ENVIRONMENTAL ASSESSMENT

JOKER II RESTORATION PROJECT
And
FOREST PLAN AMENDMENT #23 CREATING BALD EAGLE MANAGEMENT AREA

Paisley Ranger District
Fremont National Forest
Lake County, Oregon

T.35 & 36S. R.18 & 19E.

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United States Department of Agriculture
Forest Service

Document Structure

The Forest Service has prepared this Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. The document is organized into four parts:

Chapter 1 - Introduction: The section includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.

Chapter 2 - Alternatives: This section provides a more detailed description of the agency's proposed action as well as any alternative methods for achieving the stated purpose. These alternatives were developed based on significant issues raised by the public and other agencies. This discussion also includes possible mitigation measures. Finally, this section provides a summary table of the environmental consequences associated with each alternative.

Chapter 3 – Affected Environment and Environmental Consequences: This section describes the environmental effects of implementing the proposed action and other alternatives. This analysis is organized by resources. Within each section, the affected environment is described first, followed by the effects of the alternatives.

Agencies and Persons Consulted: This section provides a list of preparers and agencies consulted during the development of the environmental assessment.

References and Literature Cited: This section provides full references and literature citations used in the Environmental Assessment or for support of resource documents and reports.

Appendices: The appendices provide more detailed information to support the analyses presented in the environmental assessment.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Paisley Ranger District Office in Paisley, Oregon.

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I Chapter 1 - Introduction

This environmental assessment documents the interdisciplinary analysis of a proposed action on the Paisley Ranger District of the Fremont National Forest. The objective of this project is to manage the natural resources within the capabilities of the land and the *Land and Resource Management Plan of the Fremont National Forest* (Forest Plan), as amended.

a. Project Location

The Joker II Restoration Project covers approximately 12,076 acres of National Forest System land on the Paisley Ranger District. The analysis area lies west of Clover Flat and east of the Morgan Butte/Moss Pass ridge. The Chewaucan Marsh subshed encompasses the analysis area, which is located in the Lake Abert watershed. Access to the project area is by Lake County Road 2-10A and Forest Service Roads 3510 and 3510.018. It is approximately 9 air miles south of the city of Paisley. The midpoint legal is T35S, R19E, Section 28. Proposed units are located in T35S, R18E, sections 1 and 2; T35S, R19E, sections 6,17, 19, 20, and 34; and T36S, R19E, sections 2, 3, 4, 10, 11, 14, and 15; all in Lake County (see project map, Appendix 1).

The entire analysis area covers approximately 12,076 acres of ponderosa pine, mixed conifer, and juniper woodlands with numerous small meadows and aspen groves interspersed. The upper reaches of Avery, Fisher, Schoolhouse, N. Fork King, King, Newell, Moss, Green, and Pine Creeks and several other small drainages and ponds are contained in the project area. The proposed action would result in an estimated production of 2.8 million board feet (mmbf) of timber. The planning area, consisting only of Federal lands, encompasses four management areas as allocated in the Forest Plan (see Management Area map, Appendix 1).

Summary Of Management Areas

Management Area	Emphasis	Acres
1	Mule deer Forage & Cover on Winter Range	5090
5	Timber & Range Production	4080
6b	Scenic Viewsheds	2846
14	Old Growth Habitat	60

These management areas are further addressed in the Forest Plan starting on page 132. Management Area 6b is available for active management. However, visual quality will be taken into consideration during management activities following the Forest-wide Standards for scenic management (Forest Plan, p. 114).

Capable forestlands within the Joker II analysis area cover approximately 58% and consist primarily of ponderosa pine and mixed conifer stands. Approximately 57% of the forested habitats occur in late and old structure (LOS), with the majority of the remainder being in early-mid seral structure due to past management practices. The nonforest habitats consist of open meadows with some willow and aspen, stands of scattered juniper, mountain mahogany, and open brush lands.

b. Background

The Joker II area was originally analyzed as the Joker Timber Sale in 1993. The proposed action presented to the public at that time would harvest approximately 1.6 million board feet of green and dead timber. In 1994, the Regional Forester's Eastside Forest Plan Amendment was adopted. Some of the units within the Joker Timber Sale conflicted with the amendment so the decision was made in February of 1995 to implement the Joker Salvage Sale – just the salvage part of the Joker Timber Sale. The Joker area remained a concern because of continuing mortality in the late and old structured stands and the increasing fuel loads in already high concentrations. The threat to the Avery Creek bald eagle roost site increased this concern. The area was re-identified for analysis in 1996 but then set aside after severe windstorms the winter of 1996/1997 shifted priorities. In May of 1998, the project was put back on the Schedule of Proposed Actions, and analysis of Joker II started the summer of 1998.

c. Purpose of and Need for Action

The purpose of this initiative is to change vegetative conditions in the analysis area towards conditions envisioned by the Forest Plan for the included management areas. Specifically, the project is aimed at maintaining the health of the large, old overstory trees within forest stands. With respect to the difference between the current and desired condition within the Joker II Analysis Area, the objectives of this project are to:

> Tend, by understory removal, thinning, and fuels treatment, late or old stands with multi-storied structures and mid seral stands so as to produce, maintain, and enhance single storied late and old forest characteristics as identified in the *Regional Forester's Eastside Forests Plan Amendments*. Resultant stands could be prescribed for underburning activities within the context of the greater landscape at a future date.
>
> Improve wildlife habitat, riparian health conditions, and other special features such as range productivity, aspen stands, and meadows with respect given to landscape connectivity between late and old structure (LOS) habitat. Promote diversity between stands (and to some extent within stands) by maintaining diverse seral structure within post-fledging areas (PFA), Maintaining a continuum of large live and dead ponderosa pine for winter roosts and not treating key areas in the amount and proximity that serve as important wildlife habitat (e.g. retaining snag clumps, big game cover, stands remaining dense and at risk of insect or disease attack). Consider possible road closures as a tool to improve habitat effectiveness. Protect Bald Eagle populations by providing final boundaries for a proposed Bald Eagle Management Area (BEMA). Improve habitat with a special emphasis of improving those values critical for bald eagles in this area, namely roost trees.
>
> To the extent in excess of the ecosystem's desired needs, provide wood fiber in the form of merchantable products to the timber dependent portion of the local economy.

This action is needed because past management practices, including timber harvest and fire suppression, have resulted in conditions that depart from historical conditions. Historic single-storied forested stands now tend to be multi-storied, with substantial regrowth of conifers in the middle and lower stories. This results in stress on the remnant overstory trees, making them less vigorous and more vulnerable to insects and disease. Encroaching conifers have also had an impact on aspen and meadow areas, reducing their vigor and extent. This action responds to the goals and objectives outlined in the Fremont Forest Plan, including that all bald eagle habitats be managed as outlined in the *Fremont National Forest Bald Eagle Management Plan*, and helps move the project area towards desired conditions described in the Forest

Plan (*Final Environmental Impact Statement, Land and Resource Management Plan, Fremont National Forest 1989, as amended*.).

d. Proposed Action

The action proposed by the Forest Service to meet the purpose and need is to use silvicultural treatments along with associated resource projects to restore and maintain the desirable ecosystem values as described by the Forest Plan as amended. The intent is to maintain the health and abundance of the trees that provide or will provide old growth structures and habitats necessary for a variety of late and old structured stand dependant species. This would be accomplished by partial cutting and harvest of approximately 600 acres of ponderosa pine and mixed conifer forest, removing and/or thinning excess conifers from the middle and lower strata. Encroaching conifers will also be removed from aspen stands to enhance or protect these stands. Habitat improvement includes road closures and obliterations.

Included in this proposal is the redesignation of approximately 1085 acres of Management Area 5 (Timber and Range Production) as Management Area 2 (Endangered and Threatened Species). This would be accomplished with a site-specific Forest Plan amendment. Timber harvest will be used in this area to enhance and perpetuate bald eagle habitat as stated in the Forest Plan (p.135).

e. Decisions to be Made

The Deciding Officer is the Fremont National Forest Supervisor. Given the purpose and need, the deciding official will review the analysis to make the following decisions:

1. Whether or not to implement habitat restoration activities in the Joker II analysis area at this time.

2. Whether or not to reallocate 1085 acres of Management Area 5 as Management Area 2, requiring a Forest Plan amendment.

If the action alternative is selected, the Joker II Restoration Project would tentatively be implemented in 2002.

f. Scoping

The proposal was originally listed in the Schedule of Proposed Actions in February 1997. The proposal was provided to the public and other agencies for comment during scoping March 10, 1997 – April 11, 1997.

Using the comments from the public, and other agencies, the interdisciplinary team developed a list of issues to address.

g. Issues

Issues were identified during the initial IDTeam analysis, public scoping, and Forest specialists' input. Five issues were identified as key, or influencing alternative development. This section presents a brief discussion of those issues.

1. Stand Health – The condition of this area has been a concern for a while and was originally analyzed for health treatment in 1993. At that time, over 750 acres were heavily infested with fir engraver and close to 700 acres with mountain pine beetle. White fir encroachment has also

increased ladder fuels threatening the stands from a wildfire perspective. Measurement will be by number of acres treated.

2. Bald Eagles - There is a bald eagle roost site in the northern portion of the analysis area. This area needs protection and stand management to maintain desirable roost characteristics, which are threatened by white fir encroachment and reduced stand health. This area is proposed for a Bald Eagle Management Area (BEMA) through this analysis. Measurement will be by number of acres treated and establishment of the BEMA.

3. Goshawks - District records indicated several goshawk nests in the area. Surveys conducted in 1994 showed two nests active. Activities may need to have mitigation measures. Measurement will be by acres of habitat treated by management.

4. Fuel Loading - Current average fuel loading is greater than 50 tons per acre, which puts the area in Mod 13 - an intense condition. This is further exacerbated with the fir encroachment providing ladder fuels into the upper canopies. Measurement will be by the increase or decrease of fuel loads.

5. Winter Range - Forty two percent of the area is in Winter Range. Cover is an important component of Winter Range, with thermal cover more important than hiding cover. Habitat effectiveness should be 80% in winter range. The area does not currently meet habitat effectiveness requirements. Measurement will be by ratio of cover to forage and percent of habitat effectiveness.

h. Issues Designated as Not Key

The IDTeam identified two other issues during scoping. However, through the analysis process, these issues were determined to be part of management objectives and would be addressed as such throughout the analysis. These two issues were road density, which is high for the management areas present in the analysis area; and the presence of the National Recreation Trail, which will require visual prescriptions for units adjacent to the trail.

II Chapter 2 – Alternatives

a. Formulation of Alternatives

This chapter describes the alternatives identified to meet the purpose and need described in Chapter 1. The IDTeam used the key issues and standards and guidelines in the Forest Plan to select alternative development. Maintaining cover especially in winter range; allowing for the increased costs of harvesting small diameter trees on steep slopes; and, maintaining nest stands and riparian conservation habitat areas reduced restoration options across the area. Because of this, the acting deciding official agreed with the two alternatives developed and analyzed by the Team.

b. Alternatives Considered in Detail

Alternative 1 – No-action

This alternative would forgo any restoration activities at this time. Under this alternative the ponderosa pine and mixed conifer stands would continue to experience changes in species composition and/or increased stand density further departing from the desired condition of single storied LOS stands as identified in the Regional Forester's Eastside Forest Plan Amendment. Shade tolerant white fir would continue to overtake ponderosa pine, changing the species content over time. The increase in white fir would also create more ladder fuels in an already high fuel load area. Conifer encroachment would continue to decrease aspen stands and meadows. The loss of existing large diameter ponderosa pines and potential replacement trees would diminish roost areas for the bald eagles. Wildlife habitat would change slightly over time with natural succession. Road densities would remain the same affecting the winter range and habitat effectiveness.

