed study because of conflicts with other resource values (i.e., old-growth forests); conflicts with habitat of species protected under the Endangered Species Act; conflicts with potentially significant cultural sites; and concerns of local residents and county administrators.

For example, approximately 4,124 acres of NFS lands were eliminated because of resource concerns related to late and old structure stands; approximately 5,292 acres of lands were eliminated because of concerns with mule deer winter range; approximately 100 acres of NFS lands were eliminated because of concerns over sensitive plants. In addition, approximately 2,312 acres of NFS lands were eliminated due to cultural resource concerns and other parcels near the Highway 31 corridor were eliminated because of bald eagle concerns. Early in the scoping process for this project, the Lake County Board of Commissioners requested no net loss in the private land base in Lake County. Other individual parcels and groups of parcels, both NFS and Crown Pacific, were dropped from consideration to meet the economic requirements of value comparability for land exchanges. Lands initially considered for exchange but dropped from further consideration include NFS lands in Deschutes and Lake Counties and Crown Pacific lands in Lake and Klamath Counties.

This alternative as modified during the scoping process became the proposed action.

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Tumalo Alternative

This alternative would retain all NFS lands in the Tumalo Reservoir area, with the exception of T17S, R11E, Section 21 and add Crown Pacific lands in the same area. NFS lands to retain include lands in T16S, R11E, Section 31 and T17S, R11E, Sections 4, 5, 6, 7, 8, 9, 17, and 18. Crown Pacific lands to be included lie in T16S, R11E, Section 31, and T17S, R11E, Sections 6, 8, 9, 16, 17, and 18. The Crown Pacific lands proposed for acquisition include Bull Springs. Other CP lands would be eliminated to balance the values of Federal and non-Federal lands. This alternative would meet the purpose of and need for action, in part, by consolidating land ownership in the Tumalo Reservoir area. It would not meet the overall purpose of and need for action, which is to reduce intermingled ownerships, reduce the number of inholdings, and minimize administrative costs. A review of possible lands to be retained by Crown Pacific indicated unacceptable trade-offs (minimal reductions in joint boundaries, minimal reductions in joint-use road systems, minimal reductions in the number of inholdings, minimal gains in riparian/wetland areas, minimal overall gains in deer winter range) that in and of themselves, would not meet the purpose and need for the exchange. Successful land exchanges are dependent

upon the "willing buyer, willing seller" principle. This alternative includes lands not offered for exchange by Crown Pacific. In addition, this alternative would not meet the need for Crown Pacific to consolidate its ownership to better manage its timber resources.

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Subdivision Alternative

This alternative would retain NFS lands surrounding and adjacent to the Ponderosa Pines and Jack Pine Village subdivisions. NFS lands to retain include lands in T22S, R10E Sections 5, 6, 7, 8 and 18; T22S, R9E Sections 1, 12, 13, and 14; T23S, R9E Sections 24 and 25; and T23S, R10E Sections 19 and 30. This alternative was not considered in detail because it did not meet the purpose of and need for action, including consolidation of land ownership, applying ecosystem management principles across the landscape, and reducing the urban/wildland interface. Crown Pacific has met with the Ponderosa Pines Property Owners Association and has offered to meet with home owners at Jack Pine Village. Crown Pacific has outlined a proposal for a "Community Management Area" which addresses many of the concerns raised by area residents.

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ALTERNATIVES CONSIDERED IN DETAIL

No Action Alternative

The land exchange between the Forest Service and Crown Pacific would not occur under the No Action Alternative. If this alternative were selected, the current land ownership pattern and resource management practices would continue within the project area. Federal lands would continue to be managed as directed by the appropriate Forest Plans; private lands would continue to be managed under existing Crown Pacific policies and applicable state and federal laws and regulations.

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Proposed Action

The Proposed Action is the jointly proposed Forest Service/Crown Pacific Land Exchange Project in Deschutes, Jefferson, Klamath, and Lake Counties in east central Oregon (See MAP B and MAP C located at the end of Chapter 2 for a visual display of the Proposed Action). The land exchange involves approximately 32,936 acres of Forest Service land under the jurisdiction of the Deschutes and Fremont National Forests and approximately 38,745 acres of land owned by Crown Pacific. The exchange lands include discontiguous parcels of NFS lands that are surrounded by Crown Pacific land, parcels of Crown Pacific land that are surrounded by NFS lands, and parcels along irregular edges separating the two ownerships. The Winema National Forest, while not offering lands for exchange, would receive lands from Crown Pacific.

The proposed exchange parcels are loosely clustered into three primary groups. The project area extends from north of Sisters, Oregon, southward along the east side of the Cascades to the vicinity of Wing Butte, 11 miles northwest of Silver Lake. The northernmost group is located a short distance northwest of Bend and is located within the drainage of Bull Creek near the Upper Deschutes River. The second group is located southwest of Bend and west of the community of La Pine. The third group extends from Mowich Butte in the southwest, northward through Crescent and Gilchrist, to Wing Butte in the southeast. This cluster includes those parcels that are located within the Fremont National Forest. The exchange parcels lie within the Bend/Fort Rock, Crescent, and Sisters Ranger Districts within the Deschutes National Forest, the Silver Lake Ranger District of the Fremont National Forest, and the Chemult Ranger District of the Winema National Forest. Table 2-1 provides a summary of the changes in land ownership by National Forest and Table 2-2 provides the same information by county. All numbers are approximate acreages and totals may not be exact.

Table 2-1 Exchange Lands by National Forest

National Forest	County	CP acres to NFS	NFS acres to CP	Net Gain (Loss) of NFS Acres
Deschutes	Deschutes	12,054	7,286	4,768
	Jefferson	1,440	0	1,440
	Klamath	7,826	19,020	(11,194)
	Lake	80	0	80
	Total	**21,400**	**26,307**	**(4,906)**

Fremont	Klamath	9,525	4,307	5,217
	Lake	1,756	2,320	(564)
	Total	**11,281**	**6,628**	**4,653**
Winema	Klamath	6,062	0	6,062
	Total	**6,062**	**0**	**6,062**
GRAND TOTAL		**38,743**	**32,935**	**5,809**

Table 2-2 Exchange Lands by County

County	National Forest	CP acres to NFS	NFS acres to CP	Net Gain (Loss) of NFS Acres
Deschutes	Deschutes	12,054	7,286	4,768
	Total	**12,054**	**7,286**	**4,768**
Jefferson	Deschutes	1,440	0	1,440
	Total	**1,440**	**0**	**1,440**

Klamath	Deschutes	7,826	19,020	(11,194)
	Fremont	9,525	4,307	5,217
	Winema	6,062	0	6,062
	Total	**23,413**	**23,327**	**86**
Lake	Deschutes	80	0	80
	Fremont	1,756	2,320	(564)
	Total	**1,836**	**2,320**	**(484)**

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COMPARISON OF ALTERNATIVES

This section presents a comparison of the two alternatives that were considered in detail. First, Table 2-3 presents a summary of the consequences by Key Issue and Other considerations (physical, biological and administrative consequences) of the alternatives.

Table 2-3 Comparison of the Alternatives

	No Action	**Proposed Action**
Key Issues	Consequences	
Allocated Old-Growth (acres)	No Change	1152

Late/Old Structure (acres)	No Change	(4028)
Sensitive Plants (% of known population affected)		
Peck's Milkvetch (ASPE)	0%	2%
Pumice Grape-Fern (BOPU)	0%	3.6%
Estes' Artemesia	0%	0.007%
Mule Deer Winter Range (acres)	No Change	6307
Other Resource and Administrative Considerations		
T. E. S. Faunal and Floral Species	No Effect	No Significant Effects
Cultural Resources	No Effect	No Adverse Effect
Perennial Streams (miles)	No Change	8.9
Intermittent Streams (miles)	No Change	11.5
Wetlands (acres)	No Change	502
# of miles of Joint Use Roads	No Change	(220)
# of miles of joint boundaries	490.6	170.6
NFS Acres	3,828,580	3,834,389

Second, the two alternatives as compared and evaluated in relation to Key Issues and a selection of the Other Issues discussed in Chapter 1. For more detailed description of the affected environment and the environmental consequences of the alternatives, see Chapter 3.

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Old-Growth Allocations

Under the No Action alternative, the existing Forest Plan Management Allocations (Deschutes NF, MA-15; Fremont NF, MA-14) would remain unchanged; the Winema NF is only acquiring land under the Proposed Action. Under the Proposed Action, 338 and 231 acres allocated to old-growth management on the Fremont NF and Deschutes NF respectively, would be transferred to Crown Pacific. However the two Forests have identified replacement stands and will allocate 1,721 acres to old-growth management, 1,413 on the Fremont NF and 308 on the Deschutes NF. Thus under No Action there would be no change in acres, while the Proposed Action would actually result in a net increase of 1,152 acres allocated to old-growth management on the two Forests. There are beneficial effects as the result of the Proposed Action in both acres and quality of allocated old-growth management on both the Deschutes and Fremont National Forests. See MAP D located at the end of Chapter 2 for a visual display of the proposed Old-Growth Allocations.

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Late and Old Structure (LOS Habitat)

Under the No Action alternative the current amount and distribution of LOS habitat for wildlife species would be maintained. In the short-term, the intermingled ownership of lands containing LOS habitat between the Forest Service and Crown Pacific, provides biological diversity, refugia and population dispersal. In the long-term, as Crown Pacific continues the uneven-aged harvesting of LOS on their lands, there would be a reduction in the quality of LOS habitat on private lands, and the Forest Service would not have the opportunity to perform improvements to LOS habitat on acquired lands.

The Proposed Action would result in 3,793 acres of ponderosa pine LOS habitat and 676 acres of lodgepole pine being transferred to Crown Pacific. There would be a net gain of 441 acres of mixed conifer LOS habitat on NFS lands under the Proposed Action. For additional clarification, the amount of ponderosa pine LOS habitat on the Deschutes NF affected under the Proposed Action (3,281 acres) is approximately 2% of the Forest's total ponderosa pine LOS habitat (160,967 acres). Habitat varies by species, thus the Proposed Action has differential affects on wildlife species. For example, while there would be net losses in habitat acres for black-backed woodpecker (-4678), there are gains for the three-toed woodpecker (+1032) and northern spotted owl (+2825). Thus while there are localized effects, the Proposed Action would not result in significant effects to LOS on NFS lands in the project area. See MAP D located at the end of Chapter 2 for a visual display of mapped late and old structure stands (LOS) and their associated

vegetation types.

Map E (located at the end of Chapter 3) depicts the early, mid, late and old structural stands for the Deschutes National Forest only. Data from the Winema and Fremont National Forest or Crown Pacific lands is not available in the geographic information system (GIS). This allows the comparison of parcels to be exchanged with the structural stages and shows that the majority of lands proposed to be conveyed are in the early structural stage (mostly plantations or previously harvested areas).

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Mule Deer Winter Range

Under the No Action Alternative there would be no change in the amount and distribution of mule deer winter range habitat on the three Forests. This alternative would retain high quality winter range habitat for the Tumalo herd, but it foregoes the opportunity to consolidate ownership and increase acres of habitat on NFS lands across the project area.

As the result of the Proposed Action, there would be a net increase of 6,307 acres of mule deer winter range. The Tumalo herd would receive 3,616 acres of additional habitat on NFS lands, the Metolius herd would receive an additional 2,081 acres and 610 acres would accrue to the Fort Rock herd. Thus under the No Action alternative the opportunity to increase mule deer habitat on the three Forests would be foreclosed.

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Sensitive Plants

Under the No Action alternative there would be no change in habitat acres or population numbers for the three sensitive plant species of concern, Peck's milkvetch (*Astragalus peckii*), Pumice grape-fern (*Botrychium pumicola*) and Estes' Artemesia (*Artemisia ludovicianna ssp estesii*).

The impacts and findings of the Biological Evaluations to these sensitive plants as the result of the Proposed Action would range from no significant effects, to no significant effects but may affect individuals (Peck's milkvetch and pumice grape-fern).

Approximately 2% of the known population of Peck's milkvetch with the project area would be affected by the Proposed Action. Of this amount, 75% would be maintained under federal control

under protective clause with the Bonneville Power Administration. There is no evidence that plant populations on Crown Pacific lands are adversely affected by their management activities, as the openings in the forest canopy created by uneven-aged timber harvest appear to benefit Peck's milkvetch.

Approximately 3.6% of the known population of the pumice grape-fern will be affected by the Proposed Action. The global population of the rare and localized pumice grape-fern is thought to contain approximately 14,700 fronds. Population estimates of this species are problematic, as the fronds do not necessarily emerge annually and do so only seasonally when certain conditions are present.

There is no known occupied habitat for Peck's penstemon or Jepson's monkeyflower on NFS lands proposed for transfer under the Proposed Action. However two parcels of Crown Pacific lands proposed for transfer to the Forest Service contain occupied and potential habitat for Jepson's monkeyflower.

Approximately 700 stems or 0.0007% of the known population of Estes' artemesia on NFS lands would be affected by transfer under the Proposed Action. The parcel containing this small population is currently a Forest Service campground, and under the Proposed Action will be transferred to La Pine Parks and Recreation District by Crown Pacific. Once acquired, the area will be managed as a park and similar management will continue under Park District management as under the Forest Service. Thus, there are no significant effects to sensitive plant species under the Proposed Action.

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Other Issues

Treaty Rights

Under the No Action alternative the current land ownership pattern would remain unchanged, as would the treaty rights of the Klamath Tribes and the treaty and ceded land rights of the Confederated Tribes of the Warm Springs Reservation (CTWSR). The Proposed Action would result in no change to treaty rights and ceded land rights, however there would be a net gain of 8,816 acres with the ceded lands of the CTWSR.

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Cultural Resources

The selection of the No Action alternative would result in no change to known historic and archaeological sites located on NFS lands, of which there are 26, with 12 eligible to the National Register of Historic Places. The Proposed Action would result in a finding of No Adverse Effect, based on required mitigation. Five sites would require mitigation and historic preservation treatments as the result of this alternative. The mitigation would be carried out under Deed Reservations, with full title being transferred to Crown Pacific on those parcels containing these sites only upon completion of the required treatments.

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Payments to Counties

Under the No Action alternative the number of NFS acres in each of the four counties, Deschutes, Jefferson, Klamath and Lake, would remain unchanged. The Proposed Action would result in a net increase of NFS lands, of 5,810 acres. All the counties, except Lake, gain NFS lands under this alternative; Lake County would loose 484 acres of NFS lands. This would result in a loss of only $629.00 in Forest Service payment to counties under the 25% fund. Crown Pacific would continue to pay ad valorem taxes and in addition harvest taxes based on the amount of timber harvest in that county.

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Survey and Maintenance Costs

Under the No Action alternative due to the nature of intermingled ownership between NFS and Crown Pacific lands there are over 470 miles of exterior and interior boundaries between the two ownerships. The cost of maintaining these NFS exterior and interior boundaries would be approximately $150,000 over the next ten years. When looking at the next one hundred years this cost would be $1.5 million. The consolidation of NFS ownership under the Proposed Action would result in the reduction of 320 miles of exterior and interior boundaries and the Forest Service would realize a savings of $100,000 over the next ten years, or $1.0 million over the next 100 years based on 1997 dollars. The new costs associated with posting new boundaries would be less than $15,000. Thus there are beneficial effects to survey and maintenance costs through their substantial reduction in both the short and long-term.

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Access

Access was analyzed in two broad categories, general public road access to and through NFS lands and access specific to dispersed recreation areas. There would be no changes to existing road locations, management and ownership as the result of the No Action alternative. The amount of joint-use roads, administered by the Forest Service and Crown Pacific would remain the same, as would the number of total road miles in the project area (approximately 790). The Proposed Action would result in the elimination 220 miles of joint use roads, while the remainder would be managed as single-owner roads, or as joint-use roads depending on whose lands the roads were located.

Another point of analysis, are road densities; the Forests have a management goal of reducing road densities on NFS lands to no more than 2.5 miles of road per square mile. The reduction of road densities is for the purpose of enhancing or maintaining wildlife habitat, reducing erosion and protecting watersheds. Road densities in the project area range from a high of 7.2 miles/sq. mile in the Dorrance subwatershed, to a low of 1.0 in the Forks subwatershed, with an average across the project area of 4.1 miles/sq. mile. The No Action alternative would not result in any changes to the road density. The Forests would continue to seek opportunities to reduce road densities throughout the project area. The Proposed Action will result in a slight increase in average road densities on NFS lands. The average increase of 0.1 to 0.2 miles/sq. mile does not significantly change the amount of miles to be reduced on NFS lands (or the cost of doing so) over the long run to meet the goal of 2.5 miles/sq. mile. In addition, the Forest Service is in the midst of developing a new National policy on Forest roads, that will address such issues as road access, maintenance and road densities.

Access to disperse recreation areas is discussed in more detail in Chapter 3 under Recreation. The No Action alternative would not result in any changes to existing public access to dispersed recreation areas in the project area. Some areas, such as Tumalo Creek, would remain relatively inaccessible and opportunities to provide road and recreation trail access would be foreclosed. The Proposed Action would not likely result in any changes to roaded access in the project area either. As discussed above some roads would revert to single-owner management, but no roads would be closed as the result of this alternative. Areas, such as Tumalo Reservoir, would continue to have recreational access provided by Deschutes County roads such as Sisemore and Tumalo Reservoir Road.

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Wildlife

Wildlife species were analyzed by habitat type, such as LOS (see above, under Key Issues),

riparian/wetlands, rock outcrop, cliff and talus, habitat generalists and big game habitats. Effects as the result of the No Action and Proposed Action alternatives are discussed in detail by habitat type in Chapter 3.

Under the No Action alternative there would be no change in the management of these habitat types on NFS lands. In some cases, such riparian/wetlands, opportunities to increase acres of that habitat would be foreclosed under this alternative (see Riparian and Wetlands below).

In general, the Proposed Action alternative would result in no significant effects to habitat types and the species who occupy them, in the project area, while there would, in some cases, be net decreases of habitat type acres at the local scale (subwatersheds). For example, there will be a net gain of rock outcrop, cliff, and talus habitat in the project area (large scale), yet there will be a decrease of such habitat in the Sellers subwatershed. Similarly, there will be a net gain for habitat generalists, such as the California wolverine, Canada lynx, and bald eagle in the project area, while there will be a decrease of such habitat in the in the Bull, Dorrance, Sellers and Toast subwatersheds. Big game habitat would be increased in the project area as the result of the Proposed Action. The would be a net gain of 1,388 acres of significant elk habitat and 640 acres in the Fall Creek Key Elk Area (a management allocation in the Deschutes NF LRMP), while there would be a decrease in significant elk habitat in the Sellers and Toast subwatersheds.

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Riparian and Wetlands

There would be no change to either riparian areas or wetlands under the No Action alternative. Those riparian areas and wetlands owned by Crown Pacific have limited timber production value to them and would be likely sold or traded. Thus the opportunity for the Forest Service to acquire those wetlands or riparian areas owned by Crown Pacific would be foreclosed. Under the Proposed Action the Forest Service would acquire a net increase of both riparian areas and wetlands. Over 20 miles of perennial and intermittent streams and 502 acres of wetlands would be acquired by the Forest Service. This includes the highly valued upper watershed of Tumalo Creek adjacent to Bend, Oregon, a section of the Sprague River, a Wild and Scenic Study River, as well as three meadow complexes and a seasonal lake.

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Recreation

Under the No Action alternative there would be no change to the existing dispersed recreation

use which occurs on both NFS and Crown Pacific lands in the Tumalo Reservoir area and at other locations adjacent to NFS lands, such as rural subdivisions, like Ponderosa Pines or Jack Pine Village. The Rosland Campground, the only developed recreation site in their entire project area, would continue under Forest Service management. However, the lack of sufficient revenues have prevented the full operation of that facility. In all locales, recreation use would continue to grow with population increases in Deschutes County. Tumalo Creek above Shevlin Park in Bend, would remain in Crown Pacific ownership, foreclosing the opportunity for the public to acquire this desirable parcel with the NFS.

The Proposed Action would result in no change to recreation access in the Tumalo area, but trails located on NFS lands would now be located on lands owned by Crown Pacific. Under Crown Pacific's land use policy, recreation use would continue to be allowed, with the exception that no overnight camping would be allowed. The NFS lands adjacent to subdivisions, such as Ponderosa Pines and Jack Pine Village, would be transferred to Crown Pacific. While Crown Pacific's land use policy would allow continued use of the surrounding areas, aesthetic characteristics of the experience may be effected as uneven-aged timber harvest activities occur adjacent to subdivisions. The Proposed Action would also result in the transfer of Rosland Campground to La Pine Parks and Recreation District, with Crown Pacific acting as intermediary in the transaction via donation to the park district. The campground would continue in operation on a seasonal basis and managed by the park district.

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Economic and Social

The economic and social analysis performed for this project area examined a variety of factors, a number of which were of concern to the public (see Chapter 3.). The issue of adjacent property values and the likelihood of development were two of the greatest and related concerns expressed by the public during our scoping and analysis. The No Action alternative would not result in any changes of land ownership or in county zoning. However, lands purchased by Crown Pacific for this exchange and other lands outside of their key timber management units (Bull Spring Tree Farm, and Gilchrist Tree Farm), would be subject to sale and disposal by Crown Pacific. In addition, NFS lands, determined under the existing Forest Plans to be candidates for exchange, would be subject to future land exchange proposals.

The Proposed Action would not result in any changes to county zoning in the project area. The existing and acquired lands owned by Crown Pacific would remain in primary forest zone classification and the company has no stated interest in developing their lands for other than timber production. The degree to which adjacent private property values would be affected is not expected to be significant at this time. Crown Pacific has negotiated 1/4 mile interface areas with the two of the subdivisions affected by the Proposed Action, Ponderosa Pines and Jack Pine Village. Crown Pacific will maintain a fire resistent boundary with those subdivisions, reserve a

large tree component for aesthetic purposes, maintain road access and maintain a "no fence" policy.

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USDA FOREST SERVICE
CROWN PACIFIC LIMITED PARTNERSHIP
LAND EXCHANGE

FINAL ENVIRONMENTAL IMPACT STATEMENT

CHAPTER 3

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

!!!!!Because of the length of this chapter, it has been broken into 10 smaller sections. If you want to print the entire chapter you will need to print the individual sections.

INTRODUCTION

This chapter provides information concerning the existing (affected) environment in the project area and the expected environmental effects (consequences) of the alternatives. The affected environment sections describe the baseline conditions against which environmental consequences are evaluated. The following resources are discussed:

Key Issues

- Old Growth Allocations (section 2)
- Late and Old Structure Stands (section 2)
- Mule Deer Winter Range (section 3)
- Sensitive Plants (section 3)

Other Issues

- Treaty Rights (section 4)
- Cultural Resources (section 4)
- Wildlife (including Threatened, Endangered, and Sensitive Species) (sections 5 and 6)
- Wetland/Riparian Areas (section 7)
- Watersheds and Hydrology (section 7)
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- Survey and Maintenance Costs (section 10)
- Other Environmetal Considerations (section 10)

The environmental effects related to each of these resource areas are discussed immediately following the presentation of each resource's affected environment. The environmental effects sections provide the scientific and analytical basis for the comparison of alternatives presented in Chapter 2. These sections present the expected effects on the physical, biological, social, and economic environments associated with the implementation of the alternatives. The expected environmental consequences to each resource area are disclosed, including the direct, indirect, and cumulative effects. Effects are quantified where possible.

The effects analysis is based on reasonably foreseeable consequences under likely management policies of Crown Pacific and the Forest Service. Future management of the lands proposed for exchange to Crown Pacific would comply with the regulations of the Oregon State Forest Practices Act. Lands exchanged to the Forest Service would be managed according to the Deschutes, Fremont, and Winema National Forest Land and Resource Management Plans (USDA , 1990b, 1989b, 1990c, respectively). Together these documents will be referred to as the Forest Plans.

Direct environmental effects are defined as those occurring at the same time and place as the intial cause or action. Indirect effects are those that are a result of the action, but occur

later in time or are spatially removed from the activity. Cumulative effects result from the incremental effects of actions when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Chapter 3 concludes with other environmental considerations that must be addressed under NEPA. These topics include the relationship between short-term uses and the maintenance and enhancement of long-term productivity, the irreversible and irretrievable commitments of resources, possible conflicts between the Proposed Action and the plans of other jurisdictions, and other environmental considerations.

The direct environmental effects of this land exchange would be primarily those associated with changes in public access and use of respective lands. Other expected environmental effects would be indirect effects, mostly associated with the change in management emphasis.

Management Allocations (MA's)

The current Forest Plans allocate areas to various management emphasis through the use of 59 separate MAs. These 59 MAs are documented in Deschutes, Fremont, and Winema National Forest Plans. In addition, the general theme, goal, and/or objective of the specific MAs affected by the proposed land exchange have been detailed in Appendix B.

MAs prescribe the proposed land management activities that can occur on lands exchanged to the Forest Service. Consequently, these MAs also guide part of the discussion of environmental effects for many resources.

Comparison between Oregon State Forest Practices Act and National Forest Management Requirements

National Forest System (NFS) lands included in the proposed exchange are managed under three separate Forest Plans. Forest Plans provide direction for the kinds of activities which may take place based on Forest-wide and Management Area Goals and Objectives, and Standards and Guidelines. These Forest Plans have been amended by the Revised Continuation of Interim Management Direction Establishing Riparian, Ecosystem, and Wildlife Standards for Timber Sales (also known as Eastside Screens) and the Inland Native Fish Strategy (INFISH) which has generally applied additional requirements for maintenance and protection of riparian areas, wildlife habitats, and late and old structure forests.

The Oregon State Forest Practices Act (ORS 527.610 - 527.992) regulates private land forest management activities. Specific standards and definitions relating to the

administration of this law are included in Oregon Administrative Rules, Chapter 629, Division 24.

For NFS and private lands, these documents provide guidance as it relates to harvest and reforestation activities. Generally speaking, the Forest Plans will provide more direction on what kinds of activities can be implemented and under what conditions. This direction will generally result in fewer, smaller trees being available for harvest than under the Oregon State Forest Practices Act. Forest plans will usually provide greater emphasis on maintaining other amenities in association with timber harvest such as big game cover; scenic quality; large snags and down wood; future snags (also known as green tree replacements); reproductive, foraging, and dispersal habitats for a wide variety of wildlife species; plants, and cultural and cave resources. The State Forest Practices Act rules require protection of water quality; minimizing loss of soil productivity; protection of known nesting sites for bald eagles, northern spotted owls, and great blue herons; protection of known cultural resource sites; and reforestation to a level closely approximating those required on NFS lands. There are no specific requirements for protection of big game cover, caves, or sensitive plant or animal species.