Alternative 2 – Proposed Action

This alternative would implement restoration projects across the analysis area and redesignate 1085 acres of land classified as Management 5 to Management 2. To restore or maintain late and old structure stands, approximately 600 acres of ponderosa pine and mixed conifer forests would be partially cut, removing and/or thinning excess conifers from the middle and lower stratum. This action would maintain the presence of trees that provide old growth structure while reducing the stress placed on these trees by the dense understory. Units restoring structure in the proposed bald eagle management area would have trees thinned from beneath selected dominant and codominant ponderosa pine trees to decrease competition and promote healthier large trees for roosting. Patches of commercial sized trees would be left where they are in proximity of existing clumps of older snags so that snags would not be threatened with felling for safety. Stand structural diversity would move toward historic range of variability by restoring ponderosa pine back into mixed conifer stands where ponderosa pine had been removed and not afforded the environment to regenerate and grow. The action would also restore goshawk post fledging areas opening forage areas and maintaining mature ponderosa pines and healthy white fir, where they exist. Approximately 2.8 million board feet (mmbf) of wood volume would be harvested from 15 units (see map, Appendix 1). One unit, unit 1 in the bald eagle management area, would be precommercially thinned only. All of the units would be tractor logged using existing or designated skid trails. Units 9 and 13 would require short temporary roads that would be obliterated upon completion of sale activities.

c. Elements of Alternative 2

Activities associated with the action alternative and reviewed by the ID Team are:

*Precommercial thinning/cleaning would occur in all areas of commercial harvest and unit one. Thinning would be to various degrees to address the needs of the area - BEMA areas would have different thinning requirements than the goshawk post fledging areas, which would be different than the leave tree marked areas. Slash from post sale cleaning and thinning would be lopped and scattered to control fuel accumulations. Prescriptions are designed for entry with prescribed fire within five to ten years.

*Preparation of a Bald Eagle Management Plan to compile and analyze trends of the winter bald eagle populations and to construct site specific management of the roost site.

*Road closures and obliterations: Closure of approximately 8.94 miles of road and obliteration of 3.89 miles of road. Closure consists of constructing dirt berms, or placing rock or large forest debris at the road entrance. Obliteration consists of ripping, bank pulling, filling, and, where possible or needed, seeding to put the roads to bed. See Appendix 2 for complete road closure/obliteration list.

*Enhance and protect aspen stands by removing the competing conifers leaving them in place to discourage ungulates in the aspen stands.

The upper reaches of Avery, Fisher, Schoolhouse, N. Fork King, King, Newell, Moss, Green, and Pine Creeks along with several other small drainages and ponds are in the project area. Riparian Habitat Conservation Areas, as designated by the Inland Native Fish Strategy Environmental Assessment and Decision Notice (INFISH), will be avoided except in those areas identified for riparian habitat improvement (associated activities).

Mitigation Measures

Mitigation measures have been designed to minimize or prevent effects of the proposed action on cultural resources, soils, wildlife, air quality, noxious weeds, watershed and riparian resources, and proposed, endangered, threatened, or sensitive (PETS) plant and/or wildlife species. These are:

<u>Wildlife</u> (Wildlife Report, Joker II Analysis File)

Approximately 1085 acres of the Joker II Restoration Project, which are currently designated as Management Area 5, will be redesignated as Management Area 2 under a site-specific Forest Plan amendment (Appendix 3). Mitigations will require:

*Establishment of an area closure for the Avery Bald Eagle Management Area from November 1 to May 1 (Wildlife Report, Analysis file).

*Protection of snags within the BEMA during any stand treatments (Wildlife Report, Analysis file).

*Should eagles be observed utilizing perch, roost, or nest trees within the planning area, operations should be halted within 1/4 mile of observed activity until the wildlife biologist has determined that operations will not disrupt eagle activity.

*Should any proposed or listed endangered, threatened, or sensitive species be found during project activities within, adjacent, or near enough that activities could be a disturbance, activities will be halted until their effects can be determined and their significance assessed.

*If an active raptor nest is found during operation, Forest Plan Standards and Guidelines will be followed at a minimum. The Forest Plan states that any major activity adjacent to an active raptor nest should be postponed until the young have fledged.

*Activities near the goshawk nest sites will be restricted from April 1 - August 15. No activities may occur within this time period in units 8 and 15 unless the district wildlife biologist has determined that nesting is not occurring. Harvest and thinning prescriptions for these units will be designed with coordination between the wildlife biologist and silviculturist (Wildlife Report, Analysis file).

*Maintain all snags not presenting a defined safety hazard. The wildlife biologist will assist with identification of important snag clumps and nest trees during layout.

*Interior roads opened to access units will be closed again following harvest activity.

Soil, Water, Fisheries (Soil/Water Report, and Short Biological Evaluation Proposed, Endangered, Threatened, and Sensitive Fish Species; Joker II Analysis File)
*Best Management Practices (BMPs) specific to timber harvesting, roads, and pertaining to the units in the action alternative will be followed. These include locating landings outside of riparian zones, seasonal limitations on logging, erosion control on skid trails and landings, distance between skid trails at a 100 foot minimum, designated skid trail and landing locations, and the placement of units and type of harvest method used based on soil type and slope. Appendix 4 lists the BMPs.

*If Riparian Habitat Conservation Areas that contain PETS fish species are discovered during operations, mitigation measures will be developed as needed. Stop activities where practical and coordinate immediately with fisheries biologist.

*INFISH buffer standards will be followed. Moss Creek, Newell Creek, Green Creek, and other perennial non-fish-bearing streams require a 150' buffer strip on both sides of the streams. Intermittent streams and small wetlands require a 50' buffer on either side. These buffers are minimum widths. Limited work in aspen stands will be conisistent with INFISH, section TM-1. Unit layout should be coordinated with the hydrologist or fisheries biologist to determine site specific buffer widths.

*Open meadow/grasslands, springs, and drainages not identified for riparian vegetation enhancement activities, will have buffers, determined by the hydrologist/fish biologist, to reduce effects on unique habitats and edge.

*All previous improvements such as fences, water holes, spring developments, etc., will be protected and repaired if any damage results from this project.

d. Treatment Summary by Unit

Unit	Ac.	Leave Tree Spacing	Total Volume CCF	Current CC*	CC Post Treatment	Comments
1	23	2cr* off PP	0	50	40	PBEMA*, Precommercial thin only in LOS.
2	18	2cr off PP	104.4	70	45	PBEMA, LOS restoration
3	20	2cr off PP	96.0	60	45	PBEMA, LOS restoration
4	18	2cr off PP	86.4	60	45	PBEMA, LOS restoration
5	12	2cr off PP	80.4	70	50	PBEMA, LOS restoration
6	32	2cr off PP	339.2	60	45	LOS restoration
7	98	2cr off PP	568.4	70	50	Thermal cover, LOS restoration
8	50	2cr off PP	290.0	60	50	PFA*, LOS restoration, partial low thin in ponderosa
9	33	35-45	511.5	>55	25	Low thin in mid seral ponderosa pine.
10	37	30-40	381.1	>55	29	Low thin in mid seral ponderosa pine.
11	34	30-50	387.6	>55	23	Low thin in mid seral ponderosa pine.
12	80	35-45	1248.0	>55	27	Low thin in mid seral ponderosa pine.
13	45	25-35	373.5	>55	20	Low thin in mid seral ponderosa pine.
14	82	35-50	820.0	PP >55	21	Low thin in mid seral ponderosa pine.
15	15	2cr off PP	28.5	CW 41	35	PFA, LOS restoration

Total volume = 5315.0 CCF (2.8 mmbf)

*cr = crown radius, CC = crown closure, PBMEA = Proposed Bald Eagle Management Area, PFA = post fledgling area

e. Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in the table is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

Issue	Measurement	Alternative 1	Alternative 2
Stand Health	Acres Treated	0	600
Bald Eagle Habitat	Acres Treated BEMA Established	0 No	91 Yes - 1085 acres
Goshawk Habitat	Acres Treated	0	65
Fuel Loading	Increase/Decrease	Remain the same Increase over time	Decrease
Winter Range Habitat	Cover:Forage Habitat Effectiveness	84:16 32%	71:29 39%

f. Alternatives Dropped From Detailed Analysis

An alternative to treat an additional two units was dropped from further analysis when a field visit identified these units as prime winter range habitat. Current winter range habitat effectiveness is well below the Forest Plan standards and guidelines and treatment of these units would have lowered habitat effectiveness even more. Given the limitations of the area such as steep slopes with encroachment of small diameter white fir, low winter range habitat effectiveness, and sensitive species considerations, the responsible official felt the two alternatives was a reasonable range.

III Chapter 3 – Affected Environment and Environmental Consequences_____

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. The chapter is broken into resources with the current condition of that resource within the project area described first. The environmental consequences of each action on that resource are then described. It also presents the scientific and analytical basis for the comparison of alternatives presented in the chart above.

a. Soils

(Soils Report, 11/06/2000; Soil/Water Report, 02/9/2002; Soil Productivity Guide, revised 07/24/2000, amended 02/11/2002 - Joker II Analysis File)

The Soil Resource Inventory (SRI) of 1979 classifies the soils of the Fremont National Forest land-types or complexes--made up of various percentages of land types. The soils within the project area are dominated by complex number 688 (made up of 40% of 68B, 30% of 74B, and 30% of 67B) and 648 (made up of 50% of 67B and 50% of 68B). Three land types (SRI units 67B, 68B, and 74B) make up the majority of the project area. These land types are classified as fair to unsuited for tractor logging. This rating is dependent upon the slope of the unit. A unit with slope greater than 35% is unsuited for tractor logging while anything less than 35% is rated as fair. The slope of the units within this project are all predominantly less than 30% and thus rated as fair for tractor logging. Moderate to high impacts from tractor logging are predicted with the damage type ranging from soil displacement to compaction and a potential increase in mass movement resulting in rotational slumps.

All soil units within the project area are classified by bedrock type as residual and colluvial soils from pyroclastic rocks.

Units 67B and 68B are highly similar with the exception of soil texture. Surface soils are moderately coarse or coarse textures in Unit 68B while Unit 67B is medium or moderately fine textured. Unit 67B and 68B are both deep, clayey residual and colluvial soils derived from tuffs with mixed conifer timber types, occur in dissected topography on slopes which range from 16 to 40 percent, and well drained with moderate to slow permeability. Unit 74B is characterized by gravelly to very cobbly residual and colluvial soils with mixed coniferous timber types, soil layers are thin and coarse textured, range in slope from 16 to 40 percent, and excessively drained with rapid to very rapid permeability.

Portions of 6 of the 14 harvest units within the Joker II Project Area were monitored to determine current soil impacts (primarily compaction which included system roads, landings, spur roads and skid trails; as well as lands detrimentally compacted, puddled, displaced or eroded). The following table shows the results for each unit, as well as what was estimated from aerial photo interpretation – estimates of soil impacts were made for every unit within the Joker II Project Area and broken down into the following categories: Low 0-20% impacts, Moderate 21-34% impacts, and High = 35% impacts.

Unit #	Major Soil Type	Soil Impacts – Field Surveyed	Estimated Soil Impacts - Aerial Photo Interpretation
1	688	29%	Moderate
2	648	15%	Moderate
3	648		Moderate
4	57		Moderate
5	688		Moderate
6	688		Moderate
7	648		Moderate
8	648	8%	Low
9	63B		Low
10	63B	13%	Moderate
11	67B	29%	Moderate
12	63B		Moderate
13	30A		Low
14	68B	16%	Moderate

Several of the units monitored (2, 10, and 14) were found to have lower soil impacts than estimated. Actual impacts were generally lower than the Aerial Photo Estimated Soil Impacts. It is probable that natural processes such as shrink swell, frost heave and root penetration are breaking up compaction over time; thus, the actual impacts are lower than the mapped impacts. This supports the mitigations discussion below. The moderate and high numbers associated with those areas of past entries are consistent with results from other timber sale harvest units monitored on the Fremont National Forest. Forest-wide monitoring data shows cumulative results that are typical across the Forest with soil compacted in a range of 20 to 40% in tractor logged areas.

Soils - Alternative 1

Existing road systems, high current soil disturbances, and grazing activities will continue to increase sediment over natural levels, but total sediment yields would remain constant under this alternative partly due to road densities. No new or temporary roads would be constructed, nor would existing skid trails or other compacted areas be treated. Cumulative effects are still expected within the analysis area due to past harvesting activities, grazing, roading and fire management. Large organic debris in the uplands would be increased by the addition of dead and/or dying trees with the implementation of this alternative. No adverse impacts to soil resources (no direct or indirect effects on soil compaction or erosion, soil displacement, or nutrient cycling within the project area) or water quality is likely to result with the selection of this alternative. There is a high possibility, however, that this alternative would cause additional understory fuel build-up and would leave stands susceptible to further mortality and insect and disease occurrences. This would likely augment amounts of dead ladder fuels increasing the risk of catastrophic fire. A catastrophic wildfire could have a dramatic effect on the soils and hydrology of the area dependent upon the intensity and severity of the fire, including decreased evapotranspiration and possible increases in erosion and sedimentation, and could lead to increased cumulative watershed effects and decreased watershed health.

Soils - Alternative 2

The subwatersheds within the analysis area are at a moderate risk of cumulative watershed effects with risk factors that include: moderate to high road densities, compacted soil and past harvest impacts, and channel conditions (some channels within the area are downcut). Harvesting activities may contribute to these risk factors but the impact would be minimal, as BMPs will be followed. Upland watershed impacts from roads and compacted soils will be ameliorated, to a certain degree, by the obliteration of existing skid trails, spur roads, and landings that are used for this entry. Although soil compaction is above the 20% standard within a few units in the project area, following the Forests Soil Productivity Guidelines will aid in moving the area closer to Forest Plan Standards. The following discussion lends insight to these Guidelines.

The mitigation and resource protection measures discussed in the Fremont National Forest Soil Productivity Guidelines provide techniques for minimizing the effects of proposed harvesting activities on soil resources, and improving the existing condition in those areas where the LRMP standards and guidelines have been exceeded. These measures include: the use of designated skid trail systems, scheduling activities when soil strength is the highest (dry, frozen or snow covered), type of equipment used (low ground pressure equipment), and natural processes such as frost heave, shrink swell and root penetration to break up compacted soil. In some cases, soil tillage (subsoiling) would be used where roads, and other severe compaction occurs. Mitigation measures are found in the Fremont National Forest Soil Productivity Guide are built into the Fremont National Forest Best Management Practices for timber sales and roads. Following these guidelines would help achieve the goal of having less than 20 percent of the soil in a detrimentally impacted condition.

b. Hydrology

(Soil/Water Report, 02/9/2002 – Joker II Analysis File)

The entire project area is located in the Chewaucan Marsh Subshed and houses 39.72 miles (11.04 miles of perennial stream, 16.62 intermittent, and 12.05 miles ephemeral) of stream. The headwaters to the perennial streams of Moss Creek, Avery Creek, Newell Creek, Green Creek, and Pine Creek are located within the project area. All of the streams are non-fishbearing.

Staying within conifer densities described by the Historic Range of Variability (HRV) for various forest types helps maintain natural hydrologic conditions. Reduction of canopy cover below the given ranges can create an increase in peak flows. On the other hand, when forested stands exceed HRV for crown closure, the amount of water available to streams and other vegetation is drastically reduced. This reduction lowers shrub and grass density, soil cover, and infiltration rates. Review of the satellite imagery (ISAT) data illustrates 43%, or over 4,000 acres, exceed HRV on forested lands within the project area, while 85% of the ponderosa pine stands within the project area exceed HRV.

The channels within the project area are in generally fair to good condition. Level II stream surveys on Newell Creek and Moss Creek (completed in 1993) and field observations were used to determine this rating. The project area is characterized by a mixture of generally healthy streams with hardwoods and grass forbs lining the stream banks, and downcut channels that are disconnected from the floodplain.

Bank instability is localized and is documented in some areas as exceeding four to seven feet tall (Newell Creek Level II stream survey). These sites have undergone significant changes (creating small ponds along perennial streams), had road crossings undermined, and experienced heavy cattle use within the

riparian zones. These activities have altered the hydrologic function of streams and accelerated the active introduction of sediment into the channels.

Springs and seasonal seeps occur through out the project area. These areas and several riparian zones, characterized historically by vigorous aspen stands, are being encroached by conifers, which are or will out-compete the aspen.

Roads are a link between sediment source areas and stream channels. They influence peak flows, interception, and channel morphology. These adverse effects from road systems on aquatic resources should be decreased through permanent closure or obliteration to a road density less than 2.5 mi./sq. mi.

Hydrology - Alternative 1

The no-action alternative would not change sediment production in the project area. Existing roads would continue to introduce sediment into stream channels. The possibility of a mountain pine beetle or western pine beetle infestation, however, is rather high. This infestation would result in a decrease in evapotranspiration and possible increase in channel flows. Catastrophic fire is a concern with this alternative because of the high stand density and the abundance of ladder fuels. Current ongoing management practices, (i.e. grazing, road maintenance, personal use firewood cutting, etc.) within the project area would also continue with the selection of this alternative.

Hydrology - Alternative 2

Few adverse effects from harvesting are expected with the proposed action alternative due to the following factors:

1. No new road construction is necessary for harvest.
2. With the exception of limited work in aspen stands in RHCAs, units are located outside of RHCAs as defined by INFISH. Cutting or thinning of conifers from RHCAs is consistent with INFISH section TM-1, which allows work for riparian benefit.
3. Moderately gentle slope (predominantly <30%) within the project units reduce disturbance potentials associated with ground-based harvesting systems.

Best Management Practices (BMPs) and contract provisions will be included to maximize resource protection and should mitigate expected on-site impacts. Sediment would be reduced with implementation of road closures and decommissioning projects. Forest management activities have the potential to substantially alter water quality. They are regulated as non-point sources of pollution. In most cases, the use of BMPs and the retention of forested buffer strips along streams prevent unacceptable increases in steam temperatures, nitrates, phosphates and suspended sediment (Binkley and Brown, 1993).

Alternative 2 would decrease the number of stands that exceed HRV for crown closure by 14%. All of the units, post treatment, would be within an acceptable range of HRV. This could increase the amount of water available to nearby plants and allow for higher flows during dry summer months. Currently there are 4,000 acres (primarily ponderosa pine stands) which exceed the Historic Range of Variability (HRV).

Historic Range of Variability Post Alternative 2

VEGETATION TYPE	HRV	PRESENT CANOPY COVER	ACRES PRE PROPOSED ACTION	ACRES POST PROPOSED ACTION	% of FORESTED LANDS Post Action
Ponderosa Pine	11-25%	At HRV 11-25%	657	968	11%
Acres of PP = 4259		Above HRV 26-100%	3603	3293	36%
Mixed Conifer	26-55%	Below HRV 11-25%	1994	1994	22%
Acres of MC = 4899		At HRV 26-55%	2494	2742	30%
		Above HRV 56-100%	410	162	2%

All action within the units will take stands that exceed HRV and classify them as within the range of HRV after the proposed action is complete.

This alternative will obliterate 3.89 miles of road and close 8.94 miles of road. Open road density post alternative 2, would be 1.44 miles/square mile, which is in compliance with the Forest Plan.

c. Vegetation

Forested Stands – Issue 1 Stand Health

(Silviculture Report, 03/13/99 – Joker II Analysis File)

Throughout forested areas east of the Cascades, grazing practices and the exclusion of fire over the last century, has caused open, ponderosa pine dominated forest stands to develop into dense stands with shade tolerant white fir and juniper with largely suppressed ponderosa pine (at lower elevations) to dominate the understory. Recent management practices of the 70's and 80's were designed to maximize timber production by clear-cutting and planting pine, or removing the mature trees and thinning the understory. The presence of these dense understories is taxing the resources necessary to maintain the mature pine overstory. The shift of late and old structure (LOS) from single stratum to multiple strata is quite evident in the Joker II area (Table 1). In the shade of the mature overstory the white fir survives at higher densities that reduce overall stand vigor and prevent ponderosa pine regeneration. This altered pattern of succession and the effects of several consecutive years of drought have resulted in timber stands outside their preferred environmental habitat conditions and is causing a general decline in LOS habitat. Under such conditions, the stands are not as readily adaptable/resilient to climatic changes and are more susceptible to insects and diseases. These events are removing LOS within stands and will continue to turn LOS stands back to an early/mid seral composition with a species transition from pine to fir (Hopkins 1994).

Range of HRV by seral and structural stage in the Chewaucan River watershed compared to today's values in the Joker II area for the ponderosa pine series (percent of total ponderosa pine communities).

Seral Stage	1600-1850 %HRV^	Joker II Today*
Early-Mid Seral	10-15	43
Late-Old Single-Storied	60-80	2
Late/Old Multi-Storied	10-15	55

^ Data extracted from Regional Ecologic Assessment Project. Historic conditions are an average range over a 250 year period from 1600 to 1850.

* Current conditions evaluated from stand exams and field reconnaissance

With increased awareness to maintain LOS, management has shifted to address the health of these structures. During the past 15 years, the Paisley Ranger District has experienced various higher levels of mountain pine beetle attack in lodgepole pines stands in the north and fir engraver in white fir in the south (Joker II Analysis Area). During the last five years fir engraver had increased dramatically with mountain pine beetle and western pine beetle attacking ponderosa pine in the Joker II area. It is thought that fir engraver infestations are associated with Annosus root disease in white fir. This root disease is present throughout much of the District and is associated with white fir in the Joker II area. Mortality from fir engraver is anticipated to continue in stands with conditions described above. Considerable mortality, either directly resulting from bark beetles or following agents such as Annosus root disease, is resulting in a reduction of tree growth, vegetative cover, and wildlife habitat. In addition to this, practices of fire exclusion, overstocked stands, and increases in pest related tree mortality is considerably increasing the amount of natural down and dead woody material (fuel loads). The known fire history of the area and the increasing fuel loads make the likelihood of a high intensity large wildfire probable.

In the extreme northern portion of the analysis area, bald eagles are using both live and dead large old ponderosa pine as winter roosts. Two Northern goshawk nest-stands and post fledgling areas (PFA) have been identified in the central and southern portions of the analysis area. Both of these habitats are being threatened or have declined without readily available replacement territories.

Forested Stands - Alternative 1

At the landscape level, the majority of LOS in the Joker II area has experienced increased fir populations, leading to high levels of insect and disease activity, resulting in record levels of fuel accumulations. The 55% of existing LOS multi-storied stands (Table 1) are declining to earlier seral stages (Hopkins 1994) driven by the disturbances of insects, disease, and risk of intense fires. These conditions will continue under this alternative.

Forested Stands - Alternative 2

This alternative would treat approximately 600 acres of LOS or mid-seral stands to maintain the health and abundance of the trees that provide or will provide old growth structures and habitats necessary for a variety of LOS dependant species. This proposal is being designed for the economic removal of this smaller low value material and involves only ground based logging systems. The existing road system would be utilized with the exception of Unit #9 and #13, which require short temporary roads that would be

obliterated upon completion of activities. No Inventoried Roadless Areas or Dedicated Old Growth Areas would be treated.

Competition in the treated units would be reduced, lessening the continued occurrence of insect and disease infestations associated with stressed conditions. Without this stress, these stands would be able to provide habitat for LOS dependent species. The most important feature of the desired condition as defined by the Amended Forest Plan is management of the ponderosa pine communities to maintain or enhance LOS characteristics while providing an economic output to the public. This action would begin to reflect the HRV of the various seral and structural stages (Table 1). Treatment of the over abundant late or old multi-storied pine stands, by understory removal, would lead to predictable maintenance of stable, single-storied old growth conditions. Mid-seral stands would be thinned from below to allow these stands predictable development into a LOS condition (Hopkins 1992). Use of prescribed fire will be an important tool for maintaining LOS stands in the future. A greater percentage of single-story stands would permit such activity to occur.

Historically, the Joker II planning area had approximately 60-80% late-old seral single-storied stands and 10-15% late-old seral multi-storied stands. Currently, there only 2% and 55% respectively. The loss of late and old single-story stands is due to intensive harvest and the development of early to mid seral trees because of fir suppression. Influential timber sales included the King Timber Sale (1985) and the Basin Skyline Timber Sale (1982) that used the regeneration technique. These past harvest areas are generally lacking in snags, downed logs, and structural diversity. Other management includes extensive commercial and precommercial thinning, which has resulted in very heavy slash and fuel build-up. This area also experienced drought stress in the early 1990's and was consequently hit by a fir engraver and annosus root disease in 1992 resulting in the mortality of understory white fir. Other problems include the encroachment of conifers in aspen stands and the expansion of juniper along the eastern portion of the planning area.

Proposed, Endangered, Threatened, or Sensitive (PETS) Plant Species

(Biological Evaluation PETS Plant Species, 10/19/2001 – Joker II Analysis File)

No Proposed, Endangered, Threatened or Sensitive plant taxa or essential habitat are known in the project area, therefore no effects or cumulative effects are expected.

Noxious Weeds

(Noxious Weed Report, Joker II Analysis File)

Spotted knapweed, Canada thistle, musk thistle, dalmation toadflax, Mediterranean sage, and diffuse knapweed have been found in the project area. Infestations have been found along roadsides, in campgrounds, in open range, and in timbered areas.

Noxious Weeds - Alternative 1

Without disturbance and with overstory canopies increasing, there would be fewer opportunities for noxious weed establishment. Established weed sites would be at a competitive disadvantage from native plants.