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James Siano

Dorothy Simpson

Joanne Skirving

Laura Skovholt

Doug & Mare Sky

Larry Dean & Gay Smith

Joan Smith

John Smith

Emily Smith

Louis Smith

Suzanne Smither

Julie Spar

Jaralyn St. John

Bill Steers

Bill Stevens

Dan Stokes

Ralph Stout

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Eleanor M. Triem

Barbara Turner

Stephanie & Robert Uetrecht

Carl & Marilyn Utzinger

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Gretchen Valido

Tiana Van Landryt

David & Bonnie Van Osdol

Jan & Diane Vandenberg

Tiffany VanHuysen

Erik & Michelle Von Heideken

John Von Hust

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Curt Wagoner

Mary Wallace

Rebekah Warbington

Lucas Ward

M. Ward

Allison Washburn

Bud Webb

Harold Webster

Lori Welsh

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Terry Whatley

Cynthia Wheeler

Laura White

Eloise Whitelaw

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Laurie Wilde

Diane Wilhelm

Glenn Williams

John Williams

Lorene and Frank Williams

Joann Williams

Michael K. Williams

Ruth Williamson

Gail Wilson

Phillip Wise

Gail Wood

Billy Wurn

Asher Yaffee

Jerry & Karen Yohn

Germaine Young

Harry Zanski

Aida Zunde

Agencies, Organizations and Companies that have received the Record of Decision and the FEIS

Agency, Organization, or Company -- Contact Person

Advisory Council on Historic Preservation

Alliance for Responsible Land Use in Deschutes Co. -- William Boyer

Boise Cascade Corporation -- R. Kirk Ewart

Boise Cascade Corporation -- Tom Goodall

Bull Springs Ranch -- Judy Briles

Burns Paiute Reservation -- Linda Reed

Burns Paiute Reservation -- Wanda Johnson

c/o La Pine Fire District -- Jim Gustafson

c/o Smith Barney -- Roger Vlach

Central OR Forest Issues Committee -- Steve Huddleston

Central Oregon Nordic Club -- Dave Bateman

Citizens to Change the Exchange -- Richard Barber

Citizens to Change the Exchange -- Wayne Harvey

COMAC -- Bob & Cheryl Greenstreet

Confed Tribes of the Warm Springs -- Bradley I. Nye

Confed Tribes of the Warm Springs -- Scott Stuemke

Confed Tribes of the Warm Springs -- Clay Penhollow

Crown Pacific -- Bob Parker

Crown Pacific -- Doug Thackery

Crown Pacific -- Ted Young

Crown Pacific -- Woody Robertshaw

Current Productions -- Jeff Rola

Department of Fish and Wildlife -- Dave McAllister/ Roger Monthey

Department of Human Resources -- Jeff Hannum

Dept of Environmental Quality -- John Kowalczyk

Dept of Environmental Quality -- Dennis Ades

Dept of Geology and Mineral Industries -- Dennis Olmstead

Dept of Land Conservation & Development -- Jim Knight

Dept of Land Conservation & Development -- Marguerite Nabeta

Deptartment of Fish and Wildlife -- Nancy MacHugh

Agencies, Organizations and Companies that have received the Record of Decision and the Summary

Agency, Organization, or Company -- Contact Person

Alliance News Journal

Attn: Peter Green -- John Kitzhaber

Attorneys at Law -- James Noteboom

Basin Business

Bend Mapping And Bluprint Inc -- Glenn Adams

Black Butte Ranch Assoc. -- Dayton Hyde

Bohemia Sno-Sledders -- Mary Palmer

Boise Cascade Corporation

Bureau of Land Management -- Elaine Zielinski

Burns Paiute Reservation

Burns Paiute Reservation -- Irwin Peck

C O R I L -- Glenn Vancise

Cal Energy -- Vince Signoritti

Central Oregon Environmental Center -- Michele McKay

Central Oregon Flyfishers

Central Oregon Flyfishers -- Bob Mullong

Central Oregon Flyfishers -- Mike Ogle

Chiloquin Ridge Riders

Circle DE Lumber Company -- Stan Martindale

City of Bend -- John Hossick

City Of Klamath Falls -- Chuck Rhodes

COMAC -- Klaus Hohman

COMAC -- Steve Trenhaile

Confed Tribes of the Warm Springs -- Louie Pitt

Consolidated Pine -- Elden Ward

Crescent/Gilchrist CAT -- Judy Scally

Crossroads Church & Young Riders / Rimrock -- Jackie Babcock

CTD Contracting -- Chuck Downen

Defenders of Wildlife -- Wendy Hudson

Deschutes County Board of Commissioners -- Nancy Schlangen

Deschutes County Commercial Devel. -- K. Harrison

Deschutes Pine Sales -- Frank Cammack

Environmental Awareness Group -- Mark Moore

EPA, Region 10, WD-126

Fotos in a Flash -- John Routue

High Desert Saddle/Oregon Foxtrotter -- Debbie/ John Vaughn

Sheriff Posse

Huntington Audubon Society -- Charles Rufino Jr

Independent Forest Products Association

Izaak Walton League Of America -- David Kucera

James River Corp -- Sam Layman

James River Paper Compnay -- Don Banks

KDRV

KFLS / KKRB

KICE

Klamath Woodland -- Pete Brandsness

KLE Enterprises Inc -- Ken Evans

KSJJ

KTVZ

KVAL TV

LS2B Co. Inc. -- Leon Virgin

Metro Parks -- John Simpson

NEDC -- Marc Fink

Northwest Forestry Association -- Wayne Ludeman

NPCA

NRDC -- Marc Albert

Nugget Newspaper -- Eric Dolson

Nw Pine Products -- Tom Hicks

Ochoco Lumber Company -- Bruce Daucsavage

OET -- Laura Alumbaugh

OR Natural Resource Council -- Don Heiken

Oregon Dept. of Fish and Wildlife -- Ted Wise

Oregon Deptartment of Forestry -- Nancy Hirsch

Oregon Eagle Foundation

Oregon Hunters Association -- Kelly Smith

Oregon Hunters Association, Bend Chapter -- Steve Mathers

Oregon Hunters Association, Klamath Chapter -- Ken Hand

Oregon Hunters Association, Redmond Chapter -- Kent Moe

Oregon State Snowmobile Assoc -- Howard Gieger

Predator Project -- Tom Skeele

R & I Logging -- Roy Holloway

Rain Forest Action Movement -- William Foerderer

Rest The West -- Steve Alf

Rim Rock & High Desert -- Laura Forest

Rim Rock OET, High Desert Saddle Club -- Nina Leineweber

Rim Rock Riders -- Judy Weaver

Rim Rock Riders -- Catherine Alexander

Rim Rock Riders -- Jackie Wilson

Rim Rock Riders/OR Equestrian Trail -- Ernest & Marilyn Deli

River Network -- Phillip Wallin

SBM

Sierra Club Legal Defense Fund -- Todd True

Sierra Club Legal Defense Fund -- Victor Sher

Sisters Forest Planning Committee

Sisters Sno-Go-Fers -- Judy Hurtley

Sno-Vu Shorthorns -- Neil Davis

Storm Company -- David Gates

Sunriver Owners Association

The Art Peddler

The Museum at Warm Springs

The Redmond Spokesman -- Scott Maben

The Seamless Web -- Nick Facaros

Gene Silovsky -- The Wildlife Society

Trout Unlimited -- Tom Wolf

U.S. House of Representatives -- Elizabeth Furse

University of Oregon

USDA BLM -- Charlie Boyer

USDA Forest Service SPS

Walker Rim Riders -- Roy Wells

Western Forest Industies Assoc -- David Ford

Western Title & Escrow Co. -- Dale Dam

Weyerhaeuser Company -- John Monfore

Willamette Industries -- Tucker Williamson

Willamette Valley Grotto -- Chairman Wvg

Division of State Lands -- John Lilly

ECO Northwest -- Ed Whitelaw

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Eugene Register Guard -- Lance Robertson

Executive Department -- Paul Warner

FAA, Northwest Region

FERC, Environmental Compliance, Room 7312

Forestry Department -- Bob Brown

Fremont 917 -- Marge and Bussie Iverson

Frontier Advertiser

General Services Administration

Haglund and Kirtley -- cott Horngren

Herald and News

High Desert Museum -- Art Wolf

High Mountain Jazz at Sisters -- Raymond R. Buselli

Horse Ranch RV Park

Huffman-Wright -- Warren Hudspeth

Institute for Policy Research -- H. Paul Friesema

Interstate Commerce Commission

Jamison Bldg -- Susan Fitch

KAGO

Klamath County Board of Commissioners -- Steve West

Klamath News -- Cheryl Tupper

Lake County Board of Commissioners -- Ray Simms

Lake County Board of Commissioners -- Robert Pardue

LaPine Community Action Team -- Jill Phillips-McLane

LaPine Forestry Services -- Robert Otteni

Maintenance Metabolic Products -- Ed Fitzjerrell

Mt. Bachelor, Inc. -- David Marsh

NMFS, Northwest Region

Northwest Environmental Defense Council -- Aaron Jennings

Northwest Forestry Association -- Chuck Burley

NW Power Planning Council

OR Department of Environmental Quality -- Larry Calkins

Oregon Department of Parks and Recreation

Oregon Department of Parks and Recreation -- Jan Houck

Oregon Dept. of Revenue -- C. Grimmell

Oregon Dept. of Fish and Wildlife -- Alan R. Polenz

Oregon Dept. of Fish and Wildlife -- Steve George

Oregon Dept. of Transportation -- Peter Russell

Oregon Deptartment of Forestry

Oregon Deptartment of Forestry -- Brian Goff

Oregon Deptartment of Forestry -- Timothy R. Keith

Oregon Equestrian Trails -- Patricia Lopez

Oregon Equestrian Trails -- Vernon Weible

Oregon Natural Resources Council -- Wendell Wood

Oregon Natural Resources Council -- Tim Lillebo

Oregon Outdoors Association, Inc. -- Richard Wren

Oregon State Senator -- Neil Bryant

Oregon State Snowmobile Assoc -- Marilyn Peterson

OSU Dept. of Fisheries and Wildlife -- Frank Isaacs

Pond Pines East Special Road Dist. -- Orlen Walling

Ponderosa Pines Land Exchange Committee -- David Zedrick

Ponderosa Pines Land Exchange Committee -- Delores Hanson

Prineville Ride Riders Club -- Cole Still

Redmond Saddle Club -- Greg Havens

Region 10, Federal Highway Administration

Representative DeFazio's Office -- Betsy Boyd

Rock Springs Guest Ranch -- John Gill

Rock Springs Guest Ranch -- Jamie Hildebrandt

Ron Wyden's Office -- Scott Bolton

Rural Development Section -- Bill Campbell

Samuel S. Johnson Foundation -- Becky Johnson

Sierra Club Oregon Chapter -- Sany Lonsdale

Sisters Forest Planning Committee -- Paul Dewey

SNAG Philip -- Bond & Monica Krohn

State Fire Marshall -- Mike Boyce

Statisical Consulting Service -- John Hazard

Sunriver Scene -- Norma Hodge

The Bulletin -- Scott Maben

The Klamath Tribes -- Jeff Mitchell

The Native Forestry Council -- Roy Keene

The Native Plant Society of Oregon -- Stuart Garrett

The Nature Conservancy of Oregon

The Oregonian -- Gordon Gregory

The Wilderness Society -- Bob Friemark

U.S. Army Engineers Division

U.S. Department of Energy

U.S. House of Representatives -- Robert Smith

US Department of Transportation

US Dept Housing & Urban Development -- Roy Fcholl

US Dept of Interior

US Environmental Protection Agency -- Richard B. Parkin

USDA Office of Equal Opportunity -- Robert Sranco

USDA, APHIS, BBEP, EAD Unit 149

USDA, National Agricultural Library

USDA, NRCS, Ecological Sciences

USDA, OPA Publication Stockroom

USDI Bureau of Indian Affairs -- Gerald Henrikson

Warm Springs Power Enterprises -- Brian Cunningham

Water Resources Dept -- Rick Bastasch

Western Land Exchange Project -- Janine Blaeloch

Wild Wilderness-- Scott Silver

William Smith Properties -- William L. Smith

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USDA FOREST SERVICE
CROWN PACIFIC LIMITED PARTNERSHIP
LAND EXCHANGE

FINAL ENVIRONMENTAL IMPACT STATEMENT

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		MA Anthropology	
		PhD Anthropology	
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		MS Anthropology	
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Farrell, Katherine	Writer/Editor		10 years
Gerdes, Mike	Wildlife Biologist	BS Wildlife Management	18 years

Keown, Kevin	Wildlife Biologist	BS Wildlife Science	8 years
Lang, Marv	Recreation Forester	BS Forest Management	19 years
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Sammons, Carrie	Public Affairs Assistant	BS Forestry	10 years
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Thomas, Dorothy	GIS Specialist	AAS GIS	3 years
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		MS Entomology	
		MS Forestry	
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GLOSSARY

Ad valorem - Taxes imposed on forest lands in lieu of property taxes. These taxes are imposed at a rate separate from property taxes.

Allowable Sale Quantity (ASQ) - On a National Forest, the quantity of timber that may be sold from a designated area covered by the forest plan for a specified period of time.

Alternative - In an EIS, one of a number of possible options for responding to the purpose and need for action.

Background - The distant part of a landscape; the seen or viewed area located approximately three miles to infinity from the viewer.

Best Management Practices (BMPs) - Practices designed to prevent or reduce water pollution, including sedimentation.

Board foot (bf) - A unit of wood 12" x 12" x 1".

Candidate species - Plant and animal species that may be proposed for listing as endangered or threatened in the future, in the opinion of the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS). The USFWS recently revised its list of candidate species (February 28, 1996 *Federal Register*); under their new system, only those species for which they have enough information to support a listing proposal will be called candidates.

Canopy - In a forest, the branches from the uppermost layer of trees; in a shrub or grassland, the uppermost layer of shrubs; in a riparian area, the layers of vegetation that project over the stream.

Canopy closure - The amount of ground surface shaded by tree canopies as seen from above. Used to describe how open or dense a stand of trees is, often expressed in 10 percent increments.

Ceded lands - Lands that tribes ceded to the United States by treaty in exchange for reservation of specific land and resource rights, annuities, and other promises in the treaties.

Compaction - Making soil hard and dense, decreasing its ability to support vegetation because the soil can hold less water and air and because roots have trouble penetrating the soil.

Connectivity - The arrangement of habitats that allows organisms and ecological processes to move across the landscape; patches of similar habitats are either close together or linked by corridors of appropriate vegetation. The opposite of fragmentation.

Cover - (1) Trees, shrubs, rocks, or other landscape features that allow an animal to partly or fully conceal itself. (2) The area of ground covered by plants of one or more species.

Cultural Resources - Prehistoric and historic elements qualifying for protection under the National Historic Preservation Act and other associated acts and regulations. The two types of cultural resources are:

Prehistoric Cultural Resources: Elements of archaeological significance.

Historic Cultural Resources: Elements associated with the European and/or Latin influence.

Cumulative effects - Impacts on the environment that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. (40 CFR 1508.7)

Density (stand) - The number of trees growing in a given area, usually expressed in terms of trees per acre.

Developed recreation - Recreation that requires facilities that in turn result in concentrated use of an area; for example, a campground.

Direct effects - Impacts on the environment that are caused by an action and occur at the same time and place.

Dispersed recreation - Recreation that does not occur in a developed recreation sites; for example, hunting or backpacking.

Eastside screens (aka Regional Forester's Interim Direction Establishing Riparian, Ecosystem and Wildlife Standards for Timber Sales) - Originally signed in 1994, amended in 1995. The objective of this direction was to provide an approach for maintaining future planning options concerning wildlife habitat associated with late and old structural stages, fish habitat, and old forest abundance. The direction was intentionally restrictive, reflecting a conservative interpretation of riparian, wildlife, and ecosystem needs for the short-term. The direction applies to timber sales. The Interior Columbia Basin Ecosystem Management Project may supercede the Eastside Screens.

Ecosystem - A complete, interacting system of living organisms and the land and water that make up their environment; the home places of all living things, including humans.

Endangered species - A plant or animal species listed under the Endangered Species Act that is in danger of extinction throughout all or a significant portion of its range.

Endangered Species Act (ESA) - An act, passed by Congress in 1973, that directed all Federal departments and agencies to seek to conserve endangered and threatened species and that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their critical habitat. The act also mandates conferencing with the appropriate agencies.

Endemic species - Plants or animals that occur naturally in a certain region and whose distribution is relatively limited to a particular locality. "Endemism" is the occurrence of endemic species in an area.

Environment - The combination of external physical, biological, social, and cultural conditions affecting the growth and development of organisms and the nature of an individual or community.

Environmental Impact Statement (EIS) - A statement of environmental effects of a proposed action and alternatives to it. A Draft EIS is released to the public and other agencies for review and comment. A Final EIS is issued after consideration of public comments. A Record of Decision (ROD) is based on the information and analysis in the Final EIS. (40 CFR 1508.11)

Foreground - That portion of viewed area from immediately adjacent to the viewing position to about one-half mile from the observer's position; individual branches of trees are discernible.

Forest Plan (Land and Resource Management Plan) - A document that guides natural resource management and establishes standards and guidelines for a National Forest; required by the National Forest Management Act.

Fragmentation (habitat) - The breakup of a large land area (such as a forest) into smaller patches isolated by areas converted to a different land type. The opposite of connectivity.

GIS (Geographic Information System) - An information processing technology to input, store, manipulate, analyze, and display data; a system of computer maps with corresponding site-specific information that can be combined electronically to provide reports and maps.

Habitat - A place that provides seasonal or year-round food, water, shelter, and other environmental conditions for an organism, community, or population of plants or animals.

Indicator species - A species that is presumed to be sensitive to habitat changes; population changes of indicator species are believed to best indicate the effects of land

management activities.

Indirect effects - Impacts on the environment that are caused by an action and are later in time or farther removed in distance, but are still reasonably foreseeable.

INFISH - Interim Inland Native Fish Strategy for the Intermountain, Northern, and Pacific Northwest Regions (Forest Service). A strategy intended to provide interim direction to protect habitat and populations of resident fish outside of anadromous fish habitat in eastern Oregon, eastern Washington, Idaho, western Montana, and portions of Nevada.

Inholdings - Small parcels of land surrounded by larger parcels of land of different ownership. This causes a checkerboard pattern of federal and private land ownerships.

Interdisciplinary Team (ID Team) - A team of people that collectively represent several disciplines and whose duty it is to coordinate and integrate the planning process.

Interior Columbia Basin Ecosystem Management Project (ICBEMP) - A process currently being developed on a multi-agency basis to coordinate management of the interior Columbia Basin ecosystem.

Intermittent stream - A stream that flows only at certain times of the year when it receives water from other streams or from surface sources such as melting snow.

Irretrievable - A category of impacts that applies to losses of production or commitment of renewable resources. For example, while a linear piece of land is being used as a road, some or all of the timber production there is "irretrievably lost". If the road was

rehabilitated after use and soil compaction was reduced, timber production could resume; therefore, the loss of timber production during the time the road was in use is irretrievable but not irreversible, because it is possible for timber production to resume if the piece of land is no longer needed as a road.

Irreversible **-** A category of impacts that applies to non-renewable resources, such as minerals and archaeological sites. Losses of these resources cannot be reversed. Irreversible effects can also refer to effects of actions on resources that can be renewed only after a very long period of time, such as the loss of soil productivity.

Issue - A matter of controversy, dispute, or general concern over resource management activities or land uses. To be considered a "significant" or "key" EIS issue, it must be well defined, relevant to the proposed action, and within the ability of the agency to address through alternative management strategies.

Late and Old Structure (LOS) - Late and old structure forested stands. See Late Successional and Old Structured.

Late successional - Forest late seral stages wherein understory trees begin to occupy codominant and eventually dominant positions in the canopy, and understory species can be found in all canopy layers. Overstory tree vigor begins to decline. Most standing dead and down material is small to medium sized, but some mature and recently overmature overstory trees have recently died and are developing as snags. Specific definitions are dependent on current and potential vegetation composition and arrangements.

Listed Species **-** A wildlife or plant species listed under the authorization of the Endangered Species Act as threatened or endangered.

Long-Term Sustained Yield (LTSY) - The long-term ability of the land to sustain harvest under a specified level of management investment and multiple-use objectives.

Management direction - A statement of goals and objectives, management prescriptions, and associated standards and guidelines for attaining them.

Management Indicator Species (MIS) - Vertebrate species whose population changes are believed to best serve as an index of a biological community's response to the effects of land management activities or which are important for fishing, hunting, and trapping.

Merchantable timber - Timber that can be bought and sold.

Middleground - The visible terrain beyond the foreground from about one-half to approximately three miles from the observer's position; individual trees are visible but do not stand out distinctly from the landscape.

Migration corridor - The habitat pathway an animal uses to move from one place to another.

Mitigation - Measures designed to counteract environmental impacts or to make impacts less severe. (50 CFR 1508.20)

Mixed stand - A stand consisting of two or more tree species.

Modification - A visual quality objective in which management activities may visually dominate the original characteristic landscape, but resulting visual characteristics must resemble natural occurrences within the surrounding area when viewed from the

foreground and middleground. An altered landscape with low level scenic integrity.

Multiple use management - The management of public lands and their various resource values so they are used in a combination that best meets the present and future needs of the public.

National Environmental Policy Act (NEPA) - An act, passed by Congress in 1969, that declared a national policy to encourage productive harmony between humans and their environment to promote efforts that will prevent or eliminate damage to the environment and the biosphere and stimulate the health and welfare of humans. Also to enrich the understanding of the ecological systems and natural resources important to the nation and to establish a Council on Environmental Quality. This act requires the preparation of environmental impact statements for Federal actions that are determined to be of major significance. (See 40 CFR [Code of Federal Regulations] 1500-1508 for implementing regulations. See also FSH [Forest Service Handbook] 1909.15, the Environmental Policy and Procedures Handbook.)

National Forest Management Act (NFMA) - An act, passed by Congress in 1976, that amends the Forest and Rangeland Renewable Resources Planning Act that requires the preparation of Forest plans, Regional guides, and regulations to guide that development. (See 36 CFR 219 for implementing regulations.)

Northwest Forest Plan (Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl) - pertains to the Final Environmental Impact Statement and Record of Decision signed in 1994 that contains management direction, standards and guidelines and land allocations to provide for ecosystem management utilizing the best science available. Objectives were to provide for long-term health of the federal forests, a steady supply of timber and non-timber resources that can be sustained over the long-term without degrading the health of the forest or other environmental resources.

No Action Alternative - The most likely condition expected to exist in the future if current

management direction were to continue unchanged.

Old Growth allocation **-** Management area or allocation in the Forest Plans intended to provide habitat for old growth associated species or to provide aesthetic values for the enjoyment of human visitors.

Old structure - A forest stand with moderate to high canopy closure; a multilayered, multispecies canopy dominated by large overstory trees; high incidence of large trees, some with broken tops and other indications of old decaying wood (decadence), numerous large snags; and heavy accumulations of downed wood. For ponderosa pine stands, old structure may be indicated by large diameter trees, with incidences of snags and old decaying wood. Canopy densities may actually be low with less trees per acre present than other plant associations.

Overstory - The upper canopy layer.

Partial Retention - A visual quality objective in which management activities are to remain visually subordinate to the natural landscape. A slightly altered landscape with moderate level scenic integrity.

Perennial - A plant that lives for three or more years.

Perennial stream - A stream that flows water year round.

Preferred alternative - The alternative identified in a draft environmental impact statement which has been initially selected by the agency as the most acceptable resolution to the problems identified in the purpose and need.

Proposed action - A proposal made by the Forest Service to authorize, recommend, or implement an action on National Forest System lands to meet a specific purpose and need.

Record of Decision (ROD) - A document, based on information disclosed in a final environmental impact statement, that identifies the alternative chosen, mitigation and monitoring measures to be implemented, and other information relative to the decision. (40 CFR 1505.2)

Retention - A visual quality objective which provides for management activities that are not visually evident to the causal observer. A natural appearing landscape with a high level of scenic integrity.

Riparian area - An area with distinctive soil and vegetation between a stream or other body of water and the adjacent upland; includes wetlands and those portions of floodplains and valley bottoms that support riparian vegetation.

Scenic Integrity Objectives - A set of prescriptions established by the Forest Service for the management of the National Forest landscape. There are three levels applied to the proposed land exchange. These are: **High** level scenery (or Retention) where scenery is nearly intact, **Moderate** level scenery (or Partial Retention) where scenery is slightly altered, and **Low** level scenery (or Modification) where scenery is altered.

Scoping - The early stages of preparation of an environmental assessment or environmental impact statement used to solicit public opinion, receive comments and suggestions, and determine the issues to be considered in the development and analysis of a range of alternatives. Scoping may involve public meetings, telephone conversations, mailings, letters, and other contacts.

Sensitive species - Species identified by a Regional Forester for which population viability is a concern either (a) because of significant current or predicted downward trends in population numbers or density, or (b) because of significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.

Seral Stage - A stage in the progression of an ecosystem from initial development to maturity; an age, structure, and development classification for a biological community.

Silviculture - The practice of manipulating the establishment, composition, structure, growth, and rate of succession of forests to accomplish specific objectives.

Special status species - Refers to federally listed threatened or endangered species, federal candidate species, species recognized as requiring special protection by state agencies and species managed as sensitive species by the Forest Service.

Species - A population or series of populations of organisms that can interbreed and reproduce freely with each other but not with members of other species.

Stand - A group of trees in a specific area that are sufficiently alike in composition, age, arrangement, and condition to be distinguishable from the forest in adjoining areas.

Subsistence - Customary and traditional uses of wild renewable resources (plants and animals) for food, shelter, fuel, clothing, tools, etc.

Subwatershed - An area mostly bounded by ridges or other similar topographic features contributing water, organic matter, dissolved nutrients, and sediments to a lake or stream.

Succession - A series of dynamic changes by which one group of organisms succeeds another through stages leading to potential natural community or climax. An example is the development of series of plant communities (called seral stages) following a major disturbance.

Suitable Land (for timber production) - That portion of tentatively suitable land that will be managed for scheduled commercial harvest.

Tentatively Suitable Land (for timber production) - Land tentatively identified for timber production that is forested, capable of producing industrial woods (lands sustaining growth rates greater than 20 cu. ft per acre per year) and (1) has not been withdrawn by Congress; (2) can withstand timber harvest activities without irreversible damage to soils, productivity, and watersheds; and (3) can be restocked with trees within 5 years of cutting.

Thermal cover - Cover used by animals to protect them against weather.

Threatened species - Species listed under the Endangered Species Act that are likely to become endangered within the foreseeable future throughout all or a significant portion of their range.

Tribe - Term used to designate a federally recognized group of American Indians and their governing body. Tribes may be comprised of more than one band.

Topoedaphic - of or relating to the soil, more specifically the more upper surface layers.

Uneven-aged management - Method of forest management in which trees of different species in a given stand are maintained at many ages and sizes to permit continuous natural regeneration. Selective cutting is one example of an uneven-aged management method.

Uneven-aged stand - A stand of trees in which there are considerable differences in the ages of individual trees.

Visual Quality Objective - Management standards reflecting five degrees of acceptable alteration of the natural landscape based on a landscape's diversity of natural features and the public's concern for scenic quality.

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APPENDIX A

PROPOSED EXCHANGE LANDS

Crown Pacific Lands Proposed for Exchange

* Acres are rounded to the nearest whole number. *

T	R	S	ACRES	Description
13S	10E	24	160	SW1/4
13S	10E	25	640	All
13S	10E	35	640	All
14S	10E	3	641	All
16S	10E	2, 11	10	That tract of land known as the Sisters Mainline Road,
16S	10E	3	338	Lots 3-4, S 1/4 and SE1/4

16S	10E	4	150	Lot 1, E1/2, Lots 2, 5 and 6, a portion of the SE1/4 SE1/4 SW1/4 lying southeast of a line connecting the north east corner with the southwest corner, E1/2 W1/2 SE1/4, a portion of the NW1/4 SW1/4 SE1/4 lying southeast of a line connecting the northeast corner with the southwest corner of said subdivision and SW1/4 SW1/4 SE1/4
16S	10E	7	602	S1/2N1/2 Lot 1, S1/2 lot 1, lots 2,3,4, S1/2N1/2N1/2NE1/4, S1/2N1/2NE1/4, S1/2N1/2NE1/4NW1/4, S1/2NE1/4NW1/4, SE1/4NW1/4, E1/2SW1/4 and SE1/4
16S	10E	8	457	NE1/4 lot3, that portion of the NW1/4 lot 3 lying so
16S	10E	9	570	Lots 1 to 4, W1/2NE1/4, NE1/4NE1/4NW1/4, that portion of the NW1/4NE1/4NW1/4 lying southeast of a line connecting the northeast corner to the southwest corner of said subdivision, S1/2NE1/4NW1/4, that portion of the SW1/4NW1/4 lying southeast of a line connecting the northeast corner to the southwest corner of said subdivision, SE1/4NW1/4, SW1/4 and W1/2SE1/4
16S	10E	10	640	
16S	10E	14	120	SW1/4NW1/4, W1/2SW1/4
16S	10E	15	480	NE1/4, NW14 and SE1/4

16S	10E	16	318	Lots 1 & 2, W1/2NE1/4, NW1/4
16S	10E	17	317	Lots 1 & 2, W1/2NE1/4, NW1/4
16S	10E	18	321	Lots 1 & 2, E1/2NW1/4, NE1/4
16S	10E	22	160	NE1/4
16S	10E	23	640	All
16S	10E	24	480	NW1/4, SW1/4, SE1/4
16S	10E	25	640	All
16S	10E	26	160	NE1/4
16S	11E	30	308	Lots 1-4, NE1/4NW1/4, E1/2SW1/4
17S	10E	7	120	N1/2NE1/4, SE1/4NE1/4
17S	10E	8	200	SE1/4, NE1/4SW1/4
17S	10E	9	120	N1/2SW1/4, SE1/4SW1/4
17S	10E	21	120	NE1/4NE1/4, E1/2SE1/4
17S	10E	27	160	NW1/4
17S	10E	34	200	NE1/4NE1/4, SE1/4SW1/4, S1/2SE1/4, NE1/4SE1/4
17S	11E	32	160	S1/2SW1/4, S1/2SE1/4

17S	11E	33	435	NE1/4, N1/2SE1/4, SW1/4SE1/4, SE1/4NW1/4, NE1/4SW1/4, Por. E1/2SW1/4 N of Creek
17S	11E	34	54	The portion of NW1/4 lying NW of Shevlin Park Boundary
18S	10E	1	381	Lots 1-4, S1/2N1/2, NE1/4SE1/4, E1/2NW1/4SE1/4
18S	10E	2	429	Lots 1-4, S1/2N1/2, the portions of N1/2SW1/4 and NW1/4SE1
18S	10E	3	638	Lots 1-4, S1/2N1/2, SW1/4, N1/2SE1/4, SW1/4SE1/4, portion of SE1/4SE1/4 lying N of Tumalo Creek
18S	10E	4	235	SE1/4, S1/2NE1/4 less 5 acre tower site
18S	11E	5	376	Lots 1-4, S1/2NE1/4, S1/2NW1/4, N1/2SW1/4 and NW1/4SE1/4 excluding a portion of lot 1 and S1/2NE1/4 southeast of Tumalo Creek
18S	11E	6	455	Lots 1-6, SE1/4NW1/4, NE1/4SW1/4, S1/2NE1/4, NE1/4SE1/8
21S	10E	4	160	SW1/4
21S	10E	5	166	Lots 1 & 2, S1/2NE1/4
21S	10E	7	234	Lot 2, SE1/4NW1/4, NE1/4
21S	10E	8	80	W1/2NW1/4

23S	9E	18	236	Lots 2-4, SE1/4NW1/4, E1/2SW1/4
23S	11E	31	856	Lots 1-3, Lots 5-9, Lots 16-20, Por. Lots 4 & 5 E of Hwy 31 & E1/2
23S	11E	36	640	All
24S	7E	35	160	S1/2S1/2
24S	8E	8	167	Lots 1-2 & 7-8
24S	8E	19	129	Lots 3&4, Portion SE1/4SW1/4 & SW1/4SE1/4 South of County Road
24S	8E	32	160	N1/2NE1/4, SE1/4NE1/4, NE1/4SE1/4
24S	8E	33	560	NE1/4NE1/4, W1/2NE1/4, NW1/4, SW1/4, W1/2SE1/4 and SE1/4SE1/4
24S	8E	34	40	SW1/4SW1/4
24S	11E	7	118	Lots 13-15
25S	7E	2	487	Lots 1 to 4, S1/2NE1/4, SE1/4NW1/4, N1/2SE1/4, SE14SE1/4 and Portion SW1/4NW1/4, NE1/4SW1/4, NW1/4SW1/4, SE1/4SW1/4 and SW1/4 SE1/4 lying northeast of Highway 58
25S	7E	3	55	Portions lot 1 and SE1/4NE1/4 lying northeast of Highway 58

25S	7E	11	45	Portion N1/2NE1/4 and SE1/4NE1/4 northeast of Highway 58
25S	7E	12	553	NE1/4, N1/2NW1/4, SE1/4NW1/4, NE1/4SW1/4, portion SW1/4NW1/4, NW1/4SW1/4 and SE1/4SW1/4 lying northeast of Highway 58
25S	7E	13	130	Portion NE1/4 and E1/2SE1/4 lying northeast of Highway 58, E1/2NE1/4, NE1/4NW1/4 and NW1/4NE1/4NE1/4NW1/4 lying northeast of Highway 58
25S	7E	25	109	NW1/4SE1/4 and S1/2SE1/4 less RR right-of-way
25S	8E	4	82	Lots 3&4
25S	8E	5	41	Lot 1
25S	8E	7	635	Lots 1-4, E1/2W1/2, E1/2
25S	8E	8	200	NW1/4, NW1/4SW1/4
25S	8E	15	40	SE1/4SE1/4
25S	8E	18	439	Lots 1-4, E1/2W1/2, W1/2NE1/4, NW1/4SE1/4
25S	8E	19	80	E1/2SW1/4
25S	8E	20	80	N1/2NE1/4

25S	8E	25	200	N1/2N1/2, SE1/4NE1/4
25S	8E	30	80	NW1/4NE1/4, SE1/4NE1/4
25S	8E	31	73	SW1/4NE1/4, NW1/4SE1/4 less RR R/W
25S	9E	21	160	E1/2SW1/4, W1/2SE1/4
25S	9E	22	160	SW1/4NE1/4, SE1/4NW1/4, N1/2NW1/4
25S	9E	24	200	NE1/4, NE1/4SW1/4
25S	9E	28	40	NW1/4NW1/4
25S	9E	29	200	W1/2SW1/4, SE1/4SW1/4, SE1/4NE1/4, NE1/4SE1/4
25S	9E	30	274	Lots 1-3, E1/2NW1/4, NW1/4NE1/4, NE1/4SW1/4
25S	9E	31	28	Lots 2-3, SE1/4NW1/4, SW1/4NE1/4, NW1/4SE1/4, E1/2SW1/4
25S	9E	32	200	NW1/4NE1/4, N1/2NW1/4, SE1/4NW1/4, NW1/4SW1/4
25S	10E	13	280	N1/2NE1/4, SE1/4NE1/4 and NW1/4
25S	10E	15	240	N1/2N1/2, SW1/4NW1/4, SE1/4SE1/4
25S	10E	17	280	SW1/4, W1/2SE1/4, NE1/4SE1/4

25S	10E	19	40	NE1/4SW1/4
25S	10E	20	40	NW1/4NW1/4
25S	10E	22	40	NW1/4NE1/4
25S	10E	23	40	NW1/4NE1/4
25S	10E	24	320	SW1/4NE1/4, NW1/4, N1/2SW1/4, NW1/4SE1/4
25S	10E	25	80	SE1/4NW1/4, SE1/4SW1/4
25S	10E	28	120	N1/2NW1/4, SW1/4SW1/4
25S	10E	33	80	NW1/4NW1/4, SE1/4NW1/4
25S	11E	2	80	SE1/4SW1/4, SW1/4SE1/4
25S	11E	10	120	SE1/4NE1/4, E1/2SE1/4
25S	11E	11	400	E1/2SE1/4, W1/2
25S	11E	12	400	SE1/4, NE1/4NW1/4, S1/2NW1/4, N1/2SW1/4, SW1/4SW1/4
25S	11E	13	200	SE1/4SE1/4, NE1/4
25S	11E	14	80	SW1/4NW1/4, SW1/4SW1/4
25S	11E	15	200	N1/2NE1/4, NE1/4NW1/4, NE1/4SW1/4, SE1/4SE1/4

25S	11E	20	480	S1/2N1/2, S1/2
25S	11E	21	240	NW1/4NE1/4, SE1/4SE1/4, W1/2W1/2
25S	11E	22	280	NW1/4NE1/4, NE1/4NW1/4, SE1/4, SW1/4SW1/4
25S	11E	23	200	SW1/4, SE1/4SE1/4
25S	11E	25	120	SE1/4NE1/4, E1/2SE1/4
25S	11E	26	160	N1/2N1/2
25S	11E	27	40	
25S	11E	28	120	N1/2NE1/4, NE1/4NW1/4
25S	11E	29	320	W1/2
25S	11E	30	160	Lots 17-18, W1/2SE1/4
25S	11E	31	320	Lots 1, 8, 9, 16, 17 & 19 and 20, SW1/4SE1/4
25S	12E	6	160	Lot 7, SE1/4SW1/4, S1/2SE1/4
25S	12E	7	160	Lots 3-4, E1/2SW1/4
25S	12E	15	200	NE1/4NE1/4, N1/2NW1/4, SW1/4NW1/4, NE1/4SE1/4
25S	12E	17	240	N1/2NE1/4, SW1/4NE1/4, SE1/4NW1/4, W1/2NW1/4

25S	12E	18	641	Lots 1, E1/2NW1/4, NE1/4, E1/2SW1/4, SE1/4
25S	12E	22	200	NW1/4NW1/4, S1/2NW1/4, NW1/4SW1/4, SE1/4SE1/4
25S	12E	27	40	SW1/4SW1/4
25S	12E	35	80	S1/2SW1/4
26S	9E	6	74	Lots 6-7
26S	9E	10	120	SE1/4NE1/4, E1/2SE1/4
26S	9E	11	520	NW1/4NE1/4, S1/2NE1/4, NE1/4NW1/4, S1/2NW1/4, SW1/4, N1/2SE1/4, and SW1/4SE1/4
26S	10E	1	292	Lots 2-3, S1/2NW1/4, N1/2SW1/4, SE1/4SW1/4
26S	10E	11	50	SE1/4SE1/4, E1/2E1/2SW1/4SE1/4
26S	10E	12	80	NE1/4NE1/4, NE1/4NW1/4
26S	10E	13	80	S1/2SE1/4
26S	10E	16	560	NW1/4NE1/4, NE1/4NW1/4, S1/2N1/2, S1/2
26S	10E	24	560	NE1/4, E1/2NW1/4, S1/2
26S	10E	25	320	W1/2NE1/4, NW1/4, W1/2SW1/4

26S	10E	26	120	NE1/4SE1/4, S1/2SE1/4
26S	10E	33	160	SE1/4NW1/4, NE1/4SW1/4, W1/2SE1/4
26S	10E	34	80	N1/2SE1/4
26S	11E	3	240	Lots 5, 6, 11 and 12, NE1/4SW1/4, NW1/4SE1/4
26S	11E	4	560	Lot 5, 7-11, S1/2
26S	11E	5	200	Lot 8, SE1/4
26S	11E	6	226	Lots 8-11, SE1/4SW1/4
26S	11E	7	89	Lot 1, NE1/4NW1/4
26S	11E	8	80	N1/2NE1/4
26S	11E	9	120	NW1/4NE1/4, N1/2NW1/4
26S	11E	10	80	NW1/4NE1/4, NE1/4NW1/4
26S	11E	16	640	All
26S	11E	18	170	Lot 4, SE1/4SW1/4, S1/2SE1/4
26S	11E	19	517	Lots 1-4, E1/2W1/2, NE1/4
26S	11E	27	400	N1/2NE1/4, SW1/4NE1/4, SE1/4NW1/4, NE1/4SW1/4, NW1/4SE1/4, S1/2S1/2

26S	11E	28	200	SW1/4NE1/4, SE1/4NW1/4, NE1/4SW1/4, W1/2SE1/4
26S	11E	30	160	SE1/4
26S	11E	31	208	Lot 4, E1/2SW1/4, W1/2SE1/4
26S	11E	32	320	W1/2E1/2, N1/2NW1/4, SE1/4NW1/4, NE1/4SW1/4
26S	11E	33	200	NW1/4SW1/4, E1/2E1/2
26S	11E	34	640	All
26S	11E	35	40	NW1/4SW1/4
26S	13E	30	40	SW1/4SE1/4
26S	13E	31	40	NE1/4NW1/4
27S	10E	1	400	S1/2NE1/4, S1/2
27S	10E	2	240	S1/2NE1/4, SE1/4SW1/4, NE1/4SE1/4, S1/2SE1/4
27S	10E	3	160	SE1/4
27S	10E	11	80	N1/2NE1/4
27S	11E	2	74	Lot 2 and 4
27S	11E	3	75	Lots 1 & 3

27S	11E	6	47	Lot 7
27S	12E	4	35	Lot 1
28S	9E	31	160	Lot 4, SE1/4SW1/4, S1/2SE1/4
33S	8E	13	320	E1/2
37S	15E	9	480	N1/2, SW1/4

National Forest Systems Lands Proposed for Exchange

* Acres are rounded to nearest whole number. *

T	R	S	Acres	Description
15S	10E	5	16	Irregular parcel in NE1/4SE1/4
16S	10E	4	58	Lots 3&4, NW1/4SE1/4
16S	11E	31	175	Lots 3&4, E1/2SW1/4
17S	11E	4	320	S1/2
17S	11E	5	479	Lots 3&4, S1/2NW1/4, S1/2
17S	11E	6	501	Lots 1-6, S1/2NE1/4, SE1/4NW1/4, NE1/4SW1/4, N1/2SE1/4

17S	11E	7	666	All
17S	11E	8	480	N1/2, SE1/4
17S	11E	9	320	NW1/4, SE1/4
17S	11E	17	480	NW1/4, S1/2
17S	11E	18	173	Lots 1&2, E1/2NW1/4
17S	11E	21	640	All
22S	9E	1	200	SW1/4NE1/4, W1/2SE1/4, S1/2SW1/4
22S	9E	11	80	S1/2SE1/4
22S	9E	12	480	W1/2NE1/4, NE1/4NW1/4,S1/2NW1/4, SW1/4, W1/2SE1/4 and SE1/4SE1/4
22S	9E	13	440	N1/2, N1/2SW1/4, SW1/4SW1/4
22S	9E	14	320	E1/2
22S	10E	2	40	Lot 4
22S	10E	5	320	Lots 3 & 4, S1/2NW1/4, SW1/4
22S	10E	6	319	Lots 1 & 2, S1/2NE1/4, N1/2SE1/4, NE1/4SW1/4, SE1/4SE1/4
22S	10E	7	153	Lot 4, SE1/4SW1/4, S1/2SE1/4

22S	10E	8	320	W1/2
22S	10E	17	40	SE1/4SW1/4
22S	10E	18	266	Lots 1 and 2, N1/2NE1/4, N1/2SW1/4NE1/4, SW1/4SW1/4NE1/4, NW1/4SE1/4SW1/4NE1/4, N1/2NW1/4SE1/4NE1/4, SW1/4NW1/4SE1/4NE1/4 and E1/2NW1/4
23S	9E	13	40	NE1/4SW1/4
23S	9E	24	120	SE1/4NE1/4, E1/2SE1/4
23S	9E	25	160	NE1/4NE1/4, NE1/4SE1/4, S1/2SE1/4
23S	10E	19	65	Lots 3 & 4
23S	10E	30	129	Lots 1-4
24S	8E	15	640	All
24S	8E	22	80	N1/2NW1/4
24S	9E	3	79	Lots 3 & 4
24S	9E	8	80	E1/2SE1/4
24S	9E	17	120	N1/2NE1/4, SW1/4NE1/4
24S	9E	25	120	W1/2SE1/4, SE1/4SE1/4

24S	9E	31	80	W1/2SE1/4
24S	10E	14	40	SW1/4SE1/4
24S	10E	20	280	NE1/4NE1/4, S1/2NE1/4, N1/2SE1/4, NE1/4SW1/4, SW1/4SW1/4
24S	10E	22	160	W1/2NE1/4, E1/2NW1/4
24S	10E	23	280	W1/2E1/2, SE1/4NW1/4, E1/2SW1/4
24S	10E	26	360	W1/2, NW1/4NE1/4
24S	10E	27	520	E1/2, E1/2W1/2, SW1/4SW1/4
24S	10E	28	320	W1/2NE1/4, N1/2SW1/4,SW1/4SW1/4, N1/2SE1/4 and SW1/4SE1/4
24S	10E	29	400	NW1/4NW1/4, E1/2, SE1/4SW1/4
24S	10E	30	385	Lots 3 & 4, E1/2SW1/4, SW1/4SE1/4, N1/2SE1/4, S1/2NE1/4, NE1/4NE1/4
24S	10E	31	212	Lots 1-4, NE1/4NW1/4, NW1/4NE1/4
24S	10E	32	280	N1/2NE1/4, SW1/4NE1/4, S1/2NW1/4, E1/2SE1/4
24S	10E	33	520	S1/2, S1/2N1/2, NW1/4NE1/4
24S	10E	34	640	All

24S	10E	35	320	N1/2NW1/4, SW1/4NW1/4, SW1/4, and SW1/4SE1/4
24S	11E	18	37	SE1/4SE1/4 Less Highway 31
24S	11E	30	1122	All
24S	11E	31	767	Lots 1 thru 7 & 10 thru 17, S1/2SE1/4, N1/2NE1/4
24S	11E	32	640	All
25S	8E	1	409	Lots 6 and 7 west of Highway 97, lot 3,4, S1/2NW1/4, E1/2SW1/4, W1/2SE1/4 less parcel deeded to Zitok, and SE1/4SE1/4
25S	8E	12	478	NE1/4NE1/4, S1/2NE1/4, SE1/4NW1/4, S1/2 Less Highway 97
25S	8E	13	400	N1/2N1/2, SE1/4NE1/4, S1/2S1/2, NE1/4SE1/4
25S	8E	14	200	E1/2SW1/4, W1/2SE1/4, SE1/4SE1/4<
25S	8E	24	320	N1/2NE1/4, NW1/4, W1/2SW1/4
25S	9E	1	638	All
25S	9E	2	552	Lots 1-3, S1/2NE1/4, NE1/4NW1/4, S1/2, less RR R/W
25S	9E	6	553	Lots 1-7, S1/2NE1/4, SE1/4NW1/4, E1/2SW1/4, N1/2SE1/4

25S	9E	7	436	Lot 1, NE1/4NW1/4, SE1/4SW1/4, E1/2
25S	9E	8	160	W1/2E1/2
25S	9E	9	400	NE1/4NE1/4, S1/2NE1/4, SE1/4NW1/4, E1/2SW1/4, SE1/4
25S	9E	10	440	W1/2NE1/4, NW1/4, E1/2SW1/4, NW1/4SE1/4, E1/2SE1/4
25S	9E	11	440	W1/2, SW1/4NE1/4, W1/2SE1/4
25S	9E	12	160	N1/2N1/2
25S	9E	13	240	SW1/4, W1/2SE1/4
25S	9E	14	200	S1/2SE1/4, N1/2NW1/4, NW1/4NE1/4
25S	9E	15	360	N1/2N1/2, SW1/4NW1/4, W1/2SW1/4, S1/2SE1/4
25S	9E	16	430	W1/2E1/2, E1/2NW1/4, SW1/4NW1/4, SW1/4 less RR
25S	9E	17	400	N1/2N1/2, SE1/4NW1/4, NE1/4SW1/4, S1/2S1/2
25S	9E	18	151	Lots 2 & 3, NE1/4NE1/4, SW1/4SE1/4
25S	9E	19	463	Lots 1,5 and 6 northwest of RR right-of-way, NE1/4, E1/2NW1/4, SE1/4SW1/4 and W1/2SE1/4

25S	9E	20	85	Lots 2,3,4 and 7 northeast of RR right-of-way
25S	10E	1	481	Lots 3-4, S1/2NW1/4, S1/2
25S	10E	2	80	E1/2SE1/4
25S	10E	3	280	Lots 1 & 4, SE1/4NW1/4, SW1/4
25S	10E	4	401	Lots 1-3, SE1/4NE1/4, E1/2SE1/4, SW1/4
25S	10E	5	200	Lot 2, S1/2N1/2
25S	10E	6	297	Lots 3-7, SE1/4NW1/4, NE1/4SW1/4, SW1/4SE1/4
25S	10E	7	240	N1/2NE1/4, SE1/4
25S	10E	8	320	N1/2
25S	10E	11	160	NE1/4NE1/4, S1/2SE1/4, NE1/4SE1/4
25S	10E	12	400	E1/2, W1/2NW1/4
25S	11E	3	38	Lot 3
25S	11E	4	146	Lots 1, 3 & 4, SW1/4NW1/4
25S	11E	5	622	All
25S	11E	6	835	Lots 1-13, 15-19 & 22, S1/2NE1/4

25S	11E	7	769	SE1/4, Lots 1-14 and 16
25S	11E	8	160	SW1/4
25S	11E	9	400	S1/2NW1/4, S1/2
25S	11E	18	572	Lots 2, 4-7, 9-13 and 15-18
25S	12E	19	521	Lots 1-4, E1/2W1/2, NE1/4, SW1/4SE1/4
25S	12E	20	160	N1/2N1/2
25S	12E	30	120	Lot 1, NE1/4NW1/4, NW1/4NE1/4
25S	12E	34	200	N1/2N1/2, SE1/4NE1/4
26S	12E	1	160	SE1/4
26S	12E	9	640	All
26S	12E	34	320	W1/2
27S	12E	3	200	SW1/4, NW1/2SE1/4

DNF Home Page | NEPA | SO Documents | Crown Exchange

http://www.fs.fed.us/r6/deschutes/desnf/manage/nepa/documents/so/crown/apend-a.html
Last Update: 3/20/98
R.A. Jensen

USDA FOREST SERVICE
CROWN PACIFIC LIMITED PARTNERSHIP
LAND EXCHANGE

FINAL ENVIRONMENTAL IMPACT STATEMENT

APPENDIX B

EXISTING and PROPOSED MANAGEMENT ALLOCATIONS

Existing Management Allocations in the Project Area:

Deschutes NF	Acres	Fremont NF	Acres
Deer Habitat (MA7)	4,264	Timber/Range Production (MA5)	6,394
General Forest (MA8)	20,602	Dedicated Old Growth (MA14)	235
Scenic Views (MA9	1,056		
Intensive Recreation (MA11)	35		
Old Growth (MA15)	230		

Proposed Management Allocations in the Project Area:

Deschutes NF	Acres	Fremont NF	Acres
Deer Habitat (MA7)	11,188	Deer Winter Range (MA1)	80
General Forest (MA8)	8,045	Timber/Range Production (MA5)	11,202
Scenic View (MA9)	393		
Front Country (MA18)	1,789		

Winema NF	Acres
Riparian Areas (MA8)	390
Timber Production (MA12)	5,672

Deschutes NF Management Allocations

MA7 - Deer Habitat: Goal: to manage vegetation to provide optimum habitat conditions on deer winter and transition ranges while providing some domestic livestock forage, wood products, visual quality, and recreation opportunities.

General Theme and Objectives: Vegetation will be managed to provide optimum habitat considering the inherent productivity of the land. Herbaceous vegetation will be managed to provide a vigorous forage base with a variety of forage species available. Forage conditions may be improved where conditions are poor. Foraging areas will be created where forage is lacking, maintained when in proper balance, or reduced when overabundant and more foraging areas are needed.

Long-term tree or shrub cover to moderate cold weather conditions is equally important. Ideally, cover and forage areas should be in

MA8 - General Forest: Goal: to emphasize timber production while providing forage production, visual quality, wildlife habitat, and recreational opportunities for public use and enjoyment.

General Theme and Objectives: The objective of timber management in this management area is to continue to convert unmanaged stands. The aim of a managed forest is to have stands in a variety of age classes with all stands utilizing the site growth potential. This is achieved through stand treatments which include (but are not limited to) controlling stocking levels; maintaining satisfactory growth rates; protecting stands from insects, disease, and damage; controlling species composition; and regenerating stands that

Forage within this management area will be available for use by cattle, sheep, and big game. Some lands have no available forage, so there will be no grazing. On other lands there will be need for coordination between timber and range management. On some areas grazing will be the emphasized use. Range structural improvements such as fences and water troughs may be constructed and maintained to meet range and timber management objectives. Range improvement projects such as prescribed burning or seeding may be utilized to improve the forage base.

There are opportunities for dispersed recreation activities, particularly those associated with roads. Informal camping and hunter camps are important uses of the area. Developed recreation site opportunities such as camping and picnicking occur on a limited bases throughout the area.

MA9 - Scenic View: Goal: To provide Forest visitors with high quality scenery that represents the natural character of Central Oregon.

General Theme and Objectives: Landscapes seen from selected travel routes and use areas will be managed to maintain or enhance their appearance. To the casual observer, results of activities either will not be evident or will be visually subordinated to the natural landscape.

Landscapes will be enhanced by opening views to distant peaks, unique rock forms, unusual vegetation, or other features of interest. Timber harvest is permitted, but only to protect and improve the visual quality of the stands both now and in the future. Timber stands, which have remained unmanaged in the past because of their visual sensitivity, will begin receiving treatment to avoid loss of the stand to natural causes. Landscapes containing negative visual elements, such as skid roads, activity residue, or cable corridors will be rehabilitated.

The desired condition for ponderosa pine is to achieve and maintain visual diversity through variations of stand densities and size classes. Large, old-growth pine will remain an important constituent, with trees achieving 30 inches in diameter or larger and having deeply furrowed, yellowbark characteristics.

For other species, the desired condition requires obtaining visual variety through either spatial distribution of age classes and species mixes, through density manipulation, or though a mixture of age classes within a stand.

MA11 - Intensive Recreation: Goal: To provide a wide variety of quality outdoor recreation opportunities within a Forest environment where the localized settings may be modified to accommodate large numbers of visitors. (Undeveloped recreation opportunities may occur in this management area.)

General Theme and Objectives: This management area will provide a wide variety of recreation opportunities including, but not limited to, activities dependent on various intensities of development. Sophisticated facilities and sights and sophisticated facilities and sights and sounds of humans will be evident and often essential to provide the desired recreation experience. Generally, high concentrations of visitors will occur around developments. Fewer numbers will occur outside developments, but encounters between visitors can be frequent. Visitors with little knowledge of outdoor skills will be able to enjoy the area.

Opportunities for participation in a broad range of outdoor recreation activities will be

available. Activities will often require support facilities and often, but not always, involve widespread use of motorized vehicles and boats.

MA15 - Old Growth: Goal: To provide naturally evolved old growth forest ecosystems for (1) habitat for plant and animal species associated with old growth forest ecosystems, (2) representations of landscape ecology, (3) public enjoyment of large, old-tree environments, and (4) the needs of the public from an aesthetic spiritual sense. Old growth areas will also contribute to the biodiversity of the Forest.