Noxious Weeds - Alternative 2

Disturbances caused by implementation of this alternative could increase chances of noxious weed encroachment. Noted infestations would be treated under the District's Noxious Weed Control Program. This program has been successful with keeping weeds from spreading and in some cases reducing populations. Regulatory measures, as stated in the *Fremont National Forest Noxious Weed Management Decision Notice*, such as cleaning of equipment, will be used to prevent the establishment of new infestations.

d. Range

(Range Report, 11/12/2001; Joker II Analysis File)

The project area includes parts of the Bear Creek Allotment (Round Pass Pasture) and the Swamp Creek Allotment (Moss Pass Pasture). These allotments have been grazed prior to the establishment of the Fremont and continuously since then. The primary grazing was by sheep until the mid-1950s when the allotments were converted to cattle. The Round Pass Pasture is grazed 2 of every 3 years; from May 28 until June 30 by approximately 400 head of cows. This management plan was developed and approved with the Chewaucan Grazing Environmental Analysis in 2001. Monitoring for the past 5 years has shown this management strategy to be in compliance with standards and guidelines in the Forest Plan. The Moss Pass Pasture is grazed annually from June 23 to July 22 by approximately 210 cows. The entire allotment was determined to be in unsatisfactory condition due to riparian concerns in 1990. Since that determination, significant non-use has occurred and conditions have improved. Proper Functioning Condition Assessments rate streams in the Chewaucan portion of the allotment as functioning properly.

Range - Alternative 1

Forage production would decrease as tree densities continued to increase. Cattle would congregate tighter in forage areas putting increased pressure on these areas and increasing potential resource damage.

Range - Alternative 2

This alternative would not adversely impact livestock grazing. Opening the stands would increase forage over time spreading cattle across the allotment making better use of the forage. There would not be a need to alter or change management on these pastures with this alternative.

e. Fish & Wildlife

Fish

(Biological Evaluation PETS Fish Species, 8/03/1999; Joker II Analysis File)

Region 6 Level II stream surveys were conducted on Moss and Newell Creeks in 1993. Fish were not observed. An informal survey was conducted on Green Creek during Joker II field tours by Scott Peets (North Zone Fisheries Biologist) and Tom Friedrichsen (North Zone Hydrologist); fish were not observed on this stream either. These streams might offer fish habitat during wet years. However, fish may be absent for two reasons: 1) the streams go dry during drought years; and 2) connectivity to other fish bearing streams (Chewaucan for Moss and Newell and Crooked Creek for Green) might be severed by irrigation systems, preventing recolonization during wet years.

Because there are no fish present in the analysis area, the effects of the alternatives on fish would be the effects on fish habitat. This is found under Hydrology.

Wildlife

(Wildlife Biologist Specialist Report, Revised 11/05/2001; Joker II Analysis File)

Management Indicator Species (MIS)

Primary Excavators (MIS – Snags and Down Wood)

Although formal snag and down wood surveys were not conducted within the Joker II planning area, cursory field overviews indicate that snag conditions in the proposed treatment areas are at or above standards and guidelines. However, most of the past regeneration units in the area are far below current standards. Snag retention during marking and active logging is therefore critical for meeting the overall management direction.

Primary excavators - Alternative 1

Alternative one provides for the greatest amount of snags and down wood. Overstory mortality would continue to occur due to the competition with encroaching conifers and other natural causes. Population numbers are expected to be maintained at current levels or increase as nesting and foraging habitat increases.

Primary excavators - Alternative 2

Some snag loss may occur under this alternative due to the safety factors associated with logging activities around landings, haul routes, felling areas. This, however, should be minimal and all other snags and down wood will remain on site. Population numbers may decline slightly, but is expected to remain stable due to the minimal loss of snags and down wood. Species composition are expected to change from those which prefer high canopy closure white fir stands to those which prefer open park-like ponderosa pine stands.

Cumulative Effects: Due to past harvest management including roadside hazard, fire suppression, snag removal, and overstory removal, snag and down wood numbers have likely declined from historical levels. Excavators associated with open late/old ponderosa pine, such as the white-headed woodpecker and Lewis woodpecker, have likely experienced a decline in habitat suitability, bird distribution, and populations. This decline is a result of forest succession from an open pine forest to a dense mixed conifer dominated forest, and from the direct removal of snag habitat.

Activities that are expected to be implemented in the near future within the Joker II analysis area including prescribed fire and associated activities are expected to alter the habitat for cavity dependent species. It is expected that snags and down wood will be lost with prescribed burning. However, prescribed fire is expected to increase replacement snag and down wood numbers and reduce the fuel loading thereby protecting stands from wildfire. Cumulatively, it is expected that the distribution and compostion of primary and secondary excavator species may change across the landscape, and populations are expected to remain stable.

Three-toed Woodpecker (MIS – Overmature/mature Lodgepole Pine)

The Fremont National Forest is outside the range for three-toed woodpeckers. The Paisley Ranger District has substituted the black-backed woodpecker for the three-toed woodpecker because they have similar habitat requirements.

Habitat is available within the Joker II planning area for black-backed woodpeckers. Much of the young white fir experienced drought stress and was consequently hit by a fir engraver and annosus root disease in 1992. This has resulted in an abundance of white fir snags that provide nesting and foraging habitat.

Black-blacked woodpeckers - Alternative 1

It is likely that black-backed woodpeckers would derive the greatest benefit from this alternative. The eruptive numbers, which may have utilized the white fir affected by the fir engraver and annosus root disease, have probably moved on. Their population is likely stabilized and any remaining birds are utilizing the snags and down wood for foraging and nesting. With increases in understory densities, there remains the risk of disease, insect outbreaks, or catastrophic fire, which could lead to small population irruptions of this species throughout the analysis area.

Black-backed woodpecker - Alternative 2

The expected resultant improvement in overstory health will diminish the potential for small population irruptions over time in response to catastrophic fire, disease, or insect outbreaks. Recruitment of new dead will be minimal. Numbers are expected to remain stable with the retention of existing snags as foraging and nesting habitat.

Cumulative Effects: Salvage activities of disturbance including beetle-kill and fire, and a decrease in snag and down wood levels within Joker II planning area have likely decreased black-backed woodpecker populations from historical levels. Future activities associated with prescribed fire will likely increase foraging habitat for black-backed woodpeckers. Due to the uncertainty of disturbance and what kind of activities will result from disturbance in the future, it is unknown how black-backed woodpeckers populations will cumulatively be affected over time.

Mule Deer (MIS – Hunted Species) – Issue 5 Winter Range

The Joker II planning area includes about 5088 acres of designated winter range and about 6923 acres of designated summer range. Although not designated, spring and fall transition range occur as well according to a previous analysis (Ghormley 1997). Winter use occurs primarily along the lower east elevations of the ridgeline where ponderosa pine and juniper stands are interspersed with open sagebrush/grassland areas (Ghormley 1997). Summer range occurs along the higher elevations in the forested communities. Fawning habitat occurs primarily along the southern portion of the project area (Otani 1985). Cover, both hiding and thermal, is plentiful and well distributed on the winter and summer ranges. White fir thickets and mountain mahogany woodlands provide for cover.

Data, maps, and analysis for all mule deer calculations are from previous work completed by Biologist D. Pengeroth (1994). Analysis of mule deer habitat was performed by using habitat effectiveness (HE) calculations. This is based on the principle that within 600 feet of an edge of cover is the most well-used and effective habitat within cover and forage areas. This habitat is mapped and acreages calculated to obtain a percent of the planning area that is effective from a forage/cover juxtaposition standpoint. Mapping and calculations are modified to reflect actual use patterns that may deviate from the "600 foot rule". Modifiers to this percent including road density, water availability, forage utilization by domestic livestock, and cover/forage ratio are used based on the principles used in the South Central Interagency Mule Deer Model to arrive at a final HE value.

Mule deer - Alternative 1

The no-action alternative would not have any immediate effect on mule deer habitat. HE would remain below Forest Plan standards and guidelines on winter range due mainly to road densities, effective habitat area, and cover/forage ratio. Long term effects could see a continued loss of forage as conifers mature and shade out understory species, shrubby forage continues to decline in vigor, and recruitment of new age classes is restricted. Thermal and fawning cover would show some minor fluctuations and hiding cover would decrease as young trees matured and crowded regeneration thinned itself naturally. The potential for large-scale wildfire would remain.

Mule deer - Alternative 2

The action alternative provides the opportunity to reduce the encroachment of white fir and reduce stand densities to those approaching pre-fire suppression levels. Cover would be reduced by 3% on summer range and 13% on winter range. Habitat effectiveness would increase by 3% on summer range and 7% on winter range due to the proposed road closures. Therefore, alternative 2 would remain in compliance with the Standards and Guidelines in the Forest Plan. Herbaceous and shrubby forage is expected to increase with more open and favorable growing conditions. Road densities will decrease with proposed road closures and obliterations. The potential for large-scale wildfire would decrease.

Effects of the alternatives on mule deer habitat are shown below:

Winter range

	H.E.	Percent Cover
Existing condition (Alt.1)	32%	84%
Alternative 2	39%	71%
Forest Plan Standards & Guideline	80%	40%

Summer range

	H.E.	Percent Cover
Existing condition (Alt.1)	59%	41%
Alternative 2	62%	38%
Forest Plan Standards & Guideline	50%	30%

Cumulative Effects: Change within the Joker II planning area over the years including commercial harvest, fire suppression, wildfire, plant succession, livestock grazing, the road system, and recreational use have cumulatively affected mule deer. Commercial harvest that included overstory removal and fire suppression significantly increased desirable shrub species above historical levels. Over the long term, this has also led to a condition of decadent, less nutrient rich browse species and overstocked dense stands of timber in which forage is becoming limited. Livestock grazing created severe competition with mule deer for early green-ups, forbs, and winter browse. With increased road densities along with increased recreational use, mule deer security has been reduced. Although mule deer populations have increased from pre-settlement times, populations have declined from the high numbers experienced during the middle to late 1900's.

Activities that are expected to be implemented in the near future within the Joker II planning area including prescribed fire and associated activities are expected to improve mule deer habitat. It is anticipated that

prescribed fire will move dense stands to a more open condition which will increase forage. Prescribe fire frequencies and placement need to be considered if shrub establishment, most notably bitterbrush, is to be maintained. Cumulatively, future activities have the potential to improve mule deer habitat in the immediate future and populations may increase.

Goshawk (MIS – Overmature/mature Ponderosa Pine, Mixed Conifers) Issue 3

According to records, some goshawk surveys were performed within the Joker II planning area in 1994. Not all proposed activity areas were surveyed and timelines during this analysis did not allow for rechecking of these nest sites or completing surveys in all areas proposed for treatment. Four historic and/or recently active goshawk nests occur within the analysis area. Three of these are grouped together in the southern portion of the analysis area and probably represent alternate nest sites for one goshawk territory. One nest in this territory was active when last checked in 1994. The other territory involves one known nest site which was also active in 1994.

Goshawk - Alternative 1

Alternative 1 would have little effect on goshawk nesting habitat. However, foraging habitat for goshawks would remain as is and over the long term would gradually decline as understory densities increase. Population numbers would not be affected initially, although gradual loss of foraging habitat in the long term could result in a corresponding decline in the number of goshawks.

Goshawk - Alternative 2

Potential nesting habitat is likely to be reduced in the areas proposed for treatment due to a decrease in canopy closure and the reduction of possible nest trees, roost trees, and other structural attributes associated with nesting areas. No known nest sites are located within the proposed activity units. Potential foraging habitat is expected to improve as the proposed harvest and thinning activities would open up the stands for flight access. Only two units (unit 8 and 15) are located within a post-family fledging area. Harvest and thinning prescriptions for this unit will be designed with coordination of the wildlife biologist and silviculturist which maintains structural diversity and improves the area as goshawk habitat. See mitigations below for necessary timing restrictions within post-family fledging areas.

Cumulative Effects: Past management including timber harvest and fire suppression have likely decreased the potential habitat available for goshawks within the Joker II planning area. Management practices including overstory removal and partial removal of ponderosa pine have converted many stands previously dominated by open large diameter pine, to stands now characterized as multi-storied stands with white fire and pine in the understory. Ponderosa pine stands have also experienced reductions in snag and down wood habitat. It is anticipated that the overall abundance and distribution of goshawks have likely declined from historic levels.

Activities that are expected to be implemented in the near future within the Joker II planning area including prescribed fire and associated activities are expected to improve habitat for goshawks. Prescribed fire will thin out understories in a mosaic fashion providing diversity in structure and increasing replacement snag and down wood numbers. Cumulatively, goshawk populations are expected to remain stable across the landscape.