General Theme and Objectives: An old growth forest will be managed to provide (1) large trees, (2) abundant standing and downed dead trees, and (3) vertical structure (multiple vegetative canopy heights), except in lodgepole pine types where a single canopy level is common. Such stands would vary in size and be located so that a wide variety of conditions are represented.

The distribution and minimum size of old growth areas were based upon the habitat requirements of the following indicator species: pine martens (mixed conifer), goshawk (ponderosa pine), and three-toed woodpecker (lodgepole pine). These species were selected because they are endemic to the Forest, and their habitat requirements are similar to or exceed those of other endemic, old growth, associated species.

Some other management areas (spotted owl, research natural areas) also provide suitable habitat for old growth associated wildlife and plants. Designated old growth management areas fill gaps between these other areas.

Many Ponderosa pine and mixed-conifer old growth areas provide for the public's desire for large, old-tree environments that may not be adequately provided for in other management areas (i.e., wilderness, dispersed recreation, research natural area).

Some of the old growth areas are intended to provide for more than one of the objectives to occur on the area at the same time. Although it may be necessary to restrict public us of some key areas for certain periods of time, to protect animal populations, the objective is to keep these areas open to the public.

MA18 - Front Country: Goal: to provide and maintain a natural appearing forested landscape on the slopes northeast of the Three Sisters and Tam MacArthur Rim while providing high and sustainable levels of timber production.

General Theme: This management area occupies a place between scenic views and general. While it calls for a greater emphasis on timber production that the former, the Visual Quality Objective is partial Retention for view areas, compared with Modification in General Forest. Modification may apply to areas which cannot be seen from certain viewing locations.

Objectives: Visual Quality: The lower slopes of the viewed area are predominately ponderosa pine and the upper portion ranges from ponderosa pine overstory with dense white fir to pure lodgepole pine understory. Viewer distance to these areas ranges from 6 to 20 miles, making individual trees and tree sizes indistinguishable. These stands are visually important because they provide a strong textural element that forefronts the dramatic Three Sisters.

The desired visual condition is a landscape where color contrasts are minimal and the full crowns of younger trees create a visually uniform, primarily dark green, gently rolling landscape. Management activities should not result in shapes or lines that are visible from significant viewer locations. Openings and textural changes are, and should be, generally small and remain subordinated in this landscape except during the winter months, when snow, weather and lighting conditions exaggerate color contrasts making openings more evident.

Objectives: Timber production: The area is highly productive timberland and portions of it have been intensively managed during the past 50 years. A portion is under private ownership and is managed primarily for timber.

Forest Service management will be based on the silvicultural and ecological characteristics of stands within this management area. The majority of the area is relative flat and occupied by stands of ponderosa pine. Uneven-age management of these and mixed conifer stands will be compatible with the areas scenic objectives and will be the preferred treatment wherever feasible . On highly visible, steep slopes, stand management may have to be precluded.

Timber harvesting and postharvesting activities, particularly tree planting on suitable lands, should be coordinated with the grazing program to minimize conflicts.

Fremont NF Management Allocations

MA1 - Deer Winter Range: Winter ranges for mule deer will be managed to produce habitat capable of supporting objectives identified. These ranges occur at lower elevations along the forest-desert interface and are often nonforested. Where timber stands do occur, they are critical in providing thermal cover to deer and elk during the harsh winter months.

Wood fiber production and livestock grazing will also occur in this management area. Timber and range management activities will be designed to complement big game habitat objectives. On timbered winter range, vegetative cover and other components of mule deer habitat will be manipulated to maintain at least 80 percent effectiveness.

Road systems will be maintained for multiple-use purposes, but at reduced densities. Seasonal closures will occur on certain roads in the Fort Rock area to prevent disturbance of winter deer herd concentrations and one similar closure in another area will be established.

Goal: Food, cover, and human disturbance on mule deer winter range will be managed to provide the habitat needed to meet the ODFW and Klamath Tribes herd management objectives.

The majority of winter range is nonforested. Cover is present in pine and juniper stands. Optimum spacing between cover and forage areas seldom occurs. Both the quantity and quality of food and cover on most winter range is significantly below its potential. Livestock use occurs on most winter ranges but is presently designed to have no significant effect on deer forage.

Most winter range occurs at low elevation on sites with gentle topography. Road densities are high and potential for disturbance to wintering deer is also high.

MA5 - Timber/Range Production: This management area emphasizes commercial timber production and forage for domestic livestock. Management activities will follow standards and guidelines designed to produce timber and livestock forage while meeting environmental requirements for soil, water quality, and wildlife habitats. A range of management strategies and intensities can be used, depending on stand conditions and management objectives. For example, in order to respond to the mountain pine beetle epidemic, lodgepole pine stands may be converted to managed conditions on an accelerated schedule.

Old-growth stands predominate on the forested lands within this management area. Timber management will emphasize converting these unmanaged stands to managed

conditions. The objective of this conversion is to create a variety of age classes, with all stands achieving their optimum growth potential. Stand treatments will include controlling stocking levels and species mix; improving growth rates; protecting stands from insects, disease, and other damage; and regenerating old stands no longer showing optimum growth rates.

Management for livestock grazing will be emphasized on nonforested lands. Structural improvements such as fences and water developments will be built to meet range management objectives. Prescribed burning or seeding may be used to improve forage. Transitory forage growing in openings created by timber management will also be managed for livestock grazing.

Goal: Manage for commercial production of sawtimber and forage for domestic livestock on appropriate lands within established standards and guidelines.

Discussion: This management area is a complex of both forest and rangelands. Many of the rangelands occur as small meadows which are inclusions within the general forest areas. Because of the complexity of occurrence, the meadows were not mapped as separate unites. This management area emphasizes commercial timber production and forage for domestic livestock. Management activities will follow requirements of soil, water quality, air, and wildlife habitats. A range of management prescriptions and intensities can be used, depending on stand conditions and management objectives. For example, in order to respond to the mountain pine beetle epidemic, lodgepole pine stands may be converted to managed conditions on an accelerated schedule.

Mature and overmature stands predominate on the forested lands within this management area. Timber management will emphasize converting these unmanaged stands to managed conditions. The objective of this conversion is to create a variety of age classes, with all stands achieving their optimum growth.

MA14 - Dedicated Old Growth: As described in the Management Requirements, selected old-growth habitat will be managed to maintain viable populations of the Forest's old-growth associated species at minimum required levels. Sites selected for this management area are distributed across the Forest in a grid-like pattern and are composed of mature and overmature stands of ponderosa pine, lodgepole pine, and mixed conifers. Sites are also distributed to provide links with similar habitat on adjacent National Forests. The representative indicator species selected to measure the success of old-growth habitat management on the Fremont National Forest include goshawks, pine martens, pileated woodpeckers, and three-toed woodpeckers.

Ponderosa pine and mixed conifer stands will be dedicated to an old-growth condition. Lodgepole pine sites will be managed under a two-tiered harvest system. The identification of specific plot locations will be mapped and retained at Fremont National Forest Headquarters. Estimated plot locations are shown on the map accompanying this Forest Plan.

Goal: Manage stands of old growth on the Forest to maintain minimum viable populations of dependent, native vertebrate species.

Discussion: Mature and overmature stands of ponderosa pine, pine-associated, and lodgepole pine are the preferred/required habitat of certain wildlife species.

Dedicated : Old-growth pine and pine-associated stands will be dedicated, i.e. receive no timber management; however, these stands may have wildlife habitat enhancement projects to maintain or enhance old growth habitat.

Managed: Old-growth lodgepole pine stands will be managed on a 120- year rotation. 1) Maintain as long as possible without treatment. Select with the greatest potential for longevity. 2) Select and place under management replacement stands, with emphasis on stands with the earliest replacement potential.

Winema NF Management Allocations

MA8 - Riparian Areas: This management area is typically applied to lands that are characterized by streams, lakes, ponds, springs, and wetlands. It includes riparian ecosystems and transit ional ecosystems as defined by "Riparian Zone Associations" (R6 Ecol TP-279-87). It also includes nonriparian areas adjacent to streams, lakes, and wet meadows.

The Goal of riparian area management is designed to protect soil, water, wetland, floodplain, wildlife, and fish resource values associated with riparian vegetative communities and adjacent drier ecosystems. Management emphasis is on water quality, deer fawning, wildlife habitat, and aquatic ecosystems. Existing conditions will be maintained or enhanced.

MA12 - Timber Production: This management area is applied to lands that are predominantly forested and capable of high levels of timber production. This management area has a primary focus on the production of wood products, but also provides a variety of dispersed recreation opportunities, wildlife habitat, and forage for domestic livestock.

The Goal of management area 12 is to produce a high level of growth and timber production with considerations for economic efficiency and resource protection.

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USDA FOREST SERVICE
CROWN PACIFIC LIMITED PARTNERSHIP
LAND EXCHANGE

FINAL ENVIRONMENTAL IMPACT STATEMENT

APPENDIX C

BIOLOGICAL EVALUATION FOR WILDLIFE

BIOLOGICAL EVALUATION

for the

LAND EXCHANGE PROJECT

between the

USDA FOREST SERVICE

DESCHUTES, FREMONT & WINEMA NATIONAL FORESTS

and

CROWN PACIFIC, LTD.

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UPDATED: JANUARY 27, 1998, KEVIN S. KEOWN, WILDLIFE BIOLOGIST

DATE PREPARED: OCTOBER 6, 1997

PREPARED BY: MICHAEL G. GERDES, FOREST WILDLIFE BIOLOGIST

PREPARED BY: TOM MERRITT, FOREST FISH BIOLOGIST

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All Forest Service projects, programs, and activities are to be reviewed for possible effects on threatened, endangered, and sensitive species and the findings documented in the decision notice (FSM 2672.4).

U.S. Fish & Wildlife Service

Threatened & Endangered Species List

One endangered, 2 threatened, 1 proposed, and 2 candidate species are listed with the U.S. Fish and Wildlife Service for the Deschutes, Fremont, and Winema National Forests.

Regional Forester's

Sensitive Species List

Four mammals, 5 birds, and 1 fish species are currently on the Regional Forester's Sensitive Species List (FSM 2670-91-1, Interim Directive No. 6, 3/89) for the Deschutes, Fremont, and Winema National Forests.

LAND EXCHANGE PROJECT between the USDA FOREST SERVICE DESCHUTES, FREMONT & WINEMA NATIONAL FORESTS and CROWN PACIFIC, LTD.

FINDINGS SUMMARY

This biological evaluation describes and displays any effects to threatened, endangered, proposed, candidate, and sensitive fauna species associated with the Land Exchange Project between the USDA Forest Service: Deschutes, Fremont, and Winema National Forests and Crown Pacific, LTD. Species identified include species from the U.S. Fish and Wildlife Service threatened, endangered, proposed, and candidate list and the Regional Forester's sensitive species list.

AMERICAN PEREGRINE FALCON (USFWS - E AND RF - S)

No Action Alternative: Selection of the No Action alternative would maintain the current ownership of rock outcrops and cliff habitats. On National Forest System (NFS) lands, these habitats would be found on the Deschutes National Forest in the Sellers sub-watershed and on the Fremont National Forest in the Sellers and Fort Rock sub-watersheds. Habitat in the Sellers sub-watershed is primarily associated with Walker Rim. Management direction for the protection of these unique habitats is provided by Land and Resource Management plans of each

of the forests.

Rock habitats on Crown Pacific owned lands within the Deschutes National Forest boundary are located in the Crescent and Tumalo sub-watersheds. Within the Fremont National Forest boundary these habitats would be found in the Fort Rock sub-watershed and within the Winema National Forest boundary within the Shoestring Creek sub-watershed. Crown Pacific would not be subject to special management requirements for the protection of these habitats.

Proposed Action: On the local scale, the Deschutes National Forest would gain 8,500 lineal feet of habitat in the Tumalo sub-watershed and 1,000 lineal feet in the Crescent sub-watershed while losing 6,000 lineal feet in the Sellers sub-watershed. The Fremont National Forest would gain 3,000 lineal feet in the Fort Rock sub-watershed while losing 500 lineal feet, and would lose 2,500 lineal feet in the Sellers sub-watershed. The Winema National Forest would gain 1,500 lineal feet in the Shoestring sub-watershed. The most notable effect of this exchange on a local scale is that the Sellers sub-watershed would lose 8,500 lineal feet of this habitat type.

The net effect of the Proposed Action to the Forest Service is a gain of rock outcrops and cliff habitats. The American peregrine falcon will have a net gain of 5,000 lineal feet of habitat.

There are no expected direct effects to this habitat type or the associated species as a result of the Proposed Action. These habitats are typically non-timber producing and would not be altered by timber management activities regardless of ownership. Indirect effects may occur as a result of differing management practices and management direction. The removal of timber from adjacent areas may reduce the forage base and habitat suitability. On lands acquired by the NFS, management direction provided by Land and Resource Management plans would provide greater protection of these habitats and may improve habitat suitability over time. Special consideration would be given to the peregrine falcon as it is on the Regional Forester's sensitive species list and the endangered species list for the U.S. Fish and Wildlife Service. The cumulative effect of this exchange and acquisition on NFS lands may be a consistent management strategy for these habitats as a result of management direction provided by Land and Resource Management Plans.

Implementation of either alternative will have NO EFFECT to the American Peregrine Falcon.

NORTHERN BALD EAGLE (USFWS - T AND RF - S)

No Action Alternative: The criteria used to define potential nesting and winter foraging habitats for both the USDA Forest Service and Crown Pacific are extremely broad. Existing nest data reveal no occupied sites. There have been sightings of bald eagles year-round in the Tumalo Reservoir area. Selection of this alternative would maintain the current potential nesting and winter foraging habitats as outlined.

Proposed Action: As stated above, criteria used to define potential nesting and winter roosting habitats are broad and no current nests are recorded. There are reports of bald eagles utilizing areas around Tumalo Reservoir year-round. On the local scale, the Deschutes National Forest would lose 323 acres of potential habitat and the Fremont National Forest would gain 1,432 acres of potential habitat. No potential habitat was identified for the Winema National Forest.

The net effect of the proposed action would be a gain 1,109 acres of potential nesting and winter roosting habitat for the bald eagle. However, ownerships of potential habitat would change.

There are no direct effects to this potential habitat as a result of the proposed action. Indirect effects of lands containing potential habitat conveyed to Crown Pacific would result in removal of timber from these lands and the loss of potential habitat for the bald eagle. The cumulative effects of the proposed action is that lands acquired by the NFS would have more consistent management strategy based on current management direction.

The Proposed Action MAY EFFECT BUT IS NOT LIKELY TO ADVERSELY EFFECT the bald eagle.

NORTHERN SPOTTED OWL (USFWS - T AND RF - S)

No Action Alternative: Selection of the no action alternative would maintain respective ownerships. Thus, management of respective lands would continue as present.

Proposed Action: The criteria used to define potential nesting, roosting, and foraging habitat for the spotted owl was limited to the cruse data available to Behrens and Styskel, 1997. The cruse data was confined to using board feet and tree diameters to define owl habitat. It did not accurately define nesting, roosting, and foraging habitat. On the local scale, the above data indicated a gain of nesting, roosting, and foraging habitat for the Deschutes National Forest: 19 acres in the Three Creek Butte sub-watershed and 74 acres in the Crescent sub-watershed. No other owl habitat was identified.

However, using the habitat descriptions as outlined in the above species account, no suitable nesting, roosting, and foraging habitat currently exists on NFS lands. Existing nest and sightings data indicates no occupied sites.

Data form Behrens and Styskel, 1997, shows the NFS receiving 2,732 acres from Crown Pacific within the northern spotted owl's range. These acres are located only on the Deschutes National Forest. Within the Tumalo sub-watershed, 1,883 acres would be conveyed to the NFS, 320 acres in the Three Creeks Butte sub-watershed, 400 acres within the Bull sub-watershed, and 129 acres within the Crescent sub-watershed. Currently, these acres do not provide habitat for the spotted owl.

Direct effects of the proposed action would be a gain in public ownership of 2,732 acres within the spotted owl's range. Indirect and cumulative effects of this proposed land exchange may benefit the northern spotted owl, as more lands would come under management direction from the Northwest Forest Plan. However, where these lands are acquired, the most likely land allocation would be Matrix. The primary objective for Matrix allocation is timber production while maintaining small retention patches for Late-successional and Old Growth dependent or associated species.

There is a minor beneficial effects to the northern spotted owl, as these lands on the edge of the owl's range would be managed under Forest Service direction. However, on a landscape level there will be NO EFFECT to the spotted owl or its' habitat.

BULL TROUT (USFWS - P)

No action alternative: Selection of the no action alternative would maintain potential habitat for the bull trout in current ownership blocks. Potential habitat in the exchange includes sections of Tumalo Creek, Little Deschutes River, and Crescent Creek.

Proposed Action: Approximately 1.4 miles of Crescent Creek would be exchanged to Crown and approximately 1.6 miles of Little Deschutes River and approximately 3.6 miles of Tumalo Creek would come under public ownership administered by the Forest Service. Stream surveys have not been conducted to assess the condition of potential habitat for bull trout.

Aerial photo interpretation indicates that Crown Pacific land management activities are not impacting the riparian areas along the Creeks mentioned. If Crown Pacific continues to protect riparian areas then their will probably be no impact to the potential bull trout habitat.

Implementation of either alternative will have NO EFFECT to potential bull trout habitat.

CANADA LYNX (USFWS - C)

No Action Alternative: Selection of the no action alternative would maintain potential habitat for the Canada lynx in current ownership blocks. Potential habitat as defined in the cruse data that Behrens and Styskel, 1997, reported, would maintain 16,254 acres within federal ownership and 14,718 acres on Crown Pacific lands.

Proposed Action: On the local scale, net changes to potential habitat by sub-watershed to the Deschutes National Forest would be: Middle Little Deschutes sub-watershed (3,582 acres); Toast sub-watershed a loss of 4,175 acres; Tumalo sub-watershed (360 acres), Walker Ridge sub-watershed, a loss of 93 acres; Three Creek Butte sub-watershed (226 acres); Lower Little

Deschutes sub-watershed (236 acres); Bull sub-watershed (386 acres); Dilman sub-watershed (72 acres); Crescent sub-watershed, a loss of 190 acres; Long Prairie sub-watershed (350 acres); and Sellars sub-watershed, a loss of 3,430 acres. Total net loss is 5,122 acres.

Net change to potential habitat by sub-watershed to the Fremont National Forest would be: Fort Rock sub-watershed (583 acres); Oak Butte sub-watershed, a loss of 380 acres; Rock Creek sub-watershed (3,910 acres); Dry Creek sub-watershed, a loss of 45 acres; Sellars sub-watershed, a loss of 2,369 acres; and North Chemult sub-watershed (9 acres). Total net gain is 1,303 acres.

Net gain to the Winema National Forest is 3,280 acres of potential habitat for the Canada lynx for all sub-watersheds.

On the landscape level, there is a direct net loss of potential habitat of 839 acres. Habitat conditions for the lynx on federal lands are in good condition, where on Crown Pacific lands, habitat suitability is greatly reduced and fragmented by past timber harvest. Data indicates no sightings of lynx on either Federal or Crown Pacific lands.

Cumulative effects of this land exchange on potential habitat for the lynx is minor given the landscape distribution of lynx.

The proposed land exchange will may impact habitat for lynx in the short-term but will NOT IMPACT lynx population densities in the long-term.

OREGON SPOTTED FROG (USFWS - C AND RF - S)

No Action Alternative: Selection of the no action alternative would maintain potential habitat for the spotted frog in current ownership blocks. Potential habitat as defined in the affected environment section, would maintain 80 acres within federal ownership and 510 acres on Crown Pacific lands.

Proposed Action: On the local scale, net changes to potential habitat by sub-watershed to the Deschutes National Forest would be: a gain of 127 acres in the Middle Little Deschutes sub-watershed; a loss of 1 acre in the Toast sub-watershed; and loss of 72 acres in the Crescent sub-watershed. Data indicates a proposed gain of 34 acres of potential habitat in the Tumalo sub-watershed. However, given the cold water temperatures in the creek and a requirement of warm water for the spotted frog, it's speculative that Tumalo Creek will ever provide habitat for the spotted frog. The Deschutes NF would gain habitat along the Little Deschutes River, where in the upper reaches of the watershed, spotted frogs are present. The Forest would lose potential habitat along Crescent Creek where in the upper watershed, at Big Marsh, the largest population of spotted frogs exist east of the Cascade Range.

The Fremont National Forest would gain potential habitat in the Rock Creek sub-watershed (8

acres) and the South Fork Sprague River sub-watershed (33 acres).

On the Winema National Forest, potential habitat would be gained in the Rock Creek sub-watershed (73 acres) and in the North Chemult sub-watershed (222 acres).

The net effect of the land exchange is a gain in public ownership of 387 acres of potential habitat for the spotted frog.

It appears that land management activities on Crown Pacific lands are not impacting the riparian areas along creeks or wet meadows. If this trend is carried into the future there will be no impact to the spotted frog or its' habitat. Thus, there are no direct, indirect or cumulative effects of this exchange to the spotted frog.

Implementation of either alternative will NOT IMPACT the spotted frog or it's habitat.

CALIFORNIA WOLVERINE (RF - S)

No Action Alternative: Selection of the no action alternative would maintain potential habitat for the wolverine in current ownership blocks. Potential habitat as defined in the affected environment section uses cruse data as defined in the Behrens and Styskel, 1997 report. Acres reported could be an over estimation because data did not take open road density into account. Wolverines are highly influenced by human presence. Open road densities on NFS and Crown Pacific lands range form 2 to 4 miles and from 6 to 10 miles of open roads per square mile, respectively.

Proposed Action: On the Forest scale, net change to potential habitat on the Deschutes National Forest is a net loss of 4,167 acres. The Fremont and Winema National Forests have a net gain of 4,666 and 5,724 acres, respectively. Total net gain to the Federal government is 6,223 acres. However, given the discussion above on open road densities, this net gain of potential habitat is greatly reduced in the short-term because of the high open road densities.

Two wolverine sightings have occurred within the proposed action area, both located on Crown Pacific lands. However, the sightings occurred in parcels that are adjacent to large blocks of Federal ownership.

Given the wolverines large home range and habitat requirements (denning in talus slopes in alpine communities, and carrion feeding on big game species and other smaller mammals at lower elevations during winter months), it is suspected that the direct effects of the land exchange on wolverines will not impact the species. However, short-term effects to habitat connectivity because of the open road density may impact wolverine movement.

The cumulative effects by consolidating land ownership, may provide more continuous habitat

for species movement.

Implementation of either alternative will NOT IMPACT the wolverine or its' habitat.

PACIFIC WESTERN BIG-EARED BAT (RF - S) & PALE WESTERN BIG-EARED BAT (RF - S)

No Action Alternative Selection of the No Action alternative would maintain the current ownership of rock outcrops and cliff habitats. On Forest Service lands, these habitats would be found on the Deschutes National Forest in the Sellers sub-watershed and on the Fremont National Forest in the Sellers and Fort Rock sub-watersheds. Habitat in the Sellers sub-watershed is primarily associated with Walker Rim. Management direction for the protection of these unique habitats is provided by Land and Resource Management plans of each of the forests.

Rock habitats on Crown Pacific owned lands within the Deschutes National Forest boundary are located in the Crescent and Tumalo sub-watersheds. Within the Fremont National Forest Boundary these habitats would be found in the Fort Rock sub-watershed and within the Winema National Forest Boundary within the Shoestring Creek sub-watershed. Crown Pacific would not be subject to special management requirements for the protection of these habitats.

Proposed Action: On the local scale, the Deschutes National Forest would gain 8,500 lineal feet of habitat in the Tumalo sub-watershed and 1,000 lineal feet in the Crescent sub-watershed while losing 6,000 lineal feet in the Sellers sub-watershed. The Fremont National Forest would gain 3,000 lineal feet in the Fort Rock sub-watershed while losing 500 lineal feet, and would lose 2,500 lineal feet in the Sellers sub-watershed. The Winema National Forest would gain 1,500 lineal feet in the Shoestring sub-watershed. The most notable effect of this exchange on a local scale is that the Sellers sub-watershed would lose 6,000 lineal feet of this habitat type.

The net effect of the Proposed Action to the Forest Service is a gain of rock outcrops and cliff habitats. The Townsend's big-eared bat will have a net gain of 5,000 lineal feet.

There are no expected direct effects to this habitat type or the associated species as a result of the Proposed Action. These habitats are typically non-timber producing and would not be altered by timber management activities regardless of ownership. Indirect effects may occur as a result of differing management practices and management direction. The removal of timber from adjacent areas may reduce the forage base and habitat suitability. On lands acquired by the Forest Service, management direction provided by Land and Resource Management plans would provide greater protection of these habitats and may improve habitat suitability over time.

Implementation of either alternative will NOT IMPACT the Townsend's big-eared bat or its' habitat.

GREATER SANDHILL CRANE (RF - S)

No Action Alternative: Selection of the no action alternative would maintain potential habitat for the sandhill cranes in current ownership blocks. Potential habitat as defined in the affected environment section, would maintain 133 acres within federal ownership and 423 acres on Crown Pacific lands.

Proposed Action: On the local scale, net changes to potential habitat by sub-watershed to the Deschutes National Forest would be: a gain of 74 acres in the Middle Little Deschutes sub-watershed; a loss of 1 acre in the Toast sub-watershed; loss of 72 acres in the Crescent sub-watershed; and a loss of 53 acres in the Dorrance sub-watershed. The Fremont National Forest would gain 8 acres in the Rock Creek sub-watershed and 33 acres in the South Fork Sprague River sub-watershed. The Winema National Forest would gain 222 acres in the North Chemult sub-watershed, 73 acres in the Rock Creek sub-watershed, and 6 acres in the Shoestring Creek sub-watershed.

The net effect of the proposed action is a gain in public ownership of 428 acres of potential habitat for sandhill cranes.

It appears that land management activities on Crown Pacific lands are not impacting the riparian areas along creeks or wet meadows. If this trend is carried into the future there will be no impact to the sandhill cranes or its' habitat. Thus, there are no direct, indirect or cumulative effects of this exchange to the sandhill cranes.

There will be NO IMPACT to the sandhill cranes with selection of either alternative.

FERRUGINOUS HAWK (RF - S)

No Action Alternative and Proposed Action: Data indicates that only 5 acres of potential habitat exists on Crown Pacific lands. This parcel would be conveyed to Federal ownership with the proposed land exchange. The amount of habitat involved with this proposed action is so small that it's inconsequential to the species or its habitat.

There will be NO IMPACT to the ferruginous hawk or its' habitat with selection of either alternative.

PREBLE'S SHREW (RF - S)

No Action Alternative: Selection of the no action alternative would maintain potential habitat for the Preble's shrew in current ownership blocks. On NFS lands, potential habitat would be found on the Deschutes National Forest, totaling 1,001 acres and on the Fremont National Forest, totaling 455 acres.

Crown Pacific lands offer 1,284 acres on the Deschutes National Forest, 703 acres on the Fremont National Forest, and 578 acres on the Winema National Forest.

In the Bull sub-watershed (194 acres); the Crescent sub-watershed (82 acres); Dorrance sub-watershed (169 acres); Sellers sub-watershed (349 acres); Toast sub-watershed (121 acres); and the Tumalo sub-watershed (86 acres). On the Fremont National Forest, potential habitat would be found in the Dry Creek sub-watershed (34 acres); Fort Rock sub-watershed (44 acres); and Sellars sub-watershed (377 acres). Total potential shrew habitat is 1,456 acres.

Proposed Action: On the local scale, the Deschutes National Forest net change to potential habitats are: a loss of 169 acres in Dorrance sub-watershed; a loss of 120 acres in Bull sub-watershed; a loss of 75 acres in Crescent sub-watershed; a gain of 53 acres in Long Prairie sub-watershed; a gain of 359 acres in Middle Little Deschutes sub-watershed; a gain of 63 acres in Melvin sub-watershed; a loss of 349 acres in Sellers sub-watershed; a gain of 354 acres in Three Creek Butte sub-watershed; a loss of 119 acres in Toast sub-watershed; a gain of 372 acres in Tumalo sub-watershed, and a loss of 86 acres in Walker Ridge sub-watershed. Net change would be a gain of 283 acres of potential habitat.

On the Fremont National Forest net change to potential habitats are: a loss of 34 acres in Fry Creek sub-watershed; a gain of 102 acres in the Fort Rock sub-watershed; a gain of 482 acres in Rock Creek sub-watershed; a gain of 64 acres in South Fork Sprague River sub-watershed; and a loss of 377 acres in Sellers sub-watershed. Net change would be a gain of 298 acres.

All sub-watersheds on the Winema National Forest would gain potential habitat. Net gain would be 578 acres.

The net effect of the proposed action to the NFS is a gain of 1,109 acres of potential habitat for the Preble's shrew.

As none of the potential habitats have been surveyed, it is impossible to tell whether one location is better habitat than another. Given the shrews diverse habitat association, all parcels have the potential to be occupied. Thus, the direct effects of the land exchange may be beneficial to the NFS. Crown Pacific management strategy has been to exclude creeks and wet meadows form management activities. It appears regardless of ownership, the shrew and its' habitat will not be impacted.

There will be NO IMPACT to the Preble's shrew or it's habitat with selection of either alternative.

WESTERN SAGE GROUSE (RF - S)

No Action Alternative and Proposed Action: Data indicates that only 14 acres of potential habitat exists on NFS lands and 15 acres on Crown Pacific lands. Parcels conveyed between Federal and Crown Pacific, indicate a net gain of 1 acre to the NFS. The amount of habitat involved with the land exchange are so small that it's inconsequential to the species or its habitat.

There will be NO IMPACT to the sage grouse or its' habitat with selection of either alternative.

LONG-BILLED CURLEW (RF - S)

No Action Alternative: Selection of the no action alternative would maintain long-billed curlew potential habitat in current ownership. On NFS lands, this potential habitat would be found in the Dorrance and Toast sub-watersheds. No potential habitat exists on the Fremont National Forest. On Crown Pacific lands, potential habitat exists in the crescent and Middle Little Deschutes sub-watersheds, the Rock Creek sub-watershed on the Fremont National Forest, and the North Chemult and Rock Creek sub-watersheds on the Winema National Forest.

Proposed Action: On the local scale, there would be a net loss of 37 acres on the Deschutes National Forest, a net gain of 12 acres on the Fremont National Forest, and a net gain of 291 acres on the Winema National Forest. Given the nesting requirements of short and mid-grass prairies, conveyance of any of the parcels may not actually provide nesting habitat for the curlew. The highest likelihood of potential habitat exists on the conveyed parcels on the Winema National Forest.

Selection of either alternative will NOT IMPACT the long-billed curlew or its' habitat.

INTERIOR REDBAND TROUT (RF - S)

No action alternative: Selection of the no action alternative would maintain potential habitat for the interior resident redband trout in current ownership blocks. Potential habitat in the exchange includes sections of Tumalo Creek, Little Deschutes River and Crescent Creek.

Proposed Action: Approximately 1.4 miles of Crescent Creek would be exchanged to Crown and approximately 2 miles of Little Deschutes River and approximately 5 miles of Tumalo Creek would come under public ownership administered by the Forest Service. Stream surveys have not been conducted to assess the condition of potential habitat or existing populations of interior resident redband trout.

Aerial Photo interpretation indicates that Crown Pacific land management activities are not impacting the riparian areas along the Creeks mentioned. In addition, redband trout are relatively resilient to disturbance. If Crown Pacific continues to protect riparian areas then their will probably be no impact to the potential habitat or existing populations of interior resident redband trout.

Implementation of either alternative will NOT IMPACT potential habitat or existing populations of interior resident redband trout.

TRI-COLORED BLACKBIRD (RF - S)

No Action Alternative: Selection of the no action alternative would maintain small acreages of potential habitat in current ownership. On NFS lands, this potential habitat would be found in the Crescent sub-watershed. No potential habitat exists on either the Winema or Fremont National Forests. On Crown Pacific lands, potential habitat exists in the Middle Little Deschutes and Tumalo sub-watersheds of the Deschutes National Forest; the South Fork Sprague sub-watershed on the Fremont National Forest; and the Shoestring Creek sub-watershed on the Winema National Forest.

Proposed Action: On a landscape scale, the Proposed Action would result in a110 acre net gain of potential habitat for the tri-colored blackbird. On the local scale, there would be a net gain of 71 acres on the Deschutes National Forest, a net gain of 33 acres on the Fremont National Forest, and a net gain of 6 acres on the Winema National Forest.

The indirect and cumulative effects of the Proposed Action are expected to be negligible to the tri-colored blackbird. Riparian and wetland habitats have been managed similarly on NFS and CP lands. Lands under both ownerships are non-timber producing and have been mostly avoided by management activities. Standards and guidelines regulating management of riparian and wetland habitats provide protection of these habitats. Management activities by either party is not expected to affect potential habitat of this species.

Conclusion: Selection of either alternative will NOT IMPACT the tri-colored blackbird or it's habitat.

I. INTRODUCTION

Alternatives considered in the Proposed Land Exchange between the Forest Service, Deschutes,

Fremont and Winema National Forests and Crown Pacific. Environmental Impact Statement require a Biological Evaluation to be prepared in compliance with FSM 2630.3, FSM 2672.4, FSM 10/89 R-6 Supplement 47 2670.44 and Interim Directive No. R-6 2670-92-1. The Biological Evaluation process is intended to analyze and document activities to ensure proposed management actions: 1) do not contribute to loss of viability of any native or desired non-native plant or animal species; 2) incorporate concerns for sensitive species throughout the planning process, reducing negative impacts to species and enhancing opportunities for mitigation; 3) ensure that activities will not cause a species to move toward federal listing; 4) comply with the requirements of the Endangered Species Act that actions of Federal agencies not jeopardize or adversely modify critical habitat of Federally listed species; and 5) provide a process and standard by which to ensure that threatened, endangered, proposed, and sensitive species receive full consideration in the decision making process (FSM 2672.41 ID and 2672.41). Species evaluated include:

1. Species listed or proposed to be listed as endangered (E), threatened (T), proposed (P), and candidate (C) by the U.S. Fish and Wildlife Service,

2. Species listed as sensitive (S) by USDA Forest Service Region 6, Regional Foresters list.

This biological evaluation determines the effects of the alternatives for the proposed land exchange between U.S. Forest Service: Deschutes, Fremont, and Winema National Forests and Crown Pacific on any threatened, endangered, proposed, candidate, or sensitive fauna that may occur within the analysis area. A biological evaluation of the potential effects to threatened, endangered, proposed, candidate and sensitive flora is in a separate document prepared by the team Botanist. This determination, required by the Interagency Cooperation Regulations (Federal Register, January 4, 1978), ensures compliance with the Endangered Species Act of 1973, P.L. 93-205 (87 Stat. 884) as amended.

Existing management direction is found in the Final Supplemental Environmental Impact Statement on Management of Habitat for Late Successional and Old Growth Forest related Species Within the Range of the Northern Spotted Owl (FSEIS, February 1994), Record of Decision (April 1994) and associated standards and guidelines; Management guidance for spotted owl consultation is found in the USFS, BLM and USFWS Section 7 Consultation Guidance For The Forest Ecosystem Plan - Fiscal Year 1994 and 1995 Projects (August 1994); the Continuation for Interim Management Direction Establishing Riparian, Ecosystem and Wildlife Standards for Timber Sales; and The Deschutes National Forest Land and Resource Management Plan.

Project Location

The proposed land exchange between the Forest Service involves portions of the Deschutes, Fremont, and Winema National Forests and Crown Pacific. All Ranger Districts have proposed parcels included in the exchange. On the Fremont NF, only the Silver Lake Ranger District is involved. The Winema NF will only receive parcels conveyed by Crown Pacific.

Alternative Description:

1. No Action: This alternative would consist of not completing the proposed land exchange between the Forest Service and Crown Pacific. If selected, the current land ownership pattern and currently implemented resource management practices would continue within the action area. Federal lands would continue to be managed as directed by appropriate Land and Resource Management Plans, and private lands would continue to be managed under existing Crown Pacific policies and applicable state and federal laws and regulations.

2. Proposed Action: This action is the jointly proposed Forest Service/Crown Pacific Land Exchange Project in Deschutes, Klamath, and Lake Counties in east central Oregon. It proposes to exchange 32,936 acres of NFS lands under the jurisdiction of the Deschutes and Fremont National Forests and approximately 38, 745 acres of lands owned by Crown Pacific. The exchange lands include discontiguous parcels of Forest Service land that are surrounded by Crown Pacific land, parcels of Crown Pacific land that are surrounded by Forest Service lands, and parcels along irregular edges separating the two ownerships. The Winema National Forest, while not offering lands for exchange, would receive lands from Crown Pacific as part of the land exchange. The exchange is to be completed on an equal value basis, i.e., according to the fair market value of the lands and timber on the lands. No ground disturbing activities are included as part of the proposed action.

II. RISK ASSESSMENT PROCESS

This Biological Evaluation covers a 6-step process to identify threatened, endangered, proposed, candidate, and sensitive wildlife species that may be associated with the project area, and to evaluate any impacts the project may have to those species. The six steps are as follows:

1. A pre-field review of existing documented information.

2. Field reconnaissance of the project area for evidence of species or habitat.

3. Evaluation of the impacts of the project to suspected or known local populations of TE&S species.

4. Analysis of the significance of the project's effects on local and entire populations of TE&S species.

5. If step 4 cannot be completed due to lack of information, a biological investigation is done.*

6. Conferencing or informal/formal consultation with U.S. Fish and Wildlife Service is initiated at appropriate stage as outlined in FSM 2673.2--1, or is otherwise arranged through formal channels.

* Step #5 pertains only to listed species and will not be shown in the table except when applicable.

The biological evaluation process for wildlife is summarized below. Step #5 (BIOLOGICAL INVESTIGATION) was not required for any species, and it is not displayed. Wildlife surveys are not required if potential habitat is not present. The entire analysis area has been surveyed for potential habitat on aerial photos, and to a some extent, on the ground.

SPECIES	Step #1 Pre-field Review Habitat present?	Step #2 Field Recon. Species present?	Step #3 Conflict Determination Conflict?	Step #4 Analysis of Significance Important?	Step #6 USFWS Rewiew (FOR T&E)
American Peregrine Falcon	YES	UNK	NO	NO	NO
Northern Bald Eagle	YES	YES	NO	NO	NO
Northern spotted owl	YES	NO	NO	NO	NO
Bull Trout	NO	NO	NO	NO	NO
Canada Lynx	YES	YES	NO	NO	NO
Spotted Frog	YES	UNK	NO	NO	NO
California Wolverine	YES	YES	NO	NO	NO
Western Pacific Big-eared Bat & Pale Western Big-eared Bat	YES	YES	NO	NO	NO
Sandhill Crane	YES	YES	NO	NO	NO
Ferruginous Hawk	YES	YES	NO	NO	NO
Preble's Shrew	YES	UNK	NO	NO	NO
Western Sage Grouse	YES	YES	NO	NO	NO

Long-billed Curlew	YES	UNK	NO	NO	NO
Interior Red-band Trout	YES	YES	NO	NO	NO
Tri-colored Blackbird	YES	UNK	NO	NO	NO

III. AFFECTED WILDLIFE

A discussion of the affects of the proposed project alternative on TE&S wildlife species follows. All species listed with the USFWS and the R-6 TE&S list that have potential habitat within the project were considered. References for this determination are listed at the end of this document.

American Peregrine Falcon (*Falco peregrinus*)

Status:

Federal: Endangered
RF R-6: Sensitive
State: Endangered

The American peregrine falcon (*Falco peregrinus anatum*) has been listed as Endangered across the United States by the USFWS. The recovery plan was developed by The Pacific Coast American Peregrine Falcon Recovery Team (USDI 1982). For the Action Area, the recovery goal was to establish at least one breeding pair (USDI 1982 and 1989). No peregrines have been hacked, nor have there been any augmentation releases within the Action Area to date.

Peregrine falcons utilize a wide geographic area in North America with a variety of habitat types. They generally nest on moderate to tall cliffs situated near lacustrine, marine, or riparian habitats. The cliffs are used for both nesting and perching and must have an unobstructed view of the surrounding area. The nest site component requires the presence of ledges, potholes or small caves that are relatively inaccessible to mammalian predators and also provide protection from the elements (Johnsgard 1990). Peregrine may on rare occasions utilize tall buildings for nesting. They often have a diverse avian prey base associated with riparian habitat (Pagel, pers. comm., 1996) but will also sometimes prey upon mammals. Peregrine falcons are particularly sensitive to disturbance near the cliff during the nesting season.

There are presently no known peregrine falcon nests within the Action Area. However, there is documentation of a historic nest site at the Benham Falls area on the Bend/Ft. Rock RD (T19S

R11E, Sec 17, NE1/4, SE 1/16) in 1961 and earlier (Anderson, pers. comm. 1995). There are no other known historic nesting sites in the Action Area. Historic sightings of peregrines are also important because they may indicate areas of potential future habitat/nest sites. Historic sightings in the Action Area include: Paulina Lakes on the Bend/Ft. Rock RD (Becker, pers. comm. 1992), and two sightings in 1985 and 1995 on the Crescent RD. Limited surveys have been conducted in the Action Area to assess potential habitat /nest sites for peregrines. Known surveys include: Paulina Lakes area (5 cliff sites, Pagel ,1993) and Castle Rock on the Sisters RD. Results of the surveys indicated the following: Paulina Lakes sites were rated medium-high potential for 3 of the 5 sites. Castle Rock has nesting potential. Potential habitat is present in the Little Deschutes River canyon on the Hemlock cliffs but these areas have not been surveyed. Formal surveys to determine peregrine occupancy have not been done within the Action Area. Prior to any actions to initiate hacking/release projects there must be comprehensive occupancy surveys and potential habitat surveys/ratings in order to justify the investment in direct recovery actions.

There are no current LRMP Standards and Guidelines, designated Management Areas or other specific requirements relating to historic or potential peregrine habitat areas. In the event of the discovery of an active nest site there is direction within the LRMP that would address this situation, as well as the requirements relating to compliance with the ESA and consultation under Section 7.

Direct/Indirect/Cumulative Effects:

No Action Alternative: Selection of the No Action alternative would maintain the current ownership of rock outcrops and cliff habitats. On Forest Service lands, these habitats would be found on the Deschutes National Forest in the Sellers sub-watershed and on the Fremont National Forest in the Sellers and Fort Rock sub-watersheds. Habitat in the Sellers sub-watershed is primarily associated with Walker Rim. Management direction for the protection of these unique habitats is provided by Land and Resource Management plans of each of the forests.

Rock habitats on Crown Pacific owned lands within the Deschutes National Forest boundary are located in the Crescent and Tumalo sub-watersheds. Within the Fremont National Forest Boundary these habitats would be found in the Fort Rock sub-watershed and within the Winema National Forest Boundary within the Shoestring Creek sub-watershed. Crown Pacific would not be subject to special management requirements for the protection of these habitats.

Proposed Action: On the local scale, the Deschutes National Forest would gain 8,500 lineal feet of habitat in the Tumalo sub-watershed and 1,000 lineal feet in the Crescent sub-watershed while losing 6,000 lineal feet in the Sellers sub-watershed. The Fremont National Forest would gain 3,000 lineal feet in the Fort Rock sub-watershed while losing 500 lineal feet, and would lose 2,500 lineal feet in the Sellers sub-watershed. The Winema National Forest would gain 1,500 lineal feet in the Shoestring sub-watershed. The most notable effect of this exchange on a local scale is that the Sellers sub-watershed would lose 8,500 lineal feet of this habitat type.

The net effect of the Proposed Action to the Forest Service is a gain of rock outcrops and cliff habitats. The American peregrine falcon will have a net gain of 5,000 lineal feet.

There are no expected direct effects to this habitat type or the associated species as a result of the Proposed Action. These habitats are typically non-timber producing and would not be altered by timber management activities regardless of ownership. Indirect effects may occur as a result of differing management practices and management direction. The removal of timber from adjacent areas may reduce the forage base and habitat suitability. On lands acquired by the Forest Service, management direction provided by Land and Resource Management plans would provide greater protection of these habitats and may improve habitat suitability over time. Special consideration would be given to the peregrine falcon as it is on the Regional Forester's Sensitive species list and the endangered species list for the US Fish and Wildlife Service. The cumulative effect of this exchange and acquisition on Forest Service lands may be a consistent management strategy for these habitats as a result of management direction provided by Forest Service Land and Resource Management plans.

Conclusion: Implementation of either alternative will have NO EFFECT to the American Peregrine Falcon.

Northern Bald Eagle (*Haliaeetus leucocephalus*)

Status:

Federal: Threatened
RF R-6: Sensitive
State: Threatened

The northern bald eagle (*Haliaeetus leucocephalus*) population in Oregon has been listed as Threatened by the FWS. The eagle's present status is a result of destruction of habitat, harassment and disturbance, shooting, electrocution, poisoning, a declining food base, and environmental contaminants.

Detailed accounts of habitat requirements of the bald eagle may be found in the Pacific Bald Eagle Recovery Plan (USDI 1986). Bald eagle nesting territories are normally associated with lakes, reservoirs, or rivers. Nests are usually located in uneven-aged, multi-storied stands with old-growth components (Anthony et al. 1982). Factors such as tree height, diameter, tree species, position on the landscape, distance from water, and distance from disturbance also appear to influence nest selection. Nest trees usually provide an unobstructed view of the associated water body. Live, mature trees with deformed tops are often selected for nesting. Bald eagles often construct several nests within a territory and alternate between them from year to year. Snags, trees with exposed lateral branches, or trees with dead tops are often present in nesting territories and are used for perching or as points of access to and from the nest. Such trees also provide vantage points from which territories can be defended.

The Action Area is covered by Recovery Zone 11, High Cascades (Oregon). The main threats that are identified for this area by the plan include: recreation disturbance, logging, shooting and trapping. However, since the plan's approval new habitat issues have evolved. Losses of large potential nesting or roosting trees (e.g., ponderosa pine and Douglas-fir) have been significantly impacted by insect, disease, blow-down, wildfire and timber harvest in recent years. At the time of the recovery plan's completion there were 26 existing territories. The plan has targeted an additional 21 recovery territories for this area. For the existing territories, 32 (68%) are within the Forest's Action Area. The plan identifies a number of ``Most Urgent Site-Specific Tasks.'' They are being addressed by a coalition of agencies. Some of the tasks applicable to the Forest Service include: 1) incorporate habitat guidelines in agency land use plans; 2) maintain and enhance natural spawning populations and spawning grounds of salmon and other important fish spawners to increase availability to eagles; 3) prohibit logging of known nest trees, perch trees, and winter roost trees; 4) establish buffer zones around nest sites; 5) exclude logging, construction, habitat improvement, and other activities during critical periods of eagle use; and 6) prohibit vehicle traffic at sensitive key areas during periods of eagle use.

The Deschutes National Forest Land and Resource Management Plan (LRMP) (USDA, 1990) identified Bald Eagle Management Areas (BEMA) (MA #3), which have specific requirements for maintenance and protection of eagle habitats. A total of 19,800 acres are included in 40 areas across the Action Area (Figure 10). They range in size from 17 to 3,228 acres with an average size of 509 acres. Core areas greater than 300 acres will generally have fewer problems with disturbance, which places 18 (46%) of the BEMAs in this category. LRMP BEMAs are distributed across the Forest as follows: Sisters RD 2 BEMAs and 1 site in Metolius Wildlife Primative Area (MA #20); Bend-Ft. Rock RD 21 BEMAs and Cresent RD 7 BEMAs. All of them are existing or historic nest sites and are closely associated with the lakes and streams on the Forest. There are no BEMAs that have been established to protect roost sites. Two additional bald eagle nest sites have been discovered on the Sister's RD, which are not included in the above summary because they have not been addressed by amendments to the DNF LRMP.

There are specific Standards and Guidelines in the LRMP that provide management direction for the BEMAs. BEMAs do not encompass the home ranges of eagles or, in many cases, all the essential habitats of an individual pair. The DNF and the Oregon Department of Fish and Wildlife (ODFW) through a Challenge Cost Share project in 1991 with the Oregon Eagle Foundation (OEF) delineated expanded and new BEMAs and Bald Eagle Consideration Areas (BECAs) boundaries as a result of field inventories identifying the eagle's home range. The OEF report expanded 3 existing LRMP BEMAs and identified 9 new BEMAs. None of the expanded or new BEMAs have been amended into the LRMP. The OEF report also provided site specific guidelines for each site to help guide management decisions.

BECAs generally are the home range of the bald eagle and include all roosting, perching and foraging habitats. These home range areas are generally greater than 5,000 acres in size, whereas the BEMAs are smaller and include essential habitat around the nest grove, local roost and perching trees, and local foraging areas. BECAs are not required by the FWS but are highly recommended (Isaacs 1987 and 1991; Dillon, per comm., FWS 1996). The use of BECAs better

fits the goal of placing project effects in the context of a landscape and for assessing the cumulative effects of many projects. They may also be used in the design of habitat restoration strategies to better meet long-term objectives within the core areas. As an example, if in the short-term, thinning a stand in a BEMA would degrade eagle habitat, there may be a possibility of protecting suitable eagle habitat (during this short-term period) in the surrounding BECA and thus, maintaining an appropriate level of habitat for eagle use, thereby allowing the thinning project to proceed (Dillon, per comm., FWS 1996). The ESA requires consultation (formal or informal) if any project would affect eagles regardless of the land management area designation.

The recovery plan requires that the cooperating agencies design and implement plans on a site-specific basis throughout the recovery area. Only one bald eagle site-specific management plan has been signed to date, (Davis Lake complex and the south nest sites on Wickiup Reservoir). The recovery plan also addressed the issues of forested habitat management, prey species management, forest insect risk management, contingency planning for wildfire risks to eagle habitat, which should be incorporated into the appropriate level of detail for each site management strategy. Specific guidelines for the development of site-specific management strategies is provided in the Working Implementation Plan for Bald Eagle Recovery in Oregon and Washington (1989). BEMA sites without a site-specific strategy are of concern, because timely risk reduction actions and opportunities for proactive management may be missed or delayed, which could result in set backs in the achievement of eagle population objectives. Additional biological and management direction specific to Forest Service lands is available in the Bald Eagle Species Management Guide for Region 6 (USDA 1990b). Increases in eagle numbers could result in the species' de-listing by the FWS (USDI, Federal Register 1990), however, active management of eagle sites will continue to be essential in maintaining this species at all geographic locations and scales for the foreseeable future.

Available data indicates that there are no nests or occupied nest sites in the proposed land exchange. Recent data reveals that year-round adult eagle sightings do occur around the Tumalo Reservoir area. Tumalo Reservoir is located on private lands. It is an irrigation reservoir for the Tumalo Irrigation District. Generally, the irrigation district uses the reservoir from early to mid April until mid to late October. During the off-season, water levels in the reservoir are maintained at low pool. During this season, water composition varies between liquid and solid states, depending on ambient temperatures. As the reservoir is not on federal lands, the Deschutes NF does not have any records of fish stocking or the lack of stocking for the reservoir. It is suspected that either through legal or illegal methods, fish have been stocked. But given the low water pool in winter there is a likelihood that fish would not over-winter. This indicates that an aquatic food source may not be stable for nesting or roosting eagles. However, waterfowl may account for a winter food source. It is suspected that eagles use the Tumalo Reservoir area as an opportunistic foraging and roosting area.

Direct/Indirect/Cumulative Effects:

No Action Alternative: The criteria used to define potential nesting and winter foraging habitats for both the NFS and Crown Pacific lands are extremely broad. Existing nest data reveals no occupied sites. There have been sightings of bald eagles year-round in the Tumalo Reservoir

area. Thus, selection of this alternative would maintain the current potential nesting and winter foraging habitats as outlined.

Proposed Action: As stated above, criteria used to define potential nesting and winter roosting habitats are broad. There are no current nest sites recorded but there are reports of bald eagles utilizing areas around Tumalo Reservoir year-round. On the local scale, the Deschutes National Forest would loss 323 acres of potential habitat and the Fremont National Forest would gain 1,432 acres. No potential habitat was identified for the Winema National Forest.

The net effect of the proposed action would be a gain 1,109 acres of potential nesting and winter roosting habitat for the bald eagle. However, ownerships of potential habitat would change.

There are no direct effects to this potential habitat as a result of the proposed action. Indirect effects of lands containing potential habitat conveyed to Crown Pacific would result in removal of timber form these lands and the loss of potential habitat for the bald eagle. The cumulative effects of the proposed action is that lands acquired by the NFS would have more consistent management strategy based on current management direction.

The Proposed Action MAY EFFECT BUT IS NOT LIKELY TO ADVERSELY EFFECT the bald eagle.

Northern Spotted Owl (*Strix occidentalis caurina*)

Status:

Federal: Threatened
RF R-6: Sensitive
State: Threatened

A detailed account of the taxonomy, ecology, and reproductive characteristics of the northern spotted owl (*Strix occiditalis caurina*) is found in Fish and Wildlife Service (FWS) Status Reviews (USDI 1987 and 1990a); the Status Review Supplement (USDI 1989); the Interagency Scientific Committee Report (ISC; Thomas et al. 1990); and the Final Rule designating the spotted owl as a threatened species (USDI 1990b). The Final Draft Recovery Plan for the Northern Spotted Owl (USDI 1992) also provides biological information and the framework for the steps needed to restore viable spotted owl populations.

Spotted owls generally require mature or old-growth coniferous forest with complex structure including multiple canopy layers, large green trees and snags, heavy canopy cover, and coarse woody material on the forest floor. A wide variety of forest types are utilized. Nesting, roosting and foraging (NRF) habitat for the northern spotted owl on the DNF are stands of mixed conifer, ponderosa pine with white fir under-story and mountain hemlock with sub-alpine fir with 70

percent of canopy cover, 22 large diameter trees per acre (25" or greater DBH), 280 trees per acre of second canopy layer, 12 hard snags (> 15" DBH) per acre, 15 down logs (> 15" DBH) per acre (Gerdes, 1994). Suitable nest sites are generally in cavities in the boles of either dead or live trees. Platform nests may also be used (but more rarely), which include abandoned raptor nests, broken tree tops, mistletoe brooms, squirrel nests, etc. Relatively heavy canopy cover with a semi-open under-story is essential for effective hunting and for owl movement. Habitat conditions that support good populations of flying squirrels, wood-rats, tree voles and other nocturnal or crepuscular small mammals, birds, and insects are essential to supporting spotted owls. Edge effects from large forest openings may adversely impact the micro-habitat conditions necessary for suitable owl habitat as well as contribute to increasing the risk to spotted owls imposed by predators or to competition from the barred owl (*Strix varia*). Spotted owls will use younger, managed forests provided that key habitat components are available. These forests are most likely to provide dispersal habitat for young owls and foraging habitat if near nesting or roosting areas.