Red-naped Sapsucker (MIS – Aspen and Deciduous Riparian Ecosystems)

Although sapsucker sightings and surveys are lacking in the planning area, habitat is available throughout the planning area primarily associated with riparian drainages and associated tributaries, springs, and rocky

outcrops that tend to collect and hold moisture. Aspen within the analysis area has been negatively affected by grazing and browsing, conifer encroachment, loss of moisture due to drought, and/or degradation of riparian areas.

Red-naped sapsucker - Alternative 1

Aspen stands of declining health would continue to experience conifer encroachment, grazing pressure, and regeneration difficulties. This could eventually lead to a loss of entire clones. Population numbers for red-naped sapsuckers and other riparian deciduous vegetation dependent species is expected to decline.

Red-naped sapsucker - Alternative 2

Alternative 2 presents the opportunity to increase the quality of potential habitat by reducing conifer competition in aspen habitats through postsale projects. Assuming the funding becomes available and projects are completed, habitat quality will increase and population numbers for red-naped sapsuckers and other riparian deciduous vegetation dependent species are expected to show a corresponding increase.

Cumulative Effects: Within the Joker II planning area, some aspen has gradually been replaced by conifers over time as a result of the change in forest structure to dense conifer stands from fire suppression and timber management, and regeneration is limited due to the impacts from grazing by cattle and big game. Where stream channels have been downcut and/or widened and the water table lowered, site potential for aspen has been reduced. With the reduction of aspen, and in some cases the entire loss of clones, population levels and distribution of red-naped sapsuckers have likely declined from historical levels.

Activities that are expected to be implemented in the near future within the Joker II planning including prescribed fire and associated activities are expected to improve aspen habitats. Prescribed fire will stimulate regeneration, and will likely improve the distribution of cattle and big game with increased foraging opportunities. Cumulatively, it is anticipated that red-naped sapsuckers and other riparian dependent species populations will increase immediately as aspen expands and regenerates across the landscape.

Pileated Woodpecker (MIS – Overmature/mature Mixed Conifer Forests)

Potential habitat for pileated woodpeckers exists within the planning area primarily in areas of multi-storied LOS mixed conifer. No visual sightings of pileated woodpeckers have been documented within the planning area. The amount of newly created dead tree habitat due to stressed overstories, especially where white fir has established itself under ponderosa pine, provide increasing foraging and nesting opportunities for pileated woodpeckers.

Pileated woodpecker - Alternative 1

Alternative 1 would provide for the greatest amount of pileated foraging and nesting habitat. Populations are expected to show a gradual increase over time corresponding with increased stand densities and mortality in the overstory.

Pileated woodpecker - Alternative 2

Preferred habitat conditions for pileated woodpeckers can be expected to decrease under this alternative due to decreased canopy closure, white fir reduction, and possible snag loss. If pileated woodpeckers are present, a decrease in numbers is expected.

Cumulative Effects: LOS habitat that contained a large tree component and snag and down wood habitat has decreased within the Joker II planning area. This is largely due to timber harvest and a lesser degree to wildfire, insect and disease outbreaks, firewood cutting, and hazard tree removal. These disturbance agents have removed large diameter trees, snags, and down wood, reduced patch sizes and connectivity, and diminished the amount of high quality LOS interior habitat and overstory canopy cover all required for pileated woodpecker habitat. Succession of some true ponderosa pine sites towards a mixed conifer composition as a result of fire suppression may lead to increased habitat for pileated woodpecker as these stands develop LOS structural character. It is anticipated that pileated woodpecker populations have likely decreased from historical numbers within the true mixed conifer ecotypes.

Activities that are expected to be implemented in the near future within the Joker II planning area including prescribed fire and associated activities are expected to have little impact on pileated woodpeckers or their habitats. Prescribed fire is expected to increase replacement snag and down wood numbers and reduce the fuel loading thereby protecting the stand from wildfire. Cumulatively, it is expected that pileated woodpecker populations would remain stable.

Pine Marten (MIS – High Elevation Forests, Lodgepole Pine and Mixed Conifers)

Habitat, although very fragmented, is available within the planning area for marten. There is one documented sighting of marten in the planning area located in T35S, R19E, S32 SW 1/4 above Buck Springs.

Pine marten - Alternative 1

This alternative would have the least effect on pine marten habitat. If increased foraging and denning opportunities are utilized by pine marten, a gradual increase in population numbers for this species could occur corresponding to increased overstory mortality and resultant changes in stand structure.

Pine marten - Alternative 2

This alternative could result in a decrease of existing foraging and denning habitat for pine marten. The loss of structure, canopy closure, and potential denning and foraging sites in treatment areas will reduce suitability of habitat for pine marten. Population numbers for marten could decline with reduced suitability of habitat.

Cumulative Effects: Lodgepole pine and mixed conifer LOS habitat that contained a large amount of snag and down wood habitat have likely decreased within the Joker II planning area. This is largely due to timber harvest and a lesser degree to wildfire, firewood cutting, and hazard tree removal. These disturbance agents have removed snag and down wood, reduced patch sizes and connectivity, and diminished the amount of high quality LOS interior habitat and overstory canopy cover all required for pine marten habitat. It is anticipated that pine marten populations have likely decreases from historical levels.

Activities that are expected to be implemented in the near future within the Joker II planning area including prescribed fire and associated activities are expected to alter the down wood componant of pine marten habitat. Although some down wood loss is expected with prescribed fire, replacement down wood may increase. Cumulatively, pine marten populations are expected to remain stable.

Proposed, Endangered, Threatened, or Sensitive (PETS) Species

Peregrine Falcon (MIS – Endangered Species)

Initial falcon habitat surveys on the Fremont National Forest were conducted using helicopter flights, aerial surveys, and ground surveys to rate priority cliff habitat areas for peregrine nesting potential. The prefield review for this project found three potential cliff areas within or bordering the analysis area. Of these, only one appears to be fairly capable of supporting peregrine falcons. One sighting of a peregrine falcon occurred approximately 3 miles west along the Chewaucan River in July 1991, according to district records. The only known pair of peregrines currently nesting on the district are located at the far north portion of Winter Rim, about 24 miles north of the planning area.

Field Reconnaissance: Due to time constraints, no specific falcon surveys were conducted for this project. No falcons were sited during field review for this project.

Determination of Effects: No known areas of occupied peregrine falcon habitat exist within the planning area therefore implementation of the proposed activities will not cause any effects on peregrine falcons or their habitats. Activities will not cause cumulative effects on peregrine falcons or their habitats nor lead to a loss of viability.

Bald Eagle (MIS – Threatened Species) Issue 2

The Avery Creek bald eagle roost site was discovered on March 13, 1992 during an aerial flight by the Oregon Department of the Fish and Wildlife (ODFW). Records of wintering bald eagles on the Paisley Ranger District can be tracked back to January 1978. Formal statewide counts began in 1979 with the mid-winter eagle count, which is a national effort conducted annually along with established road routes in early to mid January. Counts of bald eagles at known winter roost sites began to occur locally in 1984, although the Avery Creek site count began in late March of 1992 under the coordination of Oregon Department of Fish and Wildlife personnel at the Summer Lake Wildlife Management Area. The objective of this count is to get a better estimate of actual winter bald eagle use in North Lake County by recording the number and age of individual birds at winter roosts.

Although variable by year and area, North Lake County eagles usually begin showing up in late November/early December and slowly increase in numbers until late January. A steep immigration occurs during February, with an interesting decrease later in the month, followed by another steep rise, which coincides with peak use in early March. Winter bald eagles have been noted using the Avery Creek Roost during the last days of March.

No other bald eagle sightings have been documented within the Joker II analysis area.

Field reconnaissance for PETS animals in the Joker II planning area began in April of 1995 by Wildlife Biologist, Denise Pengeroth and continued in 1997 by Wildlife Biologist, Randy Ghormley. The first two visits occurred in February and March of 1995. Observations from the small ridgeline which separates Fisher Creek and Avery Creek, found bald eagles congregating in a single "hot spot". A total of 13 bald eagles were noted using this roost stand in 1995, nearly all of which perched in ponderosa pine snags.

Additional field observations were conducted during and after the 1997 roosting season. A total of 16 eagles were observed during mid-January using the same "hot spot". Nearly all birds entered the roost via a direct flight up Avery Creek and across a recent clearcut that borders the east side of the core roost. Casting surveys conducted during the summer of 1997 helped further define the core roost areas and pinpoint the individual roost trees. All roost areas contain old growth ponderosa pine with large lateral

branches, large snags, and flyway access to the Avery Creek Drainage. Nest search efforts during the early summer of 1997 also failed to find any evidence of nesting associated with the site.

No other sightings of bald eagles were seen during the 1999 field reconnaissance for the Joker II project.

Determination of Effects: The effects of understory removal and/or post treatment thinning are expected to have a beneficial effect on bald eagles and their habitat. Active management is needed to maintain or restore tree composition and structure and to lower risks of catastrophic fire associated from the buildup of fuels and the presence of ladder fuels (Dellasala et. al 1998). The risk of catastrophic fire will be significantly reduced with the removal of the low to mid-ladder fuels. The treatments are also intended to culture the large trees for open form growth, to open the stands for flight access, and to promote long-term health of the stands. No activities will occur from Nov. 1-May 1 preventing any direct effects on bald eagles. Road closures and obliterations will greatly reduce any possible disturbance from human activity.

Cumulative Effects: Several past management activities have affected roosting habitat conditions in the Avery Creek area, with the King Timber Sale (1986) being the most significant. This sale resulted in numerous harvest units within the primary use area, most of which are clearcut prescriptions that currently support only seedling/sapling-sized trees. Other units are individual tree mark prescriptions, which removed most of the overstory trees. These prescriptions also appear to have eliminated most of the ponderosa pine in an attempt to culture a fast rotation of white fir. In both cases, all of the potential roosting structure has been removed and will not be available for many decades. Other activities include extensive thinning.

Activities in the foreseeable future include ongoing timber sales, precommercial thinning, personal use fuelwood cutting, grazing, and ongoing land stewardship activities. These activities will address northern bald eagles in separate biological evaluations where appropriate as a part of the National Environmental Protection Act (NEPA) requirements and Section 7 of the Endangered Species Act of 1974.

Activities in the action alternative, with mitigation measures in place, would have no effect on bald eagles and could have a beneficial effect on bald eagle habitat. Activities could provide additional habitat for bald eagle habitat in the future by providing conditions conducive to producing large, open-limbed ponderosa pines for nesting and roosting. Mitigation has been proposed to avoid potential disturbance to adverse effects. Activities will not cause adverse cumulative effects to bald eagles or their habitat nor lead to a loss of viability.

California Wolverine

General field surveys completed in the past for several timber sales did not detect any use by wolverines, but also were not designed to do so. There are no known records of wolverine occurring in the Joker II planning area. The nearest sighting occurred in 1962 near Ingram Guard Station, approximately 10 miles west of the analysis area. The status of wolverines on the Fremont National Forest is as yet undetermined due to their large home ranges and preferences for remote habitat. It is possible that wolverines may find core refugia habitat in the wilderness and roadless areas on the Forest and/or district. It is also possible that they may only use the Forest for maintenance habitat or dispersal from the central Cascades. The Joker II planning area is considered possible habitat for wolverines due to its seclusion, late structural habitat types and denning opportunities.

Field Reconnaissance: No sign of wolverines were detected during field reconnaissance performed for this project.

Determination of Effects: Since wolverine are not documented as occurring within the analysis area and proposed activities are not expected to impact areas of possible habitat, proposed activities will have no direct, indirect, or cumulative impacts on California wolverine or their habitats and will not cause a trend toward federal listing or loss of viability.

Pacific Western Big-eared Bat

Possible habitat for this bat species occurs within the project area primarily associated with cliff and rock outcrops along the streams and drainages. No specific surveys for this species were conducted. Field surveys designed to sample for endemic bat species were conducted at select sites on the district during early August 1996. Seven different species of bats have been documented on forestlands using mist net techniques, none of which were pacific western big-eared bats. Bats have been noted using rock cliff areas just to the west of the analysis area, but as yet there have been no surveys of caves, cliffs, and other such structures in the vicinity (Ghormley 1997).

Field Reconnaissance: General field reconnaissance revealed no further detection of bat species.

Determination of Effects: Implementation of the proposed activities do not involve any known primary habitat areas within the analysis area, therefore the proposed actions and associated projects will have no direct, indirect, or cumulative impacts on Pacific Western big-eared bats or their primary habitat.

Greater Sandhill Crane

Use within Joker II planning area is primarily restricted to Newell Creek, where both adults and colts have been noted. It is unknown at this time whether nesting occurs. Suitable habitat, moist and dry meadows, is present within the planning area and associated with riparian areas and seasonal drainages.