The Spotted Owl Review Committee suggested that population size is primarily a function of the amount and distribution of available suitable habitat (USDI 1990a). In developing a conservation strategy (NWFP, 1994) for late successional forest associated species, the Departments of Interior and Agriculture adopted a network of forested Late Successional Reserves across the owl's range in the Pacific Northwest (Record of Decision, ROD, for NWFP, 1994). This reserve network was designed to protect late successional forest species where habitat conditions are relatively intact and provide for the recovery of late successional forest habitat where habitat is extremely limited. Known spotted owl activity centers (NWFP, ROD C-10) have been designated, mapped and retained within the Action Area.

There are approximately 5,608 pairs and resident singles (activity centers) of spotted owls and approximately 8.1 million acres of suitable habitat currently estimated across the range of the species (Holzman, FWS, pers. comm., 1995). Recent demographic studies (Burnham, et al. 1994, Lande 1988) suggest that the meta-population of this species is declining. While such a decline is expected to continue as spotted owl sites with severely degraded habitat conditions become inactive, implementation of the NWFP could eventually slow and abate much of the decline by protecting all spotted owls within LSRs. The NWFP, in theory, would provide for the conservation of the species by allowing currently non-suitable, but potential, habitat to regenerate within the LSRs, which should allow the population to eventually stabilize across its range.

The intent of LSRs is to protect and enhance conditions of late successional old-growth forest ecosystems, which serve as habitat for dependent or associated species including the northern spotted owl. The LSR network in the Pacific Northwest covers three major mountain ranges: the Cascades, the Klamath, and the Coast Ranges, including the Olympic Peninsula. Together they roughly form an ``H'' configuration. The east leg joins the Sierra Nevada in California to the Siskiyous, and north to the Cascades. The west leg joins the California and Oregon coastal mountains, Olympic Mountains, and the Siskiyous. The Cascade crest, except for the Klamath and Columbia River gorges, forms a continuous north-south ``backbone'', and the Siskiyous form the ``cross-bar''. Eleven LSRs are designated within the Deschutes and Metolius River

Basins within the Action Area. Appendix B provides a table listing the LSRs, the current environmental baseline and narratives describing the LSRs. Figure 3 displays the current NRF habitat overlaid with the LSRs and owl activity centers.

The Habitat Conservation Area (HCA) network strategy was identified by the ISC (Thomas, et. al., 1990), then adopted and refined by the Draft Final Recovery Plan (USDI 1992) as Designated Conservation Areas (DCAs). The network strategy was again refined by the Forest Ecosystem Management Team Report (FEMAT) (USDA et al. 1993) as Late-Successional Reserves prior to the ROD for the NWFP. The strategy and its Standards and Guidelines for managed late successional forest will be the basis for the long-term conservation of northern spotted owls and other species associated with old-growth coniferous forests.

The ISC determined that habitat capable of supporting clusters of spotted owl pairs would likely maintain populations of owls within a reserve over time if the cluster is interconnected with an adjacent reserve. The LSRs are capable of maintaining large clusters of spotted owls interconnected across their range. The Deschutes National Forest's network is within the Oregon Eastern Cascades physiographic province. Several publications have reported habitat and demographic conditions for this province, which is the easterly extension of the spotted owl's range in Oregon (Thomas et al. 1990, USDA 1994a, USDI 1994, and USDI 1992a). Key issues involving this province include: 1) the continuing reduction and increased fragmentation of essential spotted owl habitat; 2) the resultant increased threat of isolation of spotted owl populations; and 3) the exacerbation of poor habitat conditions for dispersing individuals. The most significant threat to owls in the province has been determined to be the poor distribution of habitat and populations. The province has a total of 2.2 million acres of which approximately 69% is in federal ownership. On these lands only 27% is presently providing suitable nesting, roosting and foraging habitat for spotted owls. This area supports approximately 61 pairs and 13 singles of spotted owls (USDI 1992 with 3/93 update). Critical Habitat designations within the province resulted in the delineation of 10 individual units. There are no designated Critical Habitat Units within the action area.

The Forest contains approximately 146,000 acres of owl NRF habitat which presently supports 34 pairs and two resident singles sites. Of the 36 activity centers, all but four pairs (Sisters RD) are protected in LSRs or Congressionally Withdrawn Areas (CWAs). Protected owl centers include 16 on the Sisters RD, 10 on the Crescent RD and 6 on the Bend/Ft. Rock RD. The NRF habitat classification was done using 1991 aerial photo interpretation. Field sampling was done to adjust the interpretation. Presently the NFR habitat is distributed as follows: Sisters RD 51,850 acres; Bend-Ft. Rock RD 52,760 acres; and Crescent RD 41,170 acres. However, these figures have low accuracy due to the many impacts to owl habitat from insects, disease, wildfire and timber harvest. It is estimated that there is presently 20-40% less NRF habitat today with the most significant declines on the Sisters RD. Of the total existing owl NRF habitat within the Deschutes NF, approximately 42% are within Late Successional Reserve Areas.

Connectivity between LSRs is necessary to provide demographic viability and genetic diversity should stochastic events (e.g., fire, insect, disease, wind storms, inclement weather, etc.) significantly reduce the population in any individual LSR. The NFWP, in theory, provides for

connectivity between each LSR by utilizing Riparian Reserves, Wild and Scenic River corridors, 15% green tree retention areas, and 100 acre owl activity centers for those sites that are outside of the LSRs. This theory may be valid for westside conditions but not for the dry eastside forests on the Deschutes, where riparian areas are lacking or widely dispersed, Wild and Scenic River corridors are very limited, and all but four owl activity centers are accounted for within LSRs and /or CWAs. Generally, dispersal habitat across the Forest is heavily fragmented by roads, timber harvest units, burning, and insect/disease defoliation. The result is that connectivity between LSRs is often inadequate and in need of restoration.

The dispersal habitat issue is addressed by the Deschutes National Forest LSR Overview (Gerdes, et. al. 1995), which suggests a proposal for assessing this critical habitat element. The issue is not unique to the Deschutes National Forest but is common across all eastside Forests. Until it is resolved at the Regional level, the Forest proposes to use a combination of two methods to quantify dispersal habitat: 1) the 50-11-40 rule (Thomas et al. 1990) where vegetative stands are capable of meeting and sustaining that criteria; and 2) where vegetative stands cannot meet or sustain the above criteria, local professional knowledge will define the criteria for dispersal habitat. (Gerdes 1996).

Direct/Indirect/Cumulative Effects:

No Action Alternative: Selection of the no action alternative would maintain respective ownerships. Thus, management of respective lands would continue as present.

Proposed Action: The criteria used to define potential nesting, roosting and foraging habitat for the spotted owl was limited to the cruse data available to Behrens and Styskel, 1997. The cruse data was confined to using board feet and tree diameters to define owl habitat. It did not accurately define nesting, roosting and foraging habitat. On the local scale, the above data indicated a gain of nesting, roosting and foraging habitat for the Deschutes National Forest: 19 acres in the Three Creek Butte sub-watershed and 74 acres in the Crescent sub-watershed. No other owl habitat was identified.

However, using the habitat descriptions as outlined in the above species account, no suitable nesting, roosting and foraging habitat currently exists on NFS lands. Existing nest and sightings data indicates no occupied sites.

Data form Behrens and Styskel, 1997, shows the NFS receiving 2,732 acres from Crown Pacific within the northern spotted owls range. These acres are located only on the Deschutes National Forest. Within the Tumalo sub-watershed, 1,883 acres would be conveyed to the NFS, 320 acres in the Three Creeks Butte sub-watershed, 400 acres within the Bull sub-watershed, and 129 acres within the Crescent sub-watershed. Currently, these acres do not provide habitat for the spotted owl.

Direct effects of the proposed action to the NFS would be a gain of 2,732 acres within the spotted owls range. Indirect and cumulative effects of this proposed land exchange may benefit the northern spotted owl, as more lands would come under management direction from the

Northwest Forest Plan. However, where these lands are acquired, the most likely land allocation would be Matrix. The primary objective for Matrix allocation is timber production while maintaining small retention patches for Late-Successional and Old Growth dependent or associated species.

Conclusion: There is a minor beneficial effects to the northern spotted owl, as these lands on the edge of the owls range would be managed under Forest Service direction. However, on a landscape level there will be NO EFFECT to the spotted owl or its' habitat.

Bull Trout (*Salvelinus confluentus*)

Status:

Federal: Proposed
RF R-6: Sensitive
State: Sensitive

Bull trout (*Salvelinus confluentus*) are presently classified as a Candidate species by the FWS. Candidate status is used for those species where the FWS has information indicating that protection under the ESA may be warranted, but for which it lacked sufficient information on status and threats to justify preparation of a proposed listing. The FWS recently revised the use of this particular classification, and no longer uses the Category 1 and 2 designations for Candidates. Species of Concern is the classification now used for those species that are not official candidates for listing, but have documented population declines of concern (USDI, Federal Register 1996).

Bull trout, which are actually a char, characteristically occupy high quality habitat, often in less disturbed or pristine portions of a drainage. Necessary key habitat features include high channel stability, clean spawning substrate, abundant and complex cover, deep pools, cold water temperatures, and lack of barriers which inhibit movement and habitat connectivity (Reiman and McIntyre 1993). Some bull trout populations are anadromous. They are closely related to Dolly Varden (*Salvelinus malma*), and the two are very difficult to distinguish where their ranges overlap.

All life stages of bull trout are extremely sensitive to environmental disturbance and competition, therefore, they serve well as an ecological indicator species. Bull trout have more specific habitat requirements than do salmonids. They spawn in the fall which presents a different set of habitat requirements and subsequent potential limitations. The warming of streams and lakes is considered the most significant adverse environmental affect upon bull trout populations (Bond 1992), which may result from subtle climatic changes or impacts from human activities. Bull trout require unembedded substrates for spawning and rearing of juveniles. In addition, they may be limited by a lack of large woody debris, turbulence, and undercut banks which provide important cover for juveniles. The condition of the riparian

vegetation along stream banks is particularly important. Siltation in spring-fed streams is very serious because these systems lack flushing flows that are more common to other systems. Springs are also important in the maintenance of low water temperatures during summer. Average temperatures in the 45 degree Fahrenheit range are common in occupied habitat. Robust populations of aquatic insects are critical for the survival of juveniles, however, the adults require good numbers of forage fish. Most adult bull trout migrate to smaller stream habitats to spawn, and are, therefore, susceptible to impacts on populations if their migration routes are adversely affected by channel blockages, low water levels, and high water temperatures.

In the state of Oregon, at minimum two-thirds of the known populations are considered to have at least a moderate risk of extinction. Within the Deschutes River basin, two of six populations are probably extinct (Crescent Lake and Crescent Creek and Little Deschutes River/Upper Deschutes River). The most recent confirmed documentation of bull trout in any of these locations was 1979. The construction of Crane Prairie Dam in 1920 and Wickiup Dam in 1947 eliminated access for adult bull trout migrating to most upper Deschutes River spawning areas. The last account of bull trout in the upper Deschutes River was in 1951 from Wickiup Reservoir. The population at Odell Lake is considered to be at High Risk due to isolation. This population's occupancy includes Trapper Creek and possibly Crystal Creek. The Warm Springs River population is at Moderate Risk, and those at the Metolius River and Shitike Creek are at Low Risk (Figure 6). Round Butte Dam was built in 1964 on the Deschutes River creating Lake Billy Chinook. Due to its position, which is lower in the system, there have been fewer impacts, since critical spawning areas are above it. Presently the bull trout populations in Lake Billy Chinook are sustaining a quality trophy fishery.

Populations which are generally at high risk often have common factors which have affected them including: habitat degradation, overharvest, hybidization and competition with the introduced eastern brook trout (*Salvelinus fontinalis*), and passage barriers (Ratliff and Howell 1992). Because Oregon's bull trout populations are near the southern edge of the species' range, they may be more susceptible to the effects of habitat degradation, and subsequently, the effects of fragmentation and isolation of local populations. The attendant lack of genetic exchange will result in limitations on genetic variation and place the population at greater risk as it is less able to cope with changing conditions.

Bull trout populations were isolated from the Deschutes River population approximately 5,500 years ago by the lava flow that created Davis Lake. Within the Odell Watershed, bull trout currently can be found only within Odell Lake, although historically it was found in Davis Lake and the stream systems associated with these water bodies. The bull trout population in the Odell Lake system is the only remaining natural adfluvial population, and on of two existing adfluvial population in Oregon. The only other adfluvial population is located in Lake Billy Chinook, a human created reservoir. The Metolius River bull trout population contains a mixture of both fluvial and adfluvial fish.

As indicated, bull trout are found in the Metolius River Basin, where both fluvial (river dwelling) and adfluvial (lake dwelling) life histories exist. Some resident segments of the

population may exist above falls in the Jefferson Creek and Candle Creek drainages. All life strategies use small streams tributary to the Metolius River for spawning. Mainstem river spawning has been documented in only one ½ mile reach of the upper Metolius River near the mouth of Jack Creek. Surveys have been conducted documenting streams used by bull trout in the Metolius drainage. Spawning occurs in spring-fed reaches of Jack Creek, Heising Spring, Canyon Creek, Roaring Creek, Candle Creek, Jefferson Creek and Whitewater River. Rearing habitat is found in all spawning streams plus Brush Creek, Abbot Creek, Spring Creek and the Metolius River. See Appendix B section 4 and figure 11 for environmental baseline data, and existing and historic distribution. Lake Billy Chinook provides habitat for most age classes other than fry. Most juveniles move out of the spawning streams at age 2 and move into the Metolius River and adventually into Lake Billy Chinook. Primarily age 3 and older bull trout reside in the lake. At age 5, most bull trout mature and move up the Metolius River and into the spawning tributaries to spawn. All tributaries used by bull trout are influenced by groundwater springs. Jefferson Creek and Whitewater River are influenced by glacial meltwater and sediments from Mt. Jefferson. The historic distribution of bull trout in the Metolius system has been reduced (Ratliff 1992). Link Creek, Suttle Lake and Abbot Creek were former habitats were bull trout were found in sizable numbers historically but not today.

Habitat for bull trout in the Metolius River drainage is generally in good condition. Water temperature in most spawning and rearing streams are below 10 C during spawning times and rarely exceed 12 C in the peak of the summer. Juvenile cover from undercut banks, overhanging vegetation, aquatic vegetation and wood is abundant in many of the rearing streams tributary to the Metolius River. Wood is at high densities compared to other basins. Due to the stability of the streams, little wood is transported out during normal spring flows. Fine sediment in spawning areas is a concern and may have increased from road construction and riparian logging in the past. The low gradient, spring-fed reaches are particularly sensitive to fine sediment loading due to their low sediment transport rates. The percentage of fine sediment in spawning gravel monitored is moderate and does not appear to be changing in the last 8 years. If fine sediment has been increased from management activities, we may still be witnessing the effects to the springs today, due to their stable nature.

Migration routes have mostly remained open in the Metolius River watershed. The connection between the Metolius and Suttle Lake may be restricted due to small low dams for pond and irrigation management. The Round Butte and Pelton dams on the Deschutes River has prevented access of migrating bull trout to the lower Deschutes River and Columbia River. Additional rearing habitat is provided by Lake Billy Chinook, the reservoir created by Round Butte Dam. The connection of the Metolius River with the Warm Springs River and Shittike Creek bull trout populations has been severed since the dams were constructed, restricting genetic interaction between the two segments of the Lower Deschutes River metapopulation.

Introductions of non-indigenous species such as brook trout in Canyon Creek and Abbot Creek and brown trout in Lake Creek, Link Creek and Suttle Lake may have increased competition for habitat for bull trout. The loss of the anadromous sockeye and chinook in the river may have reduced the riverine forage base of juveniles and smolts often associated with fluvial bull trout populations elsewhere. Kokanee in Lake Billy Chinook may fulfill some of that role in the

system today. Angling mortality has been a significant factor in some streams and lakes, because of the aggressive nature of the bull trout. State agencies with fish management responsibilities have a significant role as related to the regulation of harvest of both bull trout and potential competitors such as brook trout, and through stocking programs, where competing fish species may be maintained or introduced into bull trout habitats.

Direct/Indirect/Cumulative Effects:

Proposed Action: Approximately 1.4 miles of Crescent Creek would be exchanged to Crown and approximately 2 miles of Little Deschutes River and approximately 5 miles of Tumalo Creek would come under public ownership administered by the Forest Service. Stream surveys have not been conducted to assess the condition of potential habitat for bull trout.

Direct effects of the proposed action to the NFS would be a gain of approximately 5 miles of stream on Tumalo Creek and 2 miles of the Little Deschutes River (some of the gain is on one side of the stream only) and approximately 1.4 miles of Crescent Creek would become part of Crown Pacific Lands. Indirect and cumulative effects of the proposed land exchange may benefit potential habitat for bull trout as more contiguous stream miles would come under the management of the Northwest Forest Plan and the Interior Columbia Basin Assessment.

Conclusion: There is minor beneficial effects to potential habitat for bull trout, as more contiguous stream sections would be managed under Forest Service direction. However, aerial photo interpretation indicates that Crown Pacific land management activities are not impacting the riparian areas along the Creeks mentioned. If Crown Pacific continues to protect riparian areas then their will probably be NO EFFECT to potential habitat for bull trout.

Canada Lynx (*Lynx canadensis*)

Status:

Federal: Candidate
RF R-6: Sensitive
State: Sensitive

A detailed account of the taxonomy, ecology, and reproductive characteristics can be found in The Scientific Basis for Conserving Forest Carnivores, American Marten, Fisher, Lynx, and Wolverine in the Western United States, GTR RM-254.

Lynx occupy regions in North America of arctic or boreal influence. They are restricted to forested habitats within this region and are found from western Alaska to the eastern edge of Newfoundland. The Lynx's historic range included the northern portions of the conterminous United States in the Cascade Range of Washington and Oregon (McCord and Cardoza 1982;

Ouinn and Parker 1987). Except for the southern boundary of its range, the distribution of lynx in North America probably has not changed much during historical times (Quinn and Parker 1987). Destruction of forests for timber and incursions of agriculture and settlements, however, may have displaced the lynx.

Although the lynx has been found in Oregon, historical records indicate that it has always been rare; only a few specimen records are known from high elevations of the Cascade Range and the Wallowa Mountains in northeast Oregon. Oregon clearly represents the southern margin of suitable lynx habitat along the Pacific Coast. Lynx are now considered to be extirpated form Oregon, although several sightings have been reported recently (Zielinski, per. comm.). Apparently, populations have always been so low in Oregon that they were unable to persist with the onset of human settlement.

Because of the peninsular and disjunct distribution of suitable lynx habitat in the western mountains of the conterminous United States, populations in this region are likely to be of greatest conservation concern.

The Canada lynx can be defined as a habitat generalist in boreal forests. It will use a wide variety of stand ages with little or no under-story. Lynx requires early successional forests that contain high numbers of prey for foraging and late-successional forest that contain overhead cover for kittens and denning. Intermediate successional stages may serve as travel cover but function as connectivity within a forest landscape.

The US Fish and Wildlife Service, on its' updated listing (July, 22,1997), list the Canada Lynx as a candidate species (Federal Register Vol. 62, No. 101, May 27, 1997 Proposed Rule - Canada lynx.

Direct/Indirect/Cumulative Effects:

No Action Alternative: Selection of the no action alternative would maintain potential habitat for the Canada lynx in current ownership blocks. Potential habitat as defined in the cruse data that Behrens and Styskel, 1997, reported, would maintain 16,254 acres within federal ownership and 14,718 acres on Crown Pacific lands.

Proposed Action: On the local scale, net changes to potential habitat by sub-watershed to the Deschutes National Forest would be: middle little Deschutes sub-watershed (3,582 acres); toast sub-watershed a loss of 4,175 acres; tumalo sub-watershed (360 acres), walker ridge sub-watershed, a loss of 93 acres; three creek butte sub-watershed (226 acres); lower little Deschutes sub-watershed (236 acres); bull sub-watershed (386 acres); dilman sub-watershed (72 acres); crescent sub-watershed, a loss of 190 acres; long prairie sub-watershed (350 acres); and sellars sub-watershed, a loss of 3,430 acres. Total net loss is 5,122 acres.

Net change to potential habitat by sub-watershed to the Fremont National Forest would be: fort rock sub-watershed (583 acres); oak butte sub-watershed, a loss of 380 acres; rock creek sub-watershed (3,910 acres); dry creek sub-watershed, a loss of 45 acres; sellars sub-watershed, a

loss of 2,369 acres; and north chemult sub-watershed (9acres). Total net gain is 1,303 acres.

Net gain to the Winema National Forest is 3,280 acres of potential habitat for the Canada lynx for all sub-watersheds.

On the landscape level, there is a direct net loss of potential habitat of 839 acres. Habitat conditions for the lynx on federal lands are in good condition, where on Crown Pacific lands, habitat suitability is greatly reduced and fragmented by past timber harvest. Data indicates no sightings of lynx on either Federal or Crown Pacific lands.

Cumulative effects of this land exchange on potential habitat for the lynx is minor given the landscape distribution of lynx.

Conclusion: The proposed land exchange may impact habitat for lynx in the short-term but will NOT IMPACT lynx population densities in the long-term.

Oregon Spotted Frog (*Rana pretiosa*)

Status:

Federal: Candidate
RF R-6: Sensitive
State: Sensitive

The spotted frog (*Rana pretiosa*) is presently classified as a Candidate species by the FWS. It's range has been significantly reduced in Oregon and Washington since 1940 (Leonard et al. 1993). The western coast ranges and valleys have not documented but one sighting in the past 23 years. Currently, it is present within the western portions of the Action Area in the Cascade Mountains. They occupy a wide range of elevations and are known to occupy high elevation lakes (Nussbaum et al. 1983), including Gold, Davis, Lava, Hosmer, and Crane Praire (ODFW 1992) (Figure 12). This species has two distinct color varieties (red and yellow) with both potentially resident in Deschutes County.

Spotted frogs are highly aquatic in orientation and are always found in or near a perennial water body such as a spring, pond (including beaver ponds), lake or sluggish stream. They are most often associated with non-woody wetland plant communities of sedges, rushes, bulrushes and grasses along the edges of a water body (Leonard et al. 1993). Occupied sites often have heavy layers of submerged dead or decaying plants on the bottom of a stream or lake, where the frogs hide when disturbed or threatened by predators. Backwaters of streams with heavy algal growth are also important (Nussbaum et al. 1983). Spotted frogs breed in very shallow water often a flooded meadow beside a pond or stream, or water pooled on top of flattened, dead vegetation at the edge of a pond in early or mid-spring. Eggs are laid on the bottom, usually on low vegetation

(Corkran and Thoms 1996).

A variety of factors have contributed to the decline of spotted frogs including competition, predation, toxins, and development. The introduced bull frog (*Rana catesbeiana*) may be the most prominent reduction agent, as they prey on spotted frogs and are highly competitive with them for other resources. Other introductions of species, such as bass and other predatory warm-water fish, have eliminated the spotted frog from many former habitats. Development that has filled in or damaged ponds and wetlands has also affected significant amounts of former habitat. Pollution, siltation, grazing, and other impacts on water quality and/or aquatic or riparian vegetation may indirectly affect spotted frogs by reducing the available prey base of aquatic insects, mollusks, crustaceans and arachnids. Changes in the hydrologic flows of stream habitats may also result in serious impacts to spotted frogs.

Limited surveys for spotted frogs have been conducted within the Action Area. During 1994, five areas were surveyed on the Cresent RD, including Davis Lake at the mouth of Ranger Creek (confirmed, limited habitat and numbers), Davis Lake near the mouth of Odell Creek (confirmed, limited habitat and numbers), Odell Creek ford with NFD Road 4660 (confirmed, limited habitat and numbers), Big Marsh (confirmed, good habitat and numbers), and Little Deschutes River (absent, potential habitat limited). Surveys conducted in 1995 by Marc Hayes on the Bend RD revealed spotted frog populations at Hosmer Lake, Lava Lake, Little Lava Lake, Little Cultus Marsh, and two localities on Crane Prairie Reservoir. These sites were re-surveyed in 1996.

Direct/Indirect/Cumulative Effects:

No Action Alternative: Selection of the no action alternative would maintain potential habitat for the spotted frog in current ownership blocks. Potential habitat as defined in the affected environment section, would maintain 80 acres within federal ownership and 510 acres on Crown Pacific lands.

Proposed Action: On the local scale, net changes to potential habitat by sub-watershed to the Deschutes National Forest would be: a gain of 127 acres in the middle little Deschutes sub-watershed; a loss of 1 acre in the toast sub-watershed; and loss of 72 acres in the crescent sub-watershed. Data indicates a proposed gain of 34 acres of potential habitat in the tumalo sub-watershed. However, given the cold water temperatures in the creek and a requirement of warm water for the spotted frog, it's speculative that tumalo creek will ever provide habitat for the spotted frog. The Deschutes NF would gain habitat along the Little Deschutes River, where in the upper reaches of the watershed, spotted frogs are present. The Forest would loss potential habitat along Crescent Creek where in the upper watershed, at Big Marsh, the largest population of spotted frogs exist east of the Cascade Range.

The Fremont National Forest would gain potential habitat in the rock creek sub-watershed (8 acres) and the South Fork Sprague River sub-watershed (33 acres).

On the Winema National Forest, potential habitat would be gained in the rock creek sub-

watershed (73 acres) and in the north chemult sub-watershed (222 acres).

The net effect of the land exchange to the NFS is a gain of 387 acres of potential habitat for the spotted frog.

It appears that land management activities on Crown Pacific lands are not impacting the riparian areas along creeks or wet meadows. If this trend is carried into the future there will be no impact to the spotted frog or its' habitat. Thus, there are no direct, indirect or cumulative effects of this exchange to the spotted frog.

Conclusion: Implementation of either alternative will NOT IMPACT the spotted frog or it's habitat.

California Wolverine (*Gulo gulo luteus*)

Status:

Federal: Species of Concern
RF R-6: Sensitive
State: Sensitive

No Wolverine studies have been conducted in the Eastern Cascades. The most comprehensive wolverine study was in northwestern Montana by Hornocker and Hash (1981). Information from that study will be described here. Wilderness or remote country where human activity is limited appears essential to the maintenance of viable wolverine populations. High elevation wilderness areas appear to be preferred in summer, which may effectively separate wolverines and intensive human disturbance in most areas. In winter, wolverines move to lower elevation areas which are snowbound with very limited human activity. Wolverines do not significantly use young, dense stands of timber or clearcuts. The majority of wolverine activity occurs in large expanses of scattered mature timber, with some use of ecotonal areas such as small timber pockets, and rocky, broken areas of timbered benches. Heavy use was found in openings which support good winter populations of big game animals, the principal source of carrion which makes up much of the wolverine's diet (Marshall 1988). In addition to carrion, wolverines also feed on marmots, snowshoe hares, various rodents, insects, insect larvae, eggs, and berries (Marshall 1988).

Wolverines appear to be very wide-ranging and unaffected by geographic barriers, such as mountain ranges, rivers, reservoirs, highways, or valleys. For this reason, Hornocker and Hash (1981) recommended that wolverine populations be treated as regional rather than local.

The Cascade Mountains provide the high elevation summering habitat required by the wolverine. As stated above, these areas appear to be preferred habitat. This preference can

primarily be attributed to a greater abundance of food (Gardner 1985; Banci 1987), but also to avoidance of high temperatures and of humans (Hornocker and Hash 1981).