Field Reconnaissance: General field reconnaissance revealed no further detection of sandhill cranes.

Determination of Effects: None of the proposed activities will enter suitable habitat for sandhill cranes; therefore, there will be no negative impacts on sandhill crane habitat. No direct or indirect impacts to greater sandhill cranes or their habitat are anticipated from proposed activities in the Joker II analysis area. Implementation of the proposed activities will not cause any direct, indirect, or cumulative impacts on greater sandhill cranes or their preferred habitats that could cause a trend toward federal listing or loss of viability.

Western Sage Grouse

There have been no documented sightings of sage grouse within the Joker II planning area.

Field Reconnaissance: General field reconnaissance revealed no further detection of sage grouse.

Determination of effects: None of the proposed activities will enter suitable habitat for sage grouse, therefore, there will be no negative impacts on sage grouse habitat. No direct or indirect impacts to sage grouse or their habitat are anticipated from proposed activities in the Joker II analysis area. Implementation of the proposed activities will not cause any direct, indirect, or cumulative impacts to sage grouse or their preferred habitats that could cause a trend toward federal listing or loss of viability.

Other Species and Habitats of Concern

Neotropical Birds

Effects on neotropical birds from any of the alternatives associated with this analysis are expected to be minimal due to the type of treatments involved. However, species which prefer dense stand conditions, such as the hermit thrush and other ground nesting birds, will find better habitat conditions in Alternative 1 while those which prefer more open areas may find better habitat conditions in Alternative 2. It is likely that there will be some loss of canopy nesting structure in Alternative 2. Specific habitat requirements for many of these species and the effect of timber harvest are as yet, unknown. Active nesting for most species of birds would be disrupted if project implementation occurred between May and August.

Cumulative effects: Change within Joker II planning area over the years including commercial harvest, fire suppression, wildfire, plant succession, and livestock grazing have likely changed neotropical bird species composition and abundance. Species that prefer dense conditions such as the hermit thrush and other ground nesting birds have likely increased, and species that prefer more open forests such as the white-headed woodpecker, flammulated owl, chipping sparrow, and pygmy nuthatch have likely decreased. Livestock grazing has likely increased brown cowbird populations resulting in nest parasitism of many neotropical migratory birds nests and a corresponding decrease in populations. It is likely that neotropical bird species diversity and abundance has decreased from historical levels.

Activities that are expected to be implemented in the near future within the Joker II planning area including prescribed fire and associated activities will likely increase species composition and abundance. Species that prefer more dense conditions may decrease, while species that prefer more open conditions may increase. Overall, the diversity in structure and ground vegetation, as a result of these activities, will likely increase species diversity immediately across the landscape if a mosaic of burning is applied.

Connectivity Between LOS Habitat

Wildlife Biologist Randy Ghormley mapped connectivity corridors in the Joker II planning area. These maps will be further refined to distinguish actual boundaries. The corridors mainly run along drainages and streams.

Alternative 1: Alternative one would have no effect on existing connectivity corridors. These areas would continue to function as connectivity corridors.

Alternative 2: Some project units lie within currently mapped connectivity corridors. Prescriptions will be designed by the wildlife biologist and the silviculturist to ensure that post sale thinning treatments maintain connectivity corridor characteristics: an average diameter-at-breast-height $\geq$ 9" and a canopy closure of >50% (or the upper 1/3 of the site potential).

Cliffs, Caves, and Talus Slopes

Cliffs, caves, and talus slopes provide unique and valuable habitat for many species including bats, small mammals, furbearers, and reptiles. Three cliff sites, as mentioned under peregrine falcon, are located within the Joker II planning area. The wildlife report for the Basin Skyline Timber Sale (1982) noted approximately 19 acres of talus habitat in the southern portion of the current analysis area. These areas could not be found during the Joker II analysis (Ghormley 1997). No cliffs, caves, or talus slopes are within any of the activity units. No effects on species dependent of this habitat are anticipated.

f. Fuels - Issue 4

(Fuels Report, 01/31/2002)

Changes in stand and fuel characteristics associated with fire exclusion in ponderosa pine communities are well documented, and the pine stands in the Joker II analysis area are textbook examples: heavy fuel loadings, dense understories, and large numbers of dead and diseased trees in the overstory. Similar conditions have been addressed successfully on Paisley District and elsewhere by the use of prescribed fire, but this treatment has not been used to date in the Joker II area. Under current conditions, the fuels present would produce flame lengths and fire intensity that would create high levels of mortality in all age classes, including LOS trees. Pretreatment, including the removal of woody material, is necessary before fire can be effectively and safely reintroduced to this area.

Fuels – Alternative 1

The no-action alternative would allow the forces that created the existing fuels profile to continue. Mortality among stressed LOS trees will continue, snags will continue to fall, (increasing the fuel load), and openings will continue be invaded by thick pockets of fir. This trend will last until ended by a major disturbance event, most likely a stand-replacing wildfire.

Fuels – Alternative 2

Alternative 2 would provide the first step of the necessary pretreatment by reducing the heavy fuel load in the treated stands, and breaking up the horizontal and vertical continuity of all size classes of fuels. Slash created by treatment would increase the loading of smaller dead fuels, and present a short-term increase in fire danger, but this effect would be mitigated by a lop-and-scatter fuels treatment and the breakup in fuel continuity.

Pre-Commercial thinning would result in an increase in surface fuel loading, (since no material would be removed), and a short-term increase in fire danger, due to the large quantity of fine, “flashy” fuels present in the crowns of newly-felled trees. This hazard would be mitigated by lop-and-scatter slash treatment and the breakup in fuel continuity provided by the treatment.

As the activity-created fuels break down by natural processes, prescribed fire would be planned as conditions and budgets permit. Under “average” conditions, the fuels would be ready for a first fire entry in 5 to 10 years.

Stands not treated in Alternative 2 because of steep slopes, small diameter trees or other considerations would still exhibit hazardous fuels characteristics, but the breakup of fuels continuity provided by the treatments in adjacent stands would still offer some mitigation.

g. Roadless Areas

The Joker II analysis area lies east of the Brattain Butte Semiprimitive-Motorized Area (MA-9C). This area has limited primitive roads and is not classified as unroaded or roadless. No roadless areas are within the boundaries of the Joker II analysis area.

h. Recreation

The National Recreation Trail runs through the north-to-south length of the analysis area. The trail is classed as MA 6 – Scenic Viewshed and as such, the visual should be managed to retain or create the desired forest character.

Other recreation in the area is dispersed mainly in the form of hunting and associated camping.

Alternative 1 will have no effect on the trail except for those effects of natural succession and time. Over time, natural changes would occur in the stands associated with the trail, otherwise, conditions would remain the same.

This alternative would have no effect on dispersed recreation.

Alternative 2 will have some effect on the visuals along the trail, especially within unit 14 where the trail bisects the unit in the southwest portion. Prescriptions along the trail will reflect natural appearing character and the visual contrast of management will be minimized through manipulation of the shape, edge effect, scale, and distribution of resource treatments (p. 153, Forest Plan). Marking near the trail will be adjusted to meet the visual requirements of Management Area 6.

Known historical dispersed campsites have been avoided. Time of project implementation may affect recreation, especially if it coincides with a hunting season. Effects are expected to be minimal across the area.

i. Cultural Resources

(Project Review for Heritage Resources, 7/17/2000; Joker Salvage Cultural Resources Inventory Report, 1/26/1995 – Joker II Analysis File

The project area includes sites that have been used at varying levels of intensity by either American Indian or Euro-American (or both) populations of the region for about the last 7000 years. A cultural resource survey has been completed for this area and the reports are on file at the Paisley Ranger District.

Most of the cultural sites in this area are located within close proximity to perennial water and/or on the relatively rare areas of gentle slope and limited forest. It has been determined that all potential impacts to the cultural resources by the actions of Alternative 2 have been avoided by design of the project. Consequently, the project will have no effect on listed or eligible cultural resources.

j. Transportation

(Engineer Documentation Revised 02/06/2002 – Joker II Analysis File)

FS Road 3510, a main Forest Service arterial, bisects the lower third of the analysis area. Several surfaced secondary roads and many tertiary roads run through the analysis area. Current open road density is approximately 2.12 miles per square mile. Further effects of road impacts are addressed under Soils (p. 2-3), Hydrology (p. 3-4), and Wildlife – Mule Deer (p. 10-12).

Alternative 1 would have no affect on road density. The number of open roads would remain the same, and problems associated with some roads within riparian areas would not be addressed. Further effects of current road impacts are addressed under

Approximately 8.94 miles of road would be closed, and 3.89 miles of road would be obliterated with Alternative 2. The post sale road density would be reduced to 1.44 miles/square mile. Appendix 2 lists roads identified for closure and obliteration.

k. Air Quality

Air dispersal in this area is good. High elevation and rolling topography allow for adequate dispersal of air and smoke. Inversions are uncommon and are usually associated with local conditions, dissipating quickly. There are no sensitive airsheds within the analysis area.

Air quality would remain the same with Alternative 1. However, because these stands are at such a high risk for stand replacement fires, there is potential for very poor air quality due to smoke from these fires. Depending on the intensity of the fires and length of time for control, air quality could be affected for several weeks.

Treatments identified under Alternative 2 do not include burning. However, stands will be treated in such a way as to allow prescribed burns in the future. This future treatment would have some affect on air quality for a limited amount of time. Logging operations could produce dust in the area affecting air quality across the area. Contractors are required to take steps ensuring dust is kept at a minimum.

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APPENDIX 1
MAPS

APPENDIX 2
ROAD CLOSURES/OBLITERATIONS

Appendix 2

Roads to close in the Joker II Analysis Area

Road Number	Termini	Length (miles)
3510038	junction with .019 to end	0.15
3510140	just past junction with .209 to end	0.42
3510200	closes with .140 closure	0.90
3510190	closes with .189 closure	0.40
3510194	junction with .096 to end	0.80
3510189	junction with .018 to end	0.35
3510037	junction with .018 to end	1.20
3510187	junction with .018 to end	1.35
3510180	junction with .081 to 3510 junction	1.95
3510041	closes with .180 closure	0.45
3510198	loop road – close from .197 - .197	0.34
3510032	junction with .035 to end	0.53
3510184	junction with .183 to end	0.1
		8.94

Roads to obliterate in the Joker II Analysis Area

Road Number	Termini	Length (miles)
3510202	junction with .018 to end	1.09
3510209	junction with .197 to Forest boundary	1.80
3510240	junction with .018 to end	1.00
		3.89

APPENDIX 3
FOREST PLAN AMENDMENT

Avery Creek Bald Eagle Management Area

Fremont National Forest
Paisley Ranger District
Lake County, Oregon

Forest Plan Amendment

This non-significant, site-specific amendment to the Fremont National Forest Land and Resource Management Plan (Forest Plan) would redesignates approximately 1085 acres of Management Area 5 (Timber and Range Production) to Management Area 2 (Endangered and Threatened Species).

Emphasis – This Management Area (MA) 2 would emphasize the protection of a known bald eagle core roost site, potential roost sites, flyways, and known or potential foraging grounds on the Paisley Ranger District.

Goal – The goal will be to maintain adequate winter roost habitat for the species in perpetuity and enhance future nesting potential.

Discussion – This MA would consist of approximately 1085 acres along the headwaters of Avery Creek, southeast of Avery Pass. Field Reconnaissance for Proposed, Endangered, Threatened, and Sensitive animals in the Joker II planning area began in April of 1995 by Wildlife Biologist Denise Pengeroth and continued in 1997 by Wildlife Biologist, Randy Ghormley. The first two visits occurred in February and March of 1995. Observations found bald eagles congregating in a single "hot spot" at the bottom west side of a tributary near its confluence with Avery Creek. A total of 13 bald eagles were noted using this roost stand in 1995, nearly all of which perched in ponderosa pine snags.

Additional field observations were conducted during and after the 1997 roosting season. A total of 16 eagles were observed during mid-January using the same "hot spot". Nearly all birds entered the roost via a direct flight up Avery Creek and across a then recent clearcut that borders the east side of the core roost. Casting surveys conducted during the summer of 1997 helped further define the core roost areas and pinpoint the individual roost trees. All roost areas contain old growth ponderosa pine with large lateral branches, large snags, and flyway access to the Avery Creek Drainage. Nest search efforts during the early summer of 1997 failed to find any evidence of nesting associated with the site.

Prescriptions –

Access

Access and activities would be limited with the establishment of an area closure for the Avery Bald Eagle Management Area from November 1 to May 1. This closure would apply to all entry, allowing for undisturbed use of the area by the bald eagles.

Timber Harvest

Silvicultural prescriptions will be developed that maintain the old-growth ponderosa pine component for future roost requirements. Timber harvest meeting these prescriptions would be allowed outside the prohibited access periods.

Fire Suppression

Plans for appropriate fire suppression response and fuels treatment will be developed to protect against catastrophic wildfire loss. It is unlikely that fire suppression and/or fuels treatment would occur during the period of eagle use. If it should, coordination with the wildlife biologist would need to occur.

Adjacent Landowners

Periodically inform adjacent landowners of eagle populations, habitat improvement projects, and other activities involving the MA. Work cooperatively with private landowners to maintain/improve foraging and roosting opportunities for eagles, since almost all food resources occur and are affected by activities on private land. Identify and recognize current land-use practices that are advantageous to the wintering eagles and establish recommendations for those which can be improved.

APPENDIX 4
BEST MANAGEMENT PRACTICES

Fremont N.F., Timber Sale

Best Management Practices (BMPs)

11/17/01

Best Management Practices (BMPs) are the primary mechanisms to enable the achievement of water quality standards (Environmental Protection Agency, 1987). The following BMPs have been selected and tailored for site-specific conditions to arrive at the project level BMPs for the protection of water quality. The BMPs are a supplement to the General Water Quality Best Management Practices, Pacific Northwest Region, 1988.

The interdisciplinary team (soil/water/fish/timber) specialists are responsible for including the BMPs in the Environmental Assessment (EA) for purposes of implementation on the ground. The interdisciplinary team should review the marking guide and contract documents to ensure inclusion of the BMPS.

Mitigation measures shown in the following BMPs shall be incorporated into the timber sale marking guide, the timber sale contract, and public works contracts, as appropriate. The Sale Administrator and/or Contracting Officer's Representative is responsible for following through with implementation of the BMPs and EA as incorporated into the contracts.

Timber Harvest/Project Design BMPs

T-1. Title: Timber Sale Planning Process

Water quality, fisheries and hydrologic considerations will be included in the timber sale planning process during development of the EA or Environmental Impact Statement (EIS). Mitigation measures shall be provided by soil/water/fisheries specialists, which may include these BMPs, amended as necessary for the specific project.

T-2 Title: Timber Harvest Unit Design

Timber units will be identified during the EA process and will be designed to meet the Purpose and Need identified. They should be designed in such a manner that they result in favorable conditions (or move toward favorable conditions) of water flow, water quality, soil productivity and fish habitat. Riparian Habitat Conservation Areas (RHCAs), as defined by the Inland Native Fisheries Strategy (INFISH), are generally excluded from timber harvest, unless it is determined through the Environmental Assessment (EA) process that silvicultural practices are needed to enhance riparian vegetation characteristics or to promote large wood (INFISH, TM-1, pg E-7). In these cases, RHCAs may be entered; however, the following BMPs should be closely followed to protect the riparian resources.

T-4 Title: Use of Sale Area Maps for Designating Water Quality Protection Needs

In addition to what is already required on the Sale Area Maps, the following features must be located on the Sale Area map or a supplemental vicinity map. These areas should be flagged on the ground as determined necessary by the presale forester. This will provide information in addition to the required information that is required to be in the Sale Area Map. The purpose is to identify sensitive watershed features and provide for protection of these areas.

a. Category 1 through 4 Streamside Management Designation areas and associated RHCA widths (see BMP T7).

b. Location of features to be protected, including scabrock flats and meadows and other features identified by the ID team.
c. Unstable areas where no harvesting or mechanized equipment is to operate.

This map is prepared from input provided by the ID team and logging system specialists. As part of sale layout, the presale forester will mark the timber with the assistance of the hydrologist/fisheries biologist as requested. The Sale Administrator and Purchaser should review the mapped features and flagged areas on the ground prior to harvesting.

T-7 Title: Streamside Management Unit Designation
For these BMPs the Streamside Management Units (SMUs) identified in the Forest Plan are replaced with RHCAs as defined in INFISH. The category of stream and RHCA width will be shown on the Sale Area map or supplemental vicinity map.

Category 1 - Fish-bearing streams: Interim RHCAs consist of the stream and the area on either side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to the outer edges of riparian vegetation, or to a distance equal to the height of two site-potential trees, or 300 feet slope distance (600 feet, including both sides of the stream channel), whichever is greatest.

Category 2 - Permanently flowing non-fish-bearing streams: Interim RHCAs consist of the stream and the area on either side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year flood plain, or to the outer edges of riparian vegetation, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance (300 feet, including both sides of the stream channel), whichever is greatest.

Category 3 - Ponds, lakes, reservoirs, and wetlands (and scabrock flats) greater than 1 acre: Interim RHCAs consist of the body of water or wetland and the area to the outer edges of the riparian vegetation, or to the extent of the seasonally saturated soil, or to the extent of moderately and highly unstable areas, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance from the edge of the maximum pool elevation of constructed ponds and reservoirs or from the edge of the wetlands pond or lake, whichever is greatest.

Category 4 - Seasonally flowing or intermittent streams, wetlands less than 1 acre, landslides, and landslide-prone areas: This category includes features with high variability in size and site-specific characteristics. At a minimum the interim RHCAs must include:

a. The extent of landslides and landslide-prone areas

b. The intermittent stream channel and the area to the top of the

c. The intermittent stream channel or wetland and the area to the outer edges of the riparian vegetation

d. For Priority Watersheds (bull trout watersheds) the area from the edges of the stream channel, wetland, landslide, or landslide-prone area to a distance equal to the height of one site-potential tree, or 100 feet slope distance, whichever is greatest.

e. For watersheds not identified as Priority Watersheds, the area from the edges of the stream channel, wetland, landslide, or landslide-prone area to a distance equal to one-half the height of a site potential tree, or 50 feet slope distance, whichever is greatest

Other Streamside Management Units: Ephemeral stream channels/draws shall have protection as required in the Fremont National Forest Land and Resource Management Plan, LRMP Page 204. This requires that the bottoms of ephemeral channels/draws will not be used for skid trails, landing sites, or as road locations. There is no RHCA width associated with ephemeral stream channels. Equipment disturbance of duff and soil should be minimized. Timber Sale Contract B(T) provisions B(T) 6.422 and B(T) 6.5 apply.

T-8 Title: Streamcourse Protection Implementation and Enforcement

The objective of this BMP is to 1) protect the natural flow of streams, 2) provide unobstructed passage of storm water and 3) prevent sediment and other pollutants from entering streams. The following practices apply:

a. Purchaser shall repair damage to banks and channels, to the extent practicable.

b. Project debris shall not be left within the high water mark along stream channels, unless it would add to the objective of large wood recruitment. Wood that is 12-inch diameter (small end) and 8 or more feet in length should be left and smaller logging slash should be removed. The proportionality of the large wood may be adjusted by the ID team, considering such things as the size of the stream, amount of large wood that s naturally available in the dominant forest type adjacent to the riparian area.

c. RHCAs are areas that receive special protection. Normally timber harvest will not occur within RHCAs, except as noted under BMP T 2. Every effort should be made to plan skid trails and the logging transportation system so that equipment does not need to enter RHCAs. When it is not possible to exclude RHCAs from operations equipment should operate within guidelines provided below.

Crossing RHCAs

Equipment is permitted to enter RHCAs only at locations agreed to by the Sale Administrator and the Purchaser. Temporary roads and skid trails in RHCAs should be kept to as few as possible, and generally only be where it is not possible to move logs to the landing without crossing the stream channel. These should be designated following the guidance in BMP T11.

Skidding across Category 1 and 2 streams is not permitted unless a temporary culvert or bridge is used that would keep all skidding activities out of the stream channel. Skidding across Category 1 and 2 should only be done at designated right angle crossings. Logs placed in the channel, parallel to flow, are acceptable, providing there is adequate space left for fish passage. Structures are temporary and shall be removed when not needed any more, at the end of the season or prior to seasonal rains, which ever occurs first. Damaged stream banks and crossings

shall be reshaped to stable conditions and have a seed mix applied as designated in BMP T14.

Skidding across Category 4 streams and ephemeral channels/draws should only be done at designated right angle crossings. Damaged stream banks and crossings shall be reshaped to stable conditions and have a seed mix applied as designated in BMP T14.

No skidding is permitted across Category 3 ponds, lakes, reservoir, and wetlands or across wetlands springs or wetlands. Scabrock flats and meadows identified by the ID team (see BMP T4) should not be skidded across. If there is a question during skid trail layout, seek the advice of the hydrologist.

Timber harvest within RHCAs

In general, skid trails will not be allowed in RHCAs for purposes of logging the RHCA, unless it is determined necessary for riparian benefit (see BMP T2). When it is determined that logging will occur within RHCAs, skid trails will not be allowed within 100 feet of stream channels, except where crossings are required as provide 1 through 3 above. Any material removed from 100 feet of stream channels should be end-lined or removed with low PSI equipment (approximately less than 7.5 psi) to designated skid trails. Winter logging, as defined in BMP T13, may allow skid trails and dispersed operations within the entire width of the RHCAs, by written agreement, if winter logging requirements are met. This exception does not apply to wetlands and scab rock flats.

Generally, it is unacceptable to utilize existing landings, skid trails, temporary roads, etc. within RHCAS, except for right angle crossings, as provided in 1 through 3 above. In some exceptions, the Sale Administrator may utilize these areas when the operator would rehabilitate these areas, and there would be a net ecological gain from doing so. This will be left up to the discretion of the Sale Administrator, who should seek advice from the hydrologist or fisheries biologist.

Water bars and other erosion control structures will be located in a manner that will prevent water and sediment from being channeled into streams, and to dissipate concentrated flows.

T-9. Title: Determining Tractor Loggable Ground

Areas requiring special skidding requirements (i.e. bull lining) shall be shown on the Sale Area Map, as identified by the ID team. The maximum slopes suitable for ground based skidding equipment are identified in the Fremont National Forest - Soil Resource Inventory (SRI). Where short steep pitches exceed those in the SRI, special mitigations such as end-lining logs from the steep slopes to ground based skidding equipment working on more gentle slopes is allowed. Unless approved by the sale officer, hand felling will be required, as well as hand water barring, in the steep slope areas.

The equipment restrictions discussed above also apply to post harvest slash treatment and site prep operations where ground based equipment is used; these considerations should be identified in the EA.

T-10. Title: Log Landing Location (Fremont - N.F. Supplement)

The sale administrator and purchaser prior to construction or opening existing landings must agree to the location and clearing limits for all landings. The following criteria will be used for landing location and design.

a. The cleared or excavated site shall be no larger than needed for safe and efficient logging.

b. Where a choice exists, sites are selected for the least amount of excavation and erosion potential.

c. No landings will be allowed in critical watershed or soil areas, RHCAS, or protected streams. Existing landings will not be used within RHCAs, except as provided under BMP T8, item 6.

d. Landings are located where the least number of skid roads are needed.

e. Where practical, landings are positioned for level skid road approach.

f. Landings will be shaped to drain in a planned direction and manner to minimize erosion and sediment delivery to streams, roads, and road ditch lines.

g. Seed landings per BMP T-14

The specific contract provision, which provides for constructed landings, is C(T) 6.422.

T-11. Title: Tractor Skid Trail Location and Design

All skid trails shall be flagged on the ground by the purchaser or agreed to by description between the sale administrator and the purchaser prior to use or construction.

On lands with prior entry, spacing between skid trails should be approximately 132 feet (two chains) and the width of each skid trail should not be more than 14 feet. Existing skid trial systems should be used to the extent practicable to achieve the spacing of 132 feet (100 foot minimum). Those skid trails between the 132 foot spaced skid trails should generally not be used, unless otherwise identified in the EA.

On those lands with no prior entry, dedicated skid trails should be used. Spacing of skid trails should average approximately 132 feet in width and should not be more than 14 feet. The specific contract provision, which provides for approved skid trail location, is B(T) 6.422. The specific contract provision which provides for special yarding and skidding methods is C(T) 6.42#.

The following apply to logging methods and equipment:

<u>Conventional Logging Methods:</u>

a. All harvest units will utilize designated skidtrails.

b. Spacing of skidtrails should average 132 feet (two chains) apart and not be greater than 14 feet wide.