Mountain Hemlock series dominates these high elevation areas. These areas are characterized by a high degree of canopy cover > 80%, canopy gaps, and high accumulations of dead and down woody material. These characteristics provide the micro-climate needed by summering wolverines and their prey base.

Ingram, 1973, reported trapping harvest records around Broken Top. Recent sightings (ODFW pers comm) have occurred through out this general area and areas north.

In winter, wolverines expand their range, generally moving to lower elevations following big game populations. Carrion makes up much of the wolverines diet during the winter months.

Direct/Indirect/Cumulative Effects:

No Action Alternative: Selection of the no action alternative would maintain potential habitat for the wolverine in current ownership blocks. Potential habitat as defined in the affected environment section uses cruse data as defined in the Behrens and Styskel, 1997 report. Acres reported could be an over estimation because data did not take open road density into account. Wolverines are highly influenced by human presence. Open road densities on NFS and Crown Pacific lands range form 2 to 4 miles and from 6 to 10 miles of open roads per square mile, respectively.

Proposed Action: On the Forest scale, net change to potential habitat on the Deschutes National Forest is a net loss of 4,167 acres. The Fremont and Winema National Forests have a net gain of 4,666 and 5,724 acres, respectively. Total net gain to the Federal government is 6,223 acres. However, given the discussion above on open road densities, this net gain of potential habitat is greatly reduced in the short-term because of the high open road densities.

Two wolverine sightings have occurred within the proposed action area, both located on Crown Pacific lands. However, the sightings occurred in parcels that are adjacent to large blocks of Federal ownership.

Given the wolverines large home range and habitat requirements (denning in talus slopes in alpine communities, and carrion feeding on big game species and other smaller mammals at lower elevations during winter months), it is suspected that the direct effects of the land exchange on wolverines will not impact the species. However, short-term effects to habitat connectivity because of the open road density may impact wolverine movement.

The cumulative effects by consolidating land ownership, may provide more continuous habitat for species movement.

Conclusion: Implementation of either alternative will NOT IMPACT the wolverine or its'

habitat.

Western Pacific Big-eared Bat (*Plecotus townsendii townsendii*)

Pale Western Big-eared Bat (*Plecotus townsendii pallesecens*)

Status:

Federal: Species of Concern
RF R-6: Sensitive
State: Sensitive

Townsend's big-eared bats, the common name for the Western Pacific and Pale Western big-eared bat, are the most characteristic bat found in caves in the western U.S. Historical population data indicates a decline in numbers across its' range. Caves and cave-like structures are critical habitat for these bats as hibernacula in winter, as maternity sites in summer and interim period roosts (Dobkins 1993). They roost primarily in caves in areas seldom disturbed by humans. Human disturbance may cause the bats to permanently abandon roost, hibernacula and maternity sites (Maser et al. 1981).

In Oregon, the distribution of the Townsend's big-eared bat is discontinuous and highly local across forest and shrubsteppe habitats throughout the state (Perkins and Levesque, 1987). Habitat vegetation per se, is not known to affect habitat suitability for cave-dwelling bats and therefore does not determine directly the distribution of such species. The apparent primary determinants of habitat suitability for this species are the availability of an adequate food supply and microclimatically appropriate caves or cave analogues (e.g., mine shafts and tunnels) for roosting, hibernation, and reproduction.

Direct/Indirect/Cumulative Effects:

No Action Alternative: Selection of the No Action alternative would maintain the current ownership of rock outcrops and cliff habitats. On Forest Service lands, these habitats would be found on the Deschutes National Forest in the Sellers sub-watershed and on the Fremont National Forest in the Sellers and Fort Rock sub-watersheds. Habitat in the Sellers sub-watershed is primarily associated with Walker Rim. Management direction for the protection of these unique habitats is provided by Land and Resource Management plans of each of the forests.

Rock habitats on Crown Pacific owned lands within the Deschutes National Forest boundary are located in the Crescent and Tumalo sub-watersheds. Within the Fremont National Forest Boundary these habitats would be found in the Fort Rock sub-watershed and within the Winema National Forest Boundary within the Shoestring Creek sub-watershed. Crown Pacific would not

be subject to special management requirements for the protection of these habitats.

Proposed Action: On the local scale, the Deschutes National Forest would gain 8,500 lineal feet of habitat in the Tumalo sub-watershed and 1,000 lineal feet in the Crescent sub-watershed while losing 6,000 lineal feet in the Sellers sub-watershed. The Fremont National Forest would gain 3,000 lineal feet in the Fort Rock sub-watershed while losing 500 lineal feet, and would lose 2,500 lineal feet in the Sellers sub-watershed. The Winema National Forest would gain 1,500 lineal feet in the Shoestring sub-watershed. The most notable effect of this exchange on a local scale is that the Sellers sub-watershed would lose 6,000 lineal feet of this habitat type.

The net effect of the Proposed Action to the Forest Service is a gain of rock outcrops and cliff habitats. The Townsend's big-eared bat will have a net gain of 5,000 lineal feet.

There are no expected direct effects to this habitat type or the associated species as a result of the Proposed Action. These habitats are typically non-timber producing and would not be altered by timber management activities regardless of ownership. Indirect effects may occur as a result of differing management practices and management direction. The removal of timber from adjacent areas may reduce the forage base and habitat suitability. On lands acquired by the Forest Service, management direction provided by Land and Resource Management plans would provide greater protection of these habitats and may improve habitat suitability over time.

Conclusion: The proposed land exchange will NOT IMPACT the Townsend's big-eared bat.

Sandhill Crane (*Grus canadensis*)

Status:

Federal: Species of Concern
RF R-6: Sensitive
State: Sensitive

Historically, sandhill cranes occurred throughout North America, from arctic tundra and boreal forest in the north to coastal marshes and river basins in the West, South, and Southwest (Braun, et al. 1975). Crane populations were decimated with the advent of white settlement due to over-hunting and habitat loss (Braun, et al. 1975). But populations have recovered in many areas and 9 states currently offer legal harvest for sandhill cranes. In the Pacific Northwest, greater sandhill cranes are not hunted and are managed as a sensitive species by Region 6, Forest Service.

Four distinct populations of greater sandhill cranes are recognized, 3 of which nest within Region 1 of the US Fish and Wildlife Service. The Central Valley population nests primarily in southcentral and southeaseten Oregon and northern California.

Sandhill crane nesting occurs on the Deschutes National Forest. Currently, Crane Prairie, Davis Lake, and Big Marsh provide suitable habitat that are occupied by reproductive cranes.

Direct/Indirect/Cumulative Effects:

No Action Alternative: Selection of the no action alternative would maintain potential habitat for the sandhill cranes in current ownership blocks. Potential habitat as defined in the affected environment section, would maintain 133 acres within federal ownership and 423 acres on Crown Pacific lands.

Proposed Action: On the local scale, net changes to potential habitat by sub-watershed to the Deschutes National Forest would be: a gain of 74 acres in the middle little Deschutes sub-watershed; a loss of 1 acre in the toast sub-watershed; loss of 72 acres in the crescent sub-watershed; and a loss of 53 acres in the dorrance sub-watershed. The Fremont National Forest would gain 8 acres in the rock creek sub-watershed and 33 acres in the south fork sprague river sub-watershed. The Winema National Forest would gain 222 acres in the north chemult sub-watershed, 73 acres in the rock creek sub-watershed, and 6 acres in the shoestring creek sub-watershed.

The net effect of the proposed action to Federal lands is a gain of 428 acres of potential habitat for sandhill cranes.

It appears that land management activities on Crown Pacific lands are not impacting the riparian areas along creeks or wet meadows. If this trend is carried into the future there will be no impact to the sandhill cranes or its' habitat. Thus, there are no direct, indirect or cumulative effects of this exchange to the sandhill cranes.

Conclusion: There will be NO IMPACT to the sandhill cranes with selection of either alternative.

Ferruginous Hawk (*Buteo regalis*)

Status:

Federal: Species of Concern
RF R-6: Sensitive
State: Sensitive

The ferruginous hawk inhabits grasslands, shrub-lands, and steppe-deserts of the Western United States. It is a common nester in Colorado, Idaho, Montana, Utah, and Wyoming (Call, 1978). Populations in the more northern States tend to be migratory, spending the winter in New Mexico, Colorado, Kansas, Texas, and Oklahoma (Call, 1979).

Ferruginous hawks thrive in areas that favor the production of rabbits, prairie dogs, or ground squirrels. Foraging habitat consists of non-forested, non-mountainous areas, such as desert-shrub and grassland communities. Nesting habitat consists of communities with isolated trees, woodland edges, buttes, cliffs, and/or grassland with some relief.

The ferruginous hawk occurs in eastern Oregon. It primarily uses the desert/forest fringe as wintering habitat. Suitable wintering, nesting and foraging habitat occurs on the eastern edge of the Deschutes and Fremont National Forests.

Direct/Indirect/Cumulative Effects:

No Action Alternative and Proposed Action: Data indicates that only 5 acres of potential habitat exists on Crown Pacific lands. This parcel would be conveyed to Federal ownership with the proposed land exchange. The amount of habitat involved with this proposed action is so small that it's inconsequential to the species or its habitat.

Conclusion: There will be NO IMPACT to the ferruginous hawk or its' habitat with selection of either alternative.

Preble's Shrew (*Sorex preblei*)

Status:

Federal: Species of Concern
RF R-6: Sensitive
State: Sensitive

Little is known about the biology of the Preble's shrew, but general characteristics of the shrew genera are felt to be applicable. Shrews usually live in moist areas and their habitats are markedly restrictive (Nowak and Paradiso 1983). Use of habitat may depend upon the amounts of moisture, vegetative cover, invertebrate prey, and degree of disturbance by large herbivores (Churchfield 1990).

Preble's shrew habitat component is the presence of riparian habitat in arid or semiarid areas, both forested and non-forested. Habitats considered potential shrew habitat include: riparian openings is sagebrush; riparian openings in dry, open forest; riparian openings in arid shrubland - forest transition areas; and higher elevation openings such as grassland, sagebrush meadow, and lakeshore in subalpine fir or lodgepole pine.

Direct/Indirect/Cumulative Effects:

No Action Alternative: Selection of the no action alternative would maintain potential habitat for the Preble's shrew in current ownership blocks. On NFS lands, potential habitat would be found on the Deschutes National Forest, totaling 1,001 acres and on the Fremont National Forest, totaling 455 acres.

Crown Pacific lands offer 1,284 acres on the Deschutes National Forest, 703 acres on the Fremont National Forest, and 578 acres on the Winema National Forest.

in the bull sub-watershed (194 acres); the crescent sub-watershed (82 acres); dorrance sub-watershed (169 acres); sellers sub-watershed (349 acres); toast sub-watershed (121 acres); and the tumalo sub-watershed (86 acres). On the Fremont National Forest, potential habitat would be found in the dry creek sub-watershed (34 acres); fort rock sub-watershed (44 acres); and sellars sub-watershed (377 acres). Total potential shrew habitat is 1,456 acres.

Proposed Action: On the local scale, the Deschutes National Forest net change to potential habitats are: a loss of 169 acres in dorrance sub-watershed; a loss of 120 acres in bull sub-watershed; a loss of 75 acres in crescent sub-watershed; a gain of 53 acres in long prairie sub-watershed; a gain of 359 acres in middle little Deschutes sub-watershed; a gain of 63 acres in melvin sub-watershed; a loss of 349 acres in sellers sub-watershed; a gain of 354 acres in three creek butte sub-watershed; a loss of 119 acres in toast sub-watershed; a gain of 372 acres in tumalo sub-watershed, and a loss of 86 acres in walker ridge sub-watershed. Net change would be a gain of 283 acres of potential habitat.

On the Fremont National Forest net change to potential habitats are: a loss of 34 acres in fry creek sub-watershed; a gain of 102 acres in the fort rock sub-watershed; a gain of 482 acres in rock creek sub-watershed; a gain of 64 acres in south fork sprague river sub-watershed; and a loss of 377 acres in sellers sub-watershed. Net change would be a gain of 298 acres.

All sub-watersheds on the Winema National Forest would gain potential habitat. Net gain would be 578 acres.

The net effect of the proposed action to the NFS is a gain of 1,109 acres of potential habitat for the Preble's shrew.

As none of the potential habitats have been surveyed, it is impossible to tell whether one location is better habitat than another. Given the shrews diverse habitat association, all parcels have the potential to be occupied. Thus, the direct effects of the land exchange may be beneficial to the Forest Service. Crown Pacific management strategy has been to exclude creeks and wet meadows form management activities. It appears regardless of ownership, the shrew and its' habitat will not be impacted.

Conclusion: There will be NO IMPACT to the Preble's shrew or it's habitat with selection of either alternative.

Western Sage Grouse (*Centrocercus urophasianus phaios*)

Status:

Federal: Species of Concern
RF R-6: Sensitive
State: Sensitive

The sage grouse is a permanent resident in Oregon east of the Cascades. Preferred sage grouse nesting habitat is in sagebrush/grass communities with sagebrush canopy cover between 16-40% and with grass and forb canopy cover of about 33%. Sagebrush height commonly used for nesting varies between 7 and 32 inches, with most nest sites occurring under the taller bushes in the community (Connelly et al. 1991; W. States Sage Grouse Committee, 1974). Nest predation is lower where cover of tall grasses (>6" tall) is at least 18% and where cover of medium height shrubs (16-32" tall) is about 40% (DeLong et al. 1995). Within the proposed action area, sage grouse nesting habitat is present along the northeastern, eastern, and southeastern fringes. Nesting has been documented in the eastern part of the Deschutes NF (conversation with Paul Schmidt, Prineville BLM).

Sage grouse breeding areas are centered around the strutting sites (leks). Leks are characterized by an open area surrounded by sagebrush/grass communities. All nesting occurs within 8 miles of a lek (W. States Sage Grouse Committee, 1974).

Sage grouse rely on sagebrush as a major forage species. Insects are a minor component except for chicks which rely on them during the first few weeks after hatching. Forbs are also critical during the spring when they make up between 45% to 73% of adult and chick's diets. During winter, sagebrush makes up the majority of their diets.

Movement between seasonal use areas may be only a short distance or many miles. The distance moved appears to vary with winter severity, topography, and vegetative cover.

Direct/Indirect/Cumulative Effects:

No Action Alternative and Proposed Action: Data indicates that only 14 acres of potential habitat exists on NFS lands and 15 acres on Crown Pacific lands. Parcels conveyed between Federal and Crown Pacific indicate a net gain of 1 acre to the Forest Service. The amount of habitat involved with the land exchange are so small that it's inconsequential to the species or its habitat.

Conclusion: There will be NO IMPACT to the sage grouse or its' habitat with selection of either alternative.

Long-billed Curlew (*Numenius americanus*)

Status:

RF R-6: Sensitive
State: Sensitive

The long-billed curlew is a short-midgrass prairie nesting species. It breeds in the mid-latitudes of North America form southern Saskatchewan to northern Texas. Locally, it exploits five breeding habitats: annual grasslands; mixed-grass meadows; saltgrass - greasewood associations; sagebrush - bluebunch wheatgrass associations; and other habitats of dryland cereal grain fields, low grade alfalfa fields, and fallow fields. Structural attributes of curlew breeding habitat are: short grass; bare ground; shade, and abundant invertebrate prey.

Direct/Indirect/Cumulative Effects:

No Action Alternative: Selection of the no action alternative would maintain long-billed curlew potential habitat in current ownership. On NFS lands, this potential habitat would be found in the Dorrance and Toast sub-watersheds. No potential habitat exists on the Fremont National Forest. On Crown Pacific lands, potential habitat exists in the crescent and middle little Deschutes sub-watersheds, the rock creek sub-watershed on the Fremont National Forest, and the north chemult and rock creek sub-watersheds on the Winema National Forest.

Proposed Action: On the local scale, there would be a net loss of 37 acres on the Deschutes National Forest, a net gain of 12 acres on the Fremont National Forest, and a net gain of 291 acres on the Winema National Forest. Given the nesting requirements of short and mid-grass prairies, conveyance of any of the parcels may not actually provide nesting habitat for the curlew. The highest likelihood of potential habitat exists on the conveyed parcels on the Winema National Forest.

Conclusion: Selection of either alternative will NOT IMPACT the long-billed curlew or it's habitat.

Interior Red-band Trout

Status:

RF R-6: Sensitive
State: Sensitive

The redband trout (native rainbow trout) is a widely distributed western North America native salmonid. Of the seven key salmonids, redband trout originally had the widest distribution, occupying 73 percent of the watersheds within eastern Oregon and Washington. Redband trout within the project area are interior redband and non-anadromous (freshwater resident).

Interior resident redband trout are considered species of special concern by the U.S. Fish and Wildlife Service, American Fisheries Society, and all states within their historical range, and are classified as sensitive species by the Forest Service and BLM.

Collectively, resident and interior resident redband trout currently may be the most widely distributed key salmonid in Eastern Washington and Oregon. The known and estimated distribution of both forms of redbands include 65 percent of the historical range. Resident redbands are the more widely distributed of the two forms; the known and estimated distribution includes 69 percent of the historical range. Resident-interior redbands are not as widely distributed and are currently found or anticipated in 50 percent of the identified historical range. The distribution and status of native redband trout may be more depressed than these estimates indicate because of hybridization with stocked rainbow trout. Preliminary status reviews in Idaho, Oregon, and Montana generally support this concern.

Less is known about the current distribution of redband trout than any of the other key salmonids. One reason for the lack of information is the inability to differentiate juvenile steelhead and resident redbands.

Despite their broad distribution, relatively few strong interior resident redband populations exist. Current strong populations encompass 10 percent of their historical range and 20 percent of their present range.

Interior resident redband habitats have been altered by a variety of land use practices. Reduction in streamflow because of water diversion for irrigation threatens many populations in the southern portion of their range. Increased water temperatures have also been a factor, especially in drier, warmer areas. Temperature increases largely are due to loss or conversion of riparian vegetation.

There have also been extensive channel alterations associated with flood-control projects, floodplain development, and road construction within the range of redbands. Channel alterations adversely affect stream hydraulics, nutrient pathways, invertebrate production, and fish production. Redband trout appear to have evolved over a broader range of environmental conditions than the other key salmonids, and appear to have less specific habitat requirements.

Their apparent persistence in heavily disturbed basins suggests they are more resilient than other species. Therefore, the loss of a redband population could be a strong indication of disruption in the aquatic ecosystem processes.

Direct/Indirect/Cumulative Effects:

No Action Alternative: The selection of the no action alternative would maintain respective ownerships. Thus, management of lands would continue on with management guidelines established by Crown Pacific or the Forest Service respectively.

Proposed Action: Approximately 1.4 miles of Crescent Creek would be exchanged to Crown and approximately 2 miles of Little Deschutes River and approximately 5 miles of Tumalo Creek would come under public ownership administered by the Forest Service. Stream surveys have not been conducted to assess the condition of potential habitat or existing populations of interior resident redband trout.

Direct effects of the proposed action to the Forest Service would be a gain of approximately 5 miles of stream on Tumalo Creek and 2 miles of the Little Deschutes River (some of the gain is on one side of the stream only) and approximately 1.4 miles of Crescent Creek would become part of Crown Pacific Lands. Indirect and cumulative effects of the proposed land exchange may benefit the interior redband trout as more contiguous stream miles would come under the management of the Northwest Forest Plan and the Interior Columbia Basin Assessment.

Conclusion: There is minor beneficial effects to the interior redband trout, as more contiguous stream sections would be managed under Forest Service direction. However, aerial photo interpretation indicates that Crown Pacific land management activities are not impacting the riparian areas mentioned. In addition, redband trout are relatively resilient to disturbance. If Crown Pacific continues to protect riparian areas then their will probably be NO IMPACT to the potential habitat or existing populations of interior redband trout.

Tri-colored Blackbird

Status:

RF R-6: Sensitive

The tri-colored blackbird is a highly gregarious bird which lives in nesting colonies of enormous numbers in the great interior valleys of California and north into Oregon (Terres 1991). It breeds locally in the eastern Rogue Valley, southern Klamath County, and several isolated colonies, mainly in the Columbia River Basin in north-central Oregon. A few individuals have been reported from wintering blackbird flocks in central Oregon (Gilligan et al. 1994). Most birds leave the state during winter, although there are often a few remaining in the Rogue Valley and Klamath Basin (Gilligan et al. 1994). The population is declining as a result of draining marshes (Terres 1991). It lives in open valleys and foothills rarely at high altitudes, in streamside timber, alfalfa and rice fields, tules and cattails in marshes and at the edges of reservoirs. The tri-colored blackbird is gregarious at all times; roosting, foraging and nesting in flocks. During the summer, diet is comprised primarily of insects including beetles, spiders, caterpillars while in fall and winter diet is comprised of weed seeds and grain. The tri-colored blackbird nests in colonies,

usually in marshes, but also in willow and blackberry thickets and in clumps of nettles (Bent 1958).

Direct/Indirect/Cumulative Effects:

No Action Alternative: Selection of the no action alternative would maintain small acreages of potential habitat in current ownership. On NFS lands, this potential habitat would be found in the Crescent sub-watershed. No potential habitat exists on either the Winema or Fremont National Forests. On Crown Pacific lands, potential habitat exists in the Middle Little Deschutes and Tumalo sub-watersheds of the Deschutes National Forest; the South Fork Sprague sub-watershed on the Fremont National Forest; and the Shoestring Creek sub-watershed on the Winema National Forest.

Proposed Action: On a landscape scale, the Proposed Action would result in a110 acre net gain of potential habitat for the tri-colored blackbird. On the local scale, there would be a net gain of 71 acres on the Deschutes National Forest, a net gain of 33 acres on the Fremont National Forest, and a net gain of 6 acres on the Winema National Forest.

The indirect and cumulative effects of the Proposed Action are expected to be negligible to the tri-colored blackbird. Riparian and wetland habitats have been managed similarly on NFS and CP lands. Lands under both ownerships are non-timber producing and have been mostly avoided by management activities. Standards and guidelines regulating management of riparian and wetland habitats provide protection of these habitats. Management activities by either party is not expected to affect potential habitat of this species.

Conclusion: Selection of either alternative will NOT IMPACT the tri-colored blackbird or it's habitat.

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Last Update: 3/23/98
R.A. Jensen

USDA FOREST SERVICE
CROWN PACIFIC LIMITED PARTNERSHIP
LAND EXCHANGE

FINAL ENVIRONMENTAL IMPACT STATEMENT

APPENDIX D

BIOLOGICAL EVALUATION FOR SENSITIVE PLANTS

BIOLOGICAL EVALUATION - Crown Pacific/USFS Land Exchange

DESCHUTES, FREMONT, and WINEMA NATIONAL FORESTS

12 January 1998

Prepared by: Robert L. Wooley

Botanist/Ecologist

Fremont National Forest

BIOLOGICAL EVALUATION

FOR ENDANGERED, THREATENED, PROPOSED, AND SENSITIVE PLANTS

23 January 1998

Prepared by: Robert L. Wooley, Botanist/Ecologist

INTRODUCTION

The purpose of this biological evaluation is to comply with requirements of the Endangered Species Act of 1973 that actions of Federal Agencies not jeopardize or adversely modify critical habitat of Federally listed species or under the National Forest Management Act of 1976 contribute to loss of viability of any species or trends toward Federal listing of any species. It is prepared for proposed or listed endangered, threatened, and sensitive species.

The Biological Evaluation process consists of a review of existing information, a field reconnaissance if species or habitats are determined to be present and existing information is insufficient to reach a conclusion of effects, assessment of effects on species or habitats and, if needed, a biological or botanical investigation.

A summary of the biological evaluation process can be found in Forest Service Manual (FSM) 2670 and for this project is shown in Appendix I. Support data for this project is on file at the Deschutes National Forest Headquarters, Bend Oregon, Silver Lake Ranger District, Silver Lake, Oregon, Crescent Ranger District, Crescent, Oregon, Sisters Ranger District, Sisters, Oregon, and Bend/Fort Rock Ranger District, Bend, Oregon.

PREFIELD REVIEW

The Regional Forester's Sensitive Plants List (March 1991) and the list of proposed, threatened, or endangered species (August 1991) for Region 6 (R-6) were reviewed and approved by the U.S. Fish and Wildlife Service. The review of these lists is the initial step of the prefield review. PETS species on these lists with suspected or documented occurrence within the proposed Crown Pacific/USFS land exchange are shown in Appendix I.

Records from the Oregon Natural Heritage Data Base were consulted for documented occurrence of species listed on the R-6 Sensitive Species List for the Deschutes and Fremont National Forests. The GIS Sensitive Species Layers for the Fremont and Deschutes National Forests were used to determine suspected or documented occurrences of species or habitats. The Fremont GIS TESPHAB layer was updated in 1997 and includes all known occurrences of R-6 sensitive species through September 1997. The Deschutes GIS Sensitive plant layer was updated through 1993. Records, district GIS layers, and consultation with botanists on the Sisters, Bend/Fort Rock, and Crescent Ranger Districts of the Deschutes National Forest were used to update occurrences for R-6 sensitive species through September 1997. Listing of other source documents used to determine potential habitat or species occurrence can be found at the end of this document and on file at the Silver Lake Ranger District.

Documented occurrence of and/or possible habitat for five sensitive plant species were identified in the CP/USFS LEX boundary. Plant species include: *Artemesia ludoviciana* Nutt *ssp estesii*, *Astragalus peckii* Piper, *Botrychium pumicola* Cov. in Underw., *Penstemon peckii* Pennell, and *Mimulus jeppsonii* Grant. *Castilleja chlorotica* was considered in the review since it was raised by a comment during the EA process.

The Deschutes, Winema, and Fremont National Forest have no habitat recognized as essential for listed or proposed plant species recovery under the Endangered Species Act. Habitat to meet Forest Service objectives for sensitive plant species does occur on the Forests. **Penstemon peckii** is managed on the Deschutes National Forest under a Conservation Strategy and **Botrychium pumicola** is managed with guidance from a draft Conservation Strategy on the Deschutes, Fremont, and Winema National Forests. A Conservation Strategy for **Castilleja chlorotica** is in effect for the Fremont National Forest.

FIELD RECONNAISSANCE

I. PLANTS

Survey of approximately 3000 acres in the Crescent Creek Area of Crown Pacific lands

was conducted during the summer of 1997 to acquire additional population information for **Astragalus peckii**.

On September 15, 1997 a field examination of the **Astragalus peckii** population discovered on Crown Pacific lands in 1997 was conducted by botanists from the Deschutes, Fremont, and Winema National Forests and the Bureau of Land Management. This team also examined the **Astragalus peckii** and **Botrychium pumicola** population on the BPA powerline ROW.

Field Surveys conducted on the Chemult District of the Winema National Forest during 1997 located approximately 700 additional **Botrychium pumicola** fronds on federal lands. None of these sites are located on lands proposed to be exchanged.

Past surveys for other projects have been extensively conducted on all three national forests. Information provided by these surveys has been entered in the ONHP Data base and various GIS layers.

Specific information about survey design is on file at the Crescent Ranger District, Chemult Ranger District, and Silver Lake Ranger District.