<u>Mechanized Logging Equipment:</u>

a. Conventional skidding equipment should be confined to designated skidtrails.

b. Go-to machines, i.e., those feller bunchers that drive up to each individual tree, will

generally not be permitted unless the soil is frozen.

c. Mechanized cut-to-length systems and forwarders with ground pressure (approximately less than 7.5 psi) that drive over a continuous 4-6 inch layer of slash are acceptable for dispersed operations.

d. Feller buncher equipment with psi ratings of approximately 7.5 psi or less can operate off of main skid trails during the dry period of the year (July 15 through October 31). Outside of this period, soil moisture must be less than 15 percent to operate off of the main skid trails (except for winter exception BMP 713). Cutting lanes should be used that are spaced approximately 40 feet apart.

T-13. Title: Erosion Prevention and Control Measures During Timber Sale Operations

Restrict winter logging to conditions, which protect the soil. Soil should be frozen to a minimum of 4 inches and/or have a snow cover of a minimum of 18 inches. Snow must be firm, i.e., cold conditions, and not soft from an extended or daily warming period. Tires and/or tracks breaking through the snowpack to an unfrozen soil surface are unacceptable operating conditions.

Erosion control work, road maintenance, and other contractual agreements must be completed in a timely manner as specified in the timber sale contract.

Logs will normally be fully or one-end partially suspended in harvesting operations.

The operating period will be limited to restrict the Purchaser's activities to specified periods of the year or as agreed to in writing, when necessary to protect a resource (see BMP T11 for period of operation for feller bunchers). The Timber Sale Contract, which provides for the Operating period is B (T) 6.315.

T-14. Revegetation of Areas Disturbed by Harvest

Seed should be applied on areas of bare mineral soil that are over 1000 square feet in area. This typically includes temporary roads, landings, stream crossings, etc.

Seed shall meet the requirement that the seed does not contain noxious weed seed in excess of established state limitations as listed in the current" State Noxious Weed Requirements Recognized in the Administration of the Federal Seed Act" publication (commonly referred to as the "all states" noxious weed seed list). Provision CT 6.6# shall be applied. The seed shall be a sterile wheat grass applied at a rate of 25 pounds per acre, unless otherwise identified in the EA, or native seed when available and specified by the ID team. If this seed cannot be attained, the Sale Administrator may allow another seed mix, subject to review with the hydrologist or fisheries biologist. The specific contract provision which provides for the seed mixture is C (T) 6.6#.

T-15. Title: Log Landing Erosion Prevention and Control

Contract provisions will require that landings associated with the timber sale will be ditched and/or sloped to permit drainage and dispersion of water. The specific contract provision which provides for landing post work is C (T) 6.63#. After landings have served the Purchaser's purpose, the Purchaser shall ditch or slope the landings to permit the drainage and dispersion of water. All skid trails and temporary road waterbars in the vicinity of the landing will be drained so that all water is turned and will not enter the landing.

T-16. Title: Erosion Control on Skid Trails (& Cable Corridors)

Skid Trails – The Purchaser and Sale Administrator shall agree to the location of all erosion control measures on the ground. Waterbars constructed on skid trails must be located, and properly constructed, to provide adequate cross drainage that reduces erosion, dissipates sediment and helps to keep water/sediment within upland areas.

The water bar should be cut into the native soil to a minimum depth of 6 inches and should have an 18-inch rise between the low point and high point. Alternatively, when skid trails are not entrenched, slash barriers can be used. Slash barriers should be constructed of slash that is a minimum of 3 inches in diameter and larger material, and should run perpendicular or slightly skewed to the trail. The barrier should extend outside of the trail area to direct sediment and water onto the uplands.

Waterbars and slash barriers should have outlets that are open and will allow free flow of water and sediment onto the uplands.

Provide the appropriate number and spacing of cross drains on skid trails and skid roads. The following table is a guide for cross drain spacing:

Percent Gradient	Non-pumice Soil Cross Drain (feet)	Pumice Soil Cross Drain (feet)
0-5	200-160	200-300
6-10	160-120	200-160
11-15	120-100	160-120
16-20	100-60	120-100
21-30	60-40	100-60
31-45	40-25	60-40
46+	25	25

Cable Corridors - A minimum to one slash barrier should be placed every 100 feet along the length of cable logging corridors. Slash barriers should be constructed as discussed above. The sale administrator will designate hand placed water bars on areas of the corridors that show potential to channel water due to cable logging activities, using the above distance guide.

T-17. Title: Meadow Protection During Timber Harvesting.

Tractor harvest is excluded year round from wetlands, bogs, wet meadows and scabrock flats. The wet meadow areas shall be identified on the timber sale vicinity map. The specific contract provision, which provides for exclusion of these areas from tractor and other equipment activity, is B (T) 1.0 and B (T) 6.61. The specific contract provision which provides for wetlands protection is C (T) 6.61#.

Road BMPs

R-1. Title: General Guidelines for the Location and Design of Roads

There are several general considerations that must be incorporated into the planning of road locations and designs. These measures are preventive and indirectly protect water quality and associated aquatic resources. The following apply to all transportation activities:

a. A basic requirement for transportation facility development and operation is the formulation and evaluation of alternatives, and the selection of an alternative that best meets resource management objectives (safety, cost and resource impacts are considered equally) with the least adverse affect on environmental values.

b. In the location, design, and construction of roads, an interdisciplinary team will be used to determine road layout and to evaluate the effects of transportation development and operations to minimize adverse economic, environmental, and social impacts.

c. Roads should be located to facilitate completion of the area transportation system, fit the terrain, and minimize damage to improvements and resources. Fragile and special areas that cannot be mitigated to an acceptable level of resource damage should be avoided. The goal of transportation planning is to develop a transportation system with the minimum amount of roads needed to access forest resources. Road design standards and design criteria are based on a transportation plan for the area, an economic analysis, road management objectives that identify traffic requirements during and following the timber sale, safety requirements, resource objectives to be met or mitigated, and special resource concerns.

d. Stream crossing structures shall be designed to provide the most efficient drainage structure with resource protection, safety and cost. The design will involve a hydrological analysis to determine runoff volumes, flood conditions, velocities, scour, and open channel shapes. Every attempt should be made to maintain the function of the floodplain or if a single structure is used will be design to accommodate a 100-year flood event in accordance with standards set forth in the Inland Fish Strategy or other appropriate Regional Direction.

e. Road construction and maintenance activities shall follow the Forest Service Specifications for Construction of Roads and Bridges (EM-7720-100, 1995).

R-2. Title: Erosion Control Plan

The specific contract provision B(T)6.3 in the Timber Sale Contract (TSC) which provides for the operation plan is C(T) 6.3 & C(T) 6.311. The Purchaser/Contractor must provide a written schedule for erosion control work. This will include all erosion control items identified in the contract. The corresponding public works contract clause is USDA 452.236-74. All phases of the project will be considered. The schedule for erosion control work must be approved by the Contracting Officer prior to implementation.

R-3 Timing of Construction Activities

Minimize erosion by allowing road construction related activities to operate only during low runoff periods. Soil erosion and sedimentation are directly related to runoff. Furthermore, equipment should not be allowed to operate when ground conditions are such that detrimental puddling occurs and ruts from vehicle tracks reach four inches or more in 500 feet.

Timing of construction activities are subject to approval by the Engineering Representative (ER)/Contracting Officer's Representative (COR). The following are guidelines for timing of construction activities:

a. Erosion control (e.g. placement of straw bales) will be kept current throughout the contract period. Specific items will be identified in the contract package.

b. Construction of road drainage and other erosion control measures will be carried out as soon as possible after earthwork is completed. If drainage and erosion control cannot be completed prior to the fall wet season, then, construction should be delayed until the following year. When construction activities are carried out, erosion control measures will be completed prior to fall shutdown or outside the normal operating season.

c. Timing of instream construction is addressed in BMP R-13.

These guidelines should be incorporated into the contract and subsequently into the Erosion Control Plan that is prepared by the Purchaser/Contractor.

The specific timber sale contract provision which provides for the plan of operation is C(T)6.311 & the Public Works contract provision is Schedules of Construction Contracts, reference FAR 52.236-15.

R-7. Title: Control of Surface Road Drainage Associated with Roads

Ditching, outsloping, insloping, and rolling the grade are used on roads to control surface erosion. On high clearance roads, diversion of water off road surfaces should be accomplished by rolling the grade of the road. Rolling of the grade is identified as part of the road location and carried through in pioneering and construction of the road (versus installing dips after the finished grade is complete). Standards for dip design on roads are found in the Transportation Engineering Handbook (FSH 7709.56). The recommended spacing of rolling dips is 400'/%Slope +150' (for example: a grade of 4% would have a spacing equal to 400'/4 + 150' = 250'). Rolling dips should be designed with an adverse grade on the downhill side and, where economically possible, should be armored with aggregate to prevent traffic from cutting through the structure.

Ditched roads should have culverts and/or dips installed periodically to carry this water across the road. Maximum spacing of culvert and/or road drainage structures should be determined by soil erosion classes and road grade as described in the Road Design Handbook (Lecklider and Lund, 1971). Water should not be released onto fill slopes. Culverts and dips should have outlets that are protected by rock or other types of splash basins to reduce the energy of emerging water.

Because surface erosion on fill and cut slopes is also highest the first year after disturbance (Burroughs and King, 1989), it is necessary to have slope stabilization work completed while soil on cut and fill slopes are still in a roughened condition and prior to the first winter season after construction activities started. This should be accomplished by applying a rapid growing short-lived nurse crop such as cereal rye/winter wheat or fast growing native species. Long-term establishment of native species should be pursued whenever possible.

Outsloping of the roadway is preferred, except in cases where outsloping would increase sediment delivery to streams or where outsloping is infeasible or unsafe.

Cross drains should be placed upslope from the stream crossings for a distance of at least 100 feet on roads with drainage dips and 300 feet on roads with culverts.

Where streams (perennial, intermittent and ephemeral channels/draws) are crossed, fords or culverts should be used. An adverse grade should be provided in both directions from the stream crossing so that high water does not flow down the road surface prism during high flow events.

Construction activities within RHCAs should use straw bales and/or filter fabric where appropriate to control sediment input to the stream system. The typical locations for this material is below construction activities where an adequate natural buffer does not exist that would help to prevent sediment input during normal spring runoff. These filters should normally be placed higher than the 50-year flood plain, to prevent them from washing out during high runoff events.

Temporary roads should meet the following erosion control standards and mitigations

a. Temporary roads shall not be constructed in RHCAs, as defined in BMP T-7. The exception to this is where the transportation system does not provide access to the area and a skid trail is necessary to cross the RHCA and to serve as access to the area. In this case a temporary road would be allowed, as an alternative to a skid trail. This should be evaluated and determined in the EA.

b. The maximum grade should be 10% on temporary roads that will be used for more than one season. Broad based dips or rolling of the road grade should be used for cross drainage. See BMP R-7 for details of broad based dips.

c. Temporary roads that are used for only one season, should have waterbars installed at the spacing recommended in BMP T-16 for skid trails. Generally temporary roads are removed prior to winter.

d. Temporary roads should be removed by obliteration (obliteration implies recontouring the road to the a slope that matches the contour or subsoiling and shattering a minimum of 80% of the compacted soil). Entrances of obliterated roads should be closed with large water bars/or other barriers that would prevent access to the area. Subsoiled roads should have water bars and broad based dips along the length of the road to provide cross drainage. Cross drain spacing should be as recommended above.

e. All drainage structures should be installed according to BMP T-16 or R-7 and shall be in place, prior to fall/winter wet season. Alternatively, they should be removed as discussed above, if no longer needed.

R-8. Title: Constraints Related to Pioneer Road Construction

The following practices will reduce impacts associated with pioneering roads:

a. Construction of pioneer roads should be confined to the roadway construction limits unless approved by the ER/COR. Excavation shall be conducted to prevent

undercutting the final cut slope and to minimize depositing materials outside the designated roadway limits.

b. Erosion control work will be completed prior to periods of fall/winter precipitation.

c. Live streams crossed by pioneer roads will be protected with temporary culverts or log structures unless timing of instream work is completed during the period that is allowed by the Fremont National Forest, Guidelines for Timing of Instream Construction. Temporary structures shall be removed prior to the fall/winter precipitation period.

R-11. Title: Control of Sidecast Material

To minimize impacts from uncompacted material, all fill material within RHCAs should be compacted (versus side casting of material). These mitigations should be included in the contract road package.

R-12. Title: Control of Construction in RHCAs.
Roads, fills, sidecast, and end-hauled material should be kept outside RHCAs except where necessary for stream crossings. Compaction of fill material is required, per BMP R-11.

Trees that are located adjacent to the channel with roots that provide channel stabilization and shade shall be left wherever possible (generally removal of trees is only required if they pose a public safety threat. Also, minimize damage to roots and stems of trees that are to be left.

Stream channel