ANALYSIS OF EFFECTS:

A. **Astragalus peckii** Peck's Milkvetch

Status: USF&WS: SoC

Natural Heritage: G3/S3

R-6 Sensitive Species List

The global population of **Astragalus peckii** is approximately 360,000 inventoried individuals determined by query of the Oregon Natural Heritage Database (Vrilikas, pers. comm. 1997). This species, endemic to central Oregon, is distributed in three principal population clusters (Grenier, 1997). The northern population, estimated at greater than 100,000 individuals, occurs on about a 15-20 square mile area on BLM and private lands near Tumalo, Oregon. Monitoring of this population by BLM botanists Gail Smith and Ron Holverson has revealed this population to be stable (Smith, pers. comm. 1997). Habitat for this population is largely juniper/sagebrush considered in late seral condition. The plants are mainly occupying open sites in this type. No plants in the northern population are located on lands to be exchanged in this proposed action. No known

immediate threats are known for this population, however land development is occurring in the area and possible impacts to individuals on private land resulting from development as well as increased recreational use of federal lands may occur in the future. No effects to the northern population are expected as a result of this proposed action. The southern population is located on the Chemult and Chiloquin Ranger Districts of the Winema National Forest and private lands. An accurate census of this population has not been completed but best estimates place the number of individuals at about 260,000 plants. This population is considered stable with some areas of increase into formerly unoccupied habitat (O'Hara, pers. comm. 1997). No lands with occupied habitat will be exchanged in this action on the Winema National Forest. Therefore no effects to the southern population are expected as a result of the proposed action. The middle population includes two principal clusters located on the Crescent Ranger District of the Deschutes National Forest, a small area on a BLM section, and adjacent lands owned by Crown Pacific. A population located in T24S R8E S15 of approximately 4500-5000 individuals would be exchanged from Forest Service to Crown Pacific in this action. Surveys conducted in 1997 on approximately 3000 acres of Crown Pacific lands resulted in finding an additional 900 individuals on fluvial gravel substrate along Crescent Creek and adjacent ephemeral draws in T24S R8E S16. This population is located in such proximity to the Forest Service plants in S15 that it is likely some genetic exchange is occurring and these are not reproductively isolated. Ants were observed on the Astragalus in 1997 and represent a probable short range pollinator. Several species of bumblebee occur in the area and are a likely pollinator of this member of the Leguminosae family. Bumblebees are known to cross-pollinate within approximately a one to two mile radius. No long range pollinators have been recorded for this species. A second cluster of 1000+ plants occurs on Forest Service land in T24S R10E S20. A small number of plants of this population exists on BLM land in the adjacent section 21 and on Crown Pacific land in T24S R10E S16. About 75% of this cluster occur in the Bonneville Power Administration powerline right of way currently administered under a Memorandum of Understanding with the Forest Service. Ownership of Section 20 would transfer to Crown Pacific under the proposed action, however an easement in favor of the United States for the powerline corridor will be effected prior to the change of ownership. Management of the corridor will remain under the Bonneville Power Administration. The best estimate of the census for the Middle population including both the Crescent Creek cluster and Bonneville Power Administration ROW site is approximately 7000 individuals representing about 2% of the known global population. In both clusters the plants are growing on open sites. The Crescent Creek cluster of 900 plants on Crown Pacific land is growing mainly in an ephemeral draw which was clearcut of a lodgepole pine overstory and on a fluvial bench above Crescent Creek. A few individuals were noted in an adjacent lodgepole pine plantation with a rapidly closing canopy. These plants appear to be declining, most likely due to light competition. The plants in this cluster are somewhat diminutive compared to plants in all the other populations and the habitat is not typical of the pumice soil with a sagebrush/juniper vegetative type found in the northern and southern populations. The Powerline ROW site is also in a former lodgepole pine/bitterbrush vegetation association

which was cleared for the powerline right of way and disturbed by the ROW maintenance road. The soil is a pumice type. Robust individuals were noted colonizing the pumice road shoulders and some specimens are growing in the center hump. Plants under the powerline, which was cleared of tree growth and subjected to severe mechanical control of brush and Idaho fescue in 1995, also appear to be healthy and stable. It can not be ascertained with current information whether genetic interaction with either the northern or southern populations is occurring. However it is probable, with ants being observed on the plants, and bees a known pollinator of other Astragalus species, that this middle population is developing allopatrically following seed introduction into sites opened up by man or possibly by a flood event along Crescent Creek. It remains speculative as to whether genetic interchange is occurring with the northern or southern populations and even between the two clusters of the middle population and whether the middle population arose from seed introduced by human activity, animal dispersal, or other means. Due to its location between the northern and southern populations, even if the central clusters are currently isolated, it is likely that they would be reintegrated into the larger populations in the future if they expand to a size allowing known pollinators to interact with the larger groups. There is no evidence that geographic features would present a barrier to reintegration, i.e. the central clusters are not islands under island biogeography theory. Concern existed that total loss of federal control of the center **Astragalus peckii** population would constitute a threat to genetic interchange between the Northern and Southern populations. The loss of federal control has been mitigated by placing in the land exchange an easement granting the Bonneville Power Administration control and use of the powerline corridor. A protective clause states that treatments for vegetation control in the corridor known to be damaging to **Astragalus peckii** (including but not limited to herbicidal treatments) will not be used in T24S R10E S20. This mitigation measure was discussed during a telephone conversation with Andrew Robinson, Botanist, U.S. Fish & Wildlife Service, and found to remove concerns for the potential genetic corridor loss if Federal control was completely removed (Robinson, 1997).

DETERMINATION OF IMPACTS:

No Action: No populations of **Astragalus peckii** will change ownership. Under this alternative No Impact will occur.

Proposed Action Alternative: Under the proposed action approximately 2% of the known **Astragalus peckii** population will be transferred from Forest Service to Crown Pacific ownership. However approximately 75% or about 750 individuals in the T24S R10E S20 cluster will remain under federal control with a protective clause in the Bonneville Power Administration powerline easement. Future impacts for the remaining population may occur but are not measurable. There was no evidence that plants currently growing on Crown Pacific lands are about to drop out of the population due to current management activities. Rather the openings created by past timber harvest may be beneficial. Even if the entire middle clusters were to disappear the effect on the global population would be

about 2%. An assumption for this analysis based primarily on judgement in consultation with local botanists is that if less than five percent of the known population of a sensitive species is lost that loss in and of itself would not cause a trend to federal listing or loss of viability. Thus this alternative may impact individuals but is not likely to cause a trend toward federal listing or loss of viability of **Astragalus peckii**.

B. **Castilleja chlorotica** Green-tinged Paintbrush

Status: USF&WS: SoC

Natural Heritage: G3/S3

R-6 Sensitive Species List

Occupied habitat for **Castilleja chlorotica** exists on the Fremont National Forest, Deschutes National Forest, and the Prineville District of the BLM. The core population of approximately 273,000 individuals occurs on Winter Rim on the Silver Lake and Paisley Ranger Districts of the Fremont National Forest. Disjunct populations occur in a northward extending arc on the Silver Lake RD extending to the Fort Rock RD and BLM Prineville District. About 95% of the known population occurs on the Fremont National Forest well to the south of any lands proposed for exchange. The species is managed under a conservation strategy on the Fremont which is valid. This proposed action is consistent with the conservation strategy for Green-tinged Paintbrush on the Fremont National Forest (Wooley, et al. 1994). None of the known populations on the Fremont National Forest, Deschutes National Forest, or Prineville District of the BLM will be exchanged in this proposed action. Therefore no effects or cumulative effects are expected on **Castilleja chlorotica** from the proposed action or the no action alternative.

DETERMINATION OF IMPACTS:

No Action: No Impact

Proposed Action: No Impact

C. **Botrychium pumicola** Pumice Grape Fern

Status: USF&WS: SoC

Natural Heritage: G3/S3

R-6 Sensitive Species List

Oregon: LT

Occupied habitat for **Botrychium pumicola** occurs in the proposed land exchange. The known range, distribution, and some basic biology of this species is described in the draft Species Conservation Strategy for **Botrychium pumicola** (Hopkins, 1992). Distribution on the Fremont is described in the Species Status Report for **Botrychium pumicola** on Silver Lake RD, Fremont National Forest (Wooley, 1996). The known global population for this species was obtained by query of the Oregon Natural Heritage Data Base in September 1997 and adjusted for new populations found in 1997 and not yet entered in the ONHP records. The global population from ONHP is approximately 14,000 known fronds (Vrilikas, 1997). Approximately 700 additional fronds were located on the Winema National Forest in 1997 surveys (O'Hara, 1997). Thus the current recorded global population of **Botrychium pumicola** is approximately 14,700 fronds. None of the Botrychium populations on the Winema National Forest are located on lands to be exchanged from the Forest Service to Crown Pacific. Occupied habitat with a censused population of approximately 527 fronds, located on the Crescent Ranger District occurs on lands proposed to be exchanged from the Forest Service to Crown Pacific. This number was obtained by query of the Deschutes National Forest Sensitive Plant GIS layer linked to the BCD data base as updated through 1993. From this source 466 fronds were recorded as present on lands proposed for exchange. This figure was adjusted with survey information provided by the Crescent Ranger District for 1994-1997 (Close, 1997). An additional 61 fronds were recorded during 1995 surveys for a total of 527 fronds. Occupied habitat with a censused population of 4 fronds located on the Silver Lake Ranger District occurs on lands proposed to be exchanged to Crown Pacific. This information was obtained from the Silver Lake Sensitive plant GIS layer updated through 1997 which was clipped with the lands proposed for exchange from Forest Service to Crown Pacific. Thus the total known population of Botrychium pumicola fronds located on lands proposed for exchange from the Forest Service to Crown Pacific is 531 fronds. This represents approximately 3.6% of the known global population being transferred from Forest Service to Crown Pacific. The disturbance ecology, reproductive requirements, and genetic composition of Botrychium pumicola are not well understood. Research underway by Farrar and Johnson-Groh at Iowa State University on Botrychium of other species reveals that endo-mychorrizal fungi form symbiotic associations with the embryos formed from the gametophyte. Many years may be required before the fern portion of the plant emerges from the ground (Farrar, et al. 1997). Comacho at Oregon State University stated that B. pumicola act much like fungi. It is the fungi component that keeps these plants alive. At the present we are unsure of the effects of environmental parameters, such as soil compaction, on this species (Comacho, 1997). Botrychiums are

found to be very happy living underground. They produce asexual reproductive structures known as gemmae and essentially self fertilize. Farrar has suggested that within a Botrychium species not much genetic diversity can be found. Botrychiums can best be described as close to monomorphic in genetic composition. They are known to contain a large genome. Genetic variability of other Botrychium species is extremely low. Studies pertaining specifically to B. pumicola are not yet complete and at least another year will be required to gain a probable genetic profile of this species. Comacho sampled 25 B. pumicola and found no sexual reproduction occurring and no gametophytes were found. He stated B. pumicola seems very happy reproducing asexually. Meinke doubts there is much genetic exchange occurring during Botrychium reproduction. Reproductive isolation looks like the way these plants evolve (Meinke, 1997). Dispersal mechanisms are also speculative. Meinke considered uncommon dispersal events such as small whirlwinds picking up fronds and moving them to a new location as possible dispersion mechanisms. Animal transport has also been speculated as a possible dispersion mechanism. Inspection of the survey data from 1990 to 1997 reveals a rather clumpy distribution pattern, with clumps of fronds ranging from one to several hundred occurring in patches. These clumps tend to occur in frost pockets in lodgepole pine plant associations with fairly open canopy covers. Virtually all known clumps occur on slopes of 5% or less. Observations by Wooley in 1994 located some occurrences of Botrychium fronds on an old lodgepole clearcut on private ground, and one frond emerging in the rut of an old logging road on national forest land. The clumpy patterns observed from the data indicate parametric statistical analysis relying on techniques requiring an assumption of normality (binomial distribution) may not be appropriate to define population parameters. A contagious distribution appears more probable. A substantial research effort would be required to more adequately define the population parameters for this species. At this time it does not appear feasible to extrapolate known population distributions to unsurveyed lands to provide a reliable estimate of probable occupancy of additional habitat. **Botrychium pumicola** has often been grazed by native rodents or rabbits with apparently no deleterious effects. Once grazed the plants are almost impossible to locate unless previously marked. This coupled with the episodic emergence of these plants has made complete survey of suspected habitat an uncertain undertaking. During years of heavy herbivory or non-above ground emergence surveys may be conducted which find the habitat non-occupied when in fact it is occupied. Only positive sightings are reliable and these may require many years of repeat survey to discover. Thus single year surveys are not reliable in fully ascertaining and evaluating the extent of the census for B. pumicola. The analysis in this document is made on only known positive sightings. The generally accepted confidence level for significance in scientific work is 95%. **Botrychium pumicola** populations have never been sampled using a randomized sampling design which allows an estimate of the population and determination of the confidence level within its range. The biological assumption for this analysis is that if less than five percent of the known global population is transferred or even lost there will not be a significant loss or trend to federal listing based on that fact alone. That is the transferred populations do not represent individuals of known genetic variance, are not located on the fringes of

biomes, and are clearly not on island habitats, factors which could make subpopulations an important consideration in the distribution patterns within the range. The data reveal transfer of 3.6% of the known global population from Forest Service to Crown Pacific. This percentage falls into a less than significant range under the assumption. With the known lack of adequate information on the disturbance ecology, and threats to the species, along with the indeterminate future use of lands to be conveyed, it is determined that the effects of transfer are immeasurable but within a less than significant range from a biological perspective. Under current Forest Service guidelines for determination of effects to listed, proposed, and sensitive species this allows a conclusion as to impacts of the no action and action alternatives.

DETERMINATION OF IMPACTS:

No Action: No impact

Proposed Action: May impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the **Botrychium pumicola** population or species.

D. **Penstemon peckii** Peck's Penstemon

Status: USF&WS: SoC.

Natural Heritage: G3/S3

R-6 Sensitive Species List

No occupied habitat for **Penstemon peckii** is known to occur on Forest Service lands proposed for exchange. The parcel located in T15S R10E S5 near Sisters, Oregon proposed for transfer to Crown Pacific contains low/moderate potential habitat for this species (Pajutee, 1997). **Penstemon peckii** is managed on the Deschutes National Forest under a Species Conservation Strategy which is valid (O'Neil 1992). The proposed action is consistent with this conservation strategy.

DETERMINATION OF IMPACTS:

No action: No impact

Proposed action: No impact

E. **Mimulus jepsonii** Jepson's Monkeyflower

Status: Natural Heritage:

ONHP: List 2

R-6 Sensitive Species List

(Will remain on revised list of 1997 despite not being included on the first draft revision (Longrie, 1997)

Meinke (1992) demonstrated that **Mimulus jepsonii** has not, to date, been found on the Fremont National Forest. Reports of this species presence on the Fremont were based on erroneous taxonomy. Most of the known habitat for this species in Oregon is located on the Umpqua, Winema, and Deschutes National Forests. No lands on the Winema National Forest are proposed for exchange. Therefore populations on the Winema National Forest will be unaffected by this action. No occupied habitat for Mimulus jeppsonii is on land to be exchanged from the Forest Service to Crown Pacific on the Deschutes National Forest. Two parcels of Crown Pacific land, one with potential and one with occupied habitat, will be exchanged to the Forest Service. No known populations occur on the Fremont National Forest. Therefore no adverse direct, indirect, or cumulative effects are expected to this species on Forest Service lands as a result of the proposed action. A possible beneficial effect of the proposed action, however mild, may occur from transfer of the two parcels of Crown Pacific land which contain potential habitat and occupied habitat. This possible beneficial effect would not occur under the no action alternative.

DETERMINATION OF IMPACTS:

No Action: No impact

Proposed Action: No impact likely but possible mild beneficial impact.

F. **Artemesia ludoviciana** ssp estesii

Status: Natural heritage: G5T2

R-6 Sensitive Species List

USF&WS: SoC

A survey conducted on June 13, 15, and 21, 1995, along the floodplain of the Little Deschutes River in the Rosland Campground T22S R10E S2 revealed the presence of approximately 700 stems of **Artemesia ludoviciana** ssp estesii. The current global population is not precisely known but estimates of several million stems located along a 20.5 mile stretch of the Deschutes River Drainage have been made by Brounstein (1996). A biological evaluation was prepared in 1995 by botanists on the Bend Fort Rock RD for a proposed land exchange of the Rosland campground parcel, along the Little Deschutes River, from the Deschutes National Forest to Deschutes County (Levack, 1995). The transfer of ownership represents a transfer of about .0007% or less of the global population of **Artemesia ludoviciana** ssp estesii.

DETERMINATION OF IMPACTS:

No Action: No plants would change ownership. The campground would remain in Forest Service ownership and continued overnight camping would be allowed. Unless specific protective measures were instituted by development of a conservation strategy the possibility of damage by recreational use exists. The plants are located in an area that is away from the main campground and are thus at low risk of recreational damage. Under the no action alternative, the Forest Service would continue to monitor the population and take protective action if needed. Under the no action alternative no impact is likely.

Proposed Action: Approximately 700 stems of **Artemesia ludoviciana** ssp estesii would change ownership. This represents about .0007% or less of the estimated global population. The parcel is proposed for exchange to Crown Pacific who have plans to transfer ownership to the LaPine Parks and Recreation Dept. The area would continue to be managed for recreational use. The impacts to the **Artemesia ludoviciana** ssp estesii under this proposal are not determinate and measurable. This in combination with the low percentage of the global population being transferred leads to the conclusion that the proposed action may impact individuals but will not cause a loss of viability or a trend to federal listing of Estes' Artemesia.

RECOMMENDATION:

It is R-6 policy to manage R-6 sensitive species by Conservation Strategies whenever actions under the control of the Forest Service may have an adverse impact on the viability of these species. Conservation strategies assemble known biological information and assess any known or potential threats. Standards for the maintenance of protected populations, definition of what measures can be taken to ensure viability, and standards of

monitoring and future research needs are assembled in these documents. In the case of **Botrychium pumicola** a lack of knowledge about the disturbance ecology, genetics, and threats as well as possible mitigation measures is lacking at the present time. It is recommended that the development of a Conservation Strategy be prioritized, that a method such as the challenge cost share program be utilized and supported in cooperation with a qualified research organization, and that partners present to the Forest Supervisors of the Deschutes, Winema, and Fremont National Forests, the Superintendent of Crater Lake National Park, and the District Manager of the Prineville BLM District a fully implementable conservation strategy by December 31, 1998. It is further recommended that if the proposed action is decided upon that since Crown Pacific will have approximately 3.6 percent of the global population on lands under it's ownership that the company participate in development of the knowledge base for this species by being a partner in the development of the conservation strategy. This may include continuation of company policy allowing open access to its lands by researchers who may wish to study populations on lands managed for commercial timber production or other participation by Crown Pacific. It is also recommended that Crown Pacific and the LaPine Parks and Recreation Department be advised of the presence and location of **Artemesia ludoviciana** ssp estesii occupied habitat and urged to protect the sites from damage.

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APPENDIX I

SUMMARY OF BIOLOGICAL EVALUATION

Crown Pacific/USFS Land Exchange

Blanks indicate no need to fulfill this step.

PLANTS	Step #1 PREFIELD REVIEW Habitat Present?	Step #2 FIELD RECONNAISSANCE Habitat Present?	Step #3 RISK ASSESSMENT Intuitive risk from narrative
Artemesia ludoviciana Nutt estesii	Yes	Yes	L
Astragalus peckii Piper.	Yes	Yes	L
Botrychium pumicola Cov. in Underw.	Yes	Yes	L
Castilleja chlorotica Piper	Yes	No	O
Mimulus jepsonii Grant	Yes	No	O
Penstemon peckii Pennell	Yes	No	L

HABITAT/SPECIES PRESENT: Y = yes, N = no

RISK ASSESSMENT/RISK?: 0 = none, L = low, M = moderate, H = high.

Supporting documentation for evaluation of habitats and species, survey design, and intensity and risk assessment are included in the support file for this environmental assessment and are available for review at the Silver Lake Ranger District, Crescent Ranger District, Bend Fort Rock Ranger District, Sisters Ranger District, and Chemult Ranger District.

DNF Home Page | NEPA | SO Documents | Crown Exchange

http://www.fs.fed.us/r6/deschutes/desnf/manage/nepa/documents/so/crown/apend-d.html
Last Update: 3/22/98
R.A. Jensen

USDA FOREST SERVICE
CROWN PACIFIC LIMITED PARTNERSHIP
LAND EXCHANGE

FINAL ENVIRONMENTAL IMPACT STATEMENT

APPENDIX G

RESPONSE TO COMMENTS

A. Introduction

A 60-day comment period was provided for interested and affected publics, including appropriate local, State, and Federal governments and agencies. This period lasted from November 14, 1997 until January 9, 1998. During this period, the Forest Service received a broad range of comments from many sectors of the public. As discussed in the Record of Decision (ROD), comments were incorporated into the decision by the responsible officials. Some comments resulted in additional analysis, such as more study of the recreational use in the Tumalo area. Comments also resulted in modifications to the Proposed Action Alternative, as described in the ROD. Ultimately, the responsible officials weighed the comments in the context of the benefits of meeting the project purpose and need.

Approximately 1,040 separate pieces of mail were received during the comment period. Comments were categorized into general categories, and as necessary, placed into subcategories. The bulk of the comments focused on the following specific areas:

1. **Social:** Many people who commented and attended public meetings were concerned that the DEIS did not take into consideration the human element impacted by the land exchange. They felt that social and economic impacts were not fully addressed and that effects to adjacent property owners were not taken into consideration. Concerns were raised about the importance of maintaining a "green belt" of public lands between existing blocks of private lands in order to prevent future development and to provide area residents with open space adjacent to development. Many people expressed concerns about what the proposed land

exchange would do to their property value. Other comments raised concerns about the indirect effect the land exchange would have on their quality of life. These commenters were primarily adjacent or nearby landowners, who regularly recreate or otherwise use the national forest lands closest to their properties. Most of the commenters in this category stated they had purchased their property primarily because of its location next to National Forest Systems, or in some cases BLM, lands. Many comments conveyed the property owner's sense that when they purchased land next to NFS lands, their expectation was these lands have and would remain "the same" as the current condition for as long as they owned the land, particularly the vegetative and recreational access conditions.

2. **Future Management:** Besides what people feel is a threat to their relative privacy, isolation, and personal enjoyment of the National Forest lands, they are also concerned that the conditions will change so drastically under Crown Pacific management as to diminish or eliminate their personal satisfaction with their own property. Some expressed the concern that logging operations would commence nearby when Crown Pacific logs the acquired lands, and that they would be affected both directly from the removal of the natural setting surrounding their home, and indirectly from the dust, noise, and increased log truck traffic associated with harvest activities. Some commenters also felt that Crown Pacific is a desirable neighbor, that they contribute to the local economy and their forested lands also provide amenities to their quality of life. Concerns were also raised about potential residential development within these newly acquired Crown Pacific lands.

3. **Public Interest:** People who wrote comments of support cited the land exchange as being in the general public interest, that it resulted in the acquisition of wetlands, especially in the Tumalo Canyon area, and that the consolidation of lands for wildlife management would be desirable. However, many people raised questions about the public interest served with regard to the area near Tumalo because of its recreational value. They suggested that the lands surrounding subdivisions be removed from the land exchange proposal. Commenters who raised this concern included but were not limited to those who own land adjacent to exchange parcels (Ponderosa Pines and other subdivsions). Many commenters in this category could not see how the exchange was in the public's best interest.

4. **Access:** There were substantial numbers of comments from the Ponderosa Pines subdivision landowners concerning their fear that Crown Pacific, after gaining ownership of the proposed lands, would limit, restrict, or affect their existing use of the lands in question. They were concerned that fences would be built and cited the example of existing Crown Pacific lands that were fenced along Masten Road. They were also concerned that their opportunities for recreational activities such as walking, hiking, horseback riding, bird watching, ATV riding and others would be curtailed, reduced or eliminated by the new ownership of lands by Crown Pacific.

Numerous residents of the Tumalo area commented on their concern about transferring land from the NFS to CP. Their belief is that CP would limit their access to recreate on lands. They believe that the Tumalo area offers a unique situation close to a residential area for a variety of recreation activities such as hiking, biking, walking, horseback riding, etc. A few commenters stated that their feeling was that the exchange would result in no change to the opportunities for recreation on Crown Pacific lands. They stated that recreation and access is already occurring on Crown Pacific lands, including the Tumalo area, and that people may not be aware of when they were on federal lands or on private timber company lands.

5. **Wildlife:** Concerns were raised that the exchange will have an impact on wildlife habitat, including mule deer and elk, especially winter range and migration corridors.

6. **Late and Old Structure (LOS):** The bulk of these comments expressed a desire to retain large trees in the public ownership, and so requesting a change in the proposal to keep areas of LOS under Forest Service management

7. **NEPA:** Concerns were raised about having enough information to make a decision, especially in the areas of recreational use and LOS. Concerns were also raised about the range of alternatives pursued during the analysis, as well as the public involvement/notification methods that were used during the planning effort.

8. **Appraisal:** Comments raised concerns about the lack of disclosure of values used in the appraisal. Commenters felt it was difficult for reviewers to gauge public interest when the appraisal information was not made public. Questions also arose over how non-commodity values where accounted for in the appraisal, and whether they had been given adequate weight to avoid "giving lands away."

Other categories of comments were the following:

- Cultural Resources (in particular, sites near Pot Hole Spring),
- Fire Protection (especially near Ponderosa Pines subdivision),
- Forest Health,
- History of the Exchange,
- Lands,
- Noxious Weeds,
- Recreation,
- Riparian,
- Sensitive Plants,
- Sisters 16-acre parcel,

- Timber,
- Water Quality.

Of the 1,040 pieces of mail that offered comment on the proposal, more than half of the respondents (550) voiced their concerns on form letters, pre-printed postcards, a newspaper clip-out coupon, a survey form, and a petition. Of the 2,457 comments counted, 1,150 were offered on one of the as the mass-produced comments forms. The rest of the respondents (about 500) offered about 1,300 separate comments. Although all comments received review, substantive comment received the focus during this comment analysis. Therefore, comments received repeatedly on a postcard or other mass-produced input method have been considered once in their respective categories. For instance, 75 postcard comments expressed concern with future residential development potential on the lands that would be conveyed to Crown Pacific through this exchange. This comment has received a response, located in the "Future Management" category, under the "Development" subcategory.

A few comment letters were received after the end of the comment period. Although not required to consider these comments, the planning team reviewed them and responded to those comments that had not already been given a response. This review found a case where the Oregon Dept. of Fish and Wildlife raised a question about white headed woodpecker viability that had not been previously raised, and so the team elected to respond to this comment. Upon review of other comments that came after the comment period ended, no additional responses were necessary.

B. Comments and Responses

As part of the comment analysis, each piece of correspondence was logged in with a reference number. As comments were identified within each piece of correspondence, a second number was assigned. For example, comment number 100-2 represents the second comment taken from letter number 100. These numbers have been used throughout the comment analysis to assure each comment receives a response.

Once a comment was identified, it was placed into a category (and subcategory as appropriate). Generally, responses were developed to answer questions or provide references to analysis contained in the DEIS, FEIS, or other documentation. Comments may have been answered singly or in groups, with the aim being to provide as specific a response as possible, while avoiding a large amount of duplication of responses.

This Appendix offers a large sample of comments in order to provide an accurate flavor of the input received. However, this document does not provide a complete list of comments.

The project file includes a list of comment letters, as well as a list of comments and the categories into which they have been placed. These lists are available upon request.

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http://www.fs.fed.us/r6/deschutes/desnf/manage/nepa/documents/so/crown/apend-g.html
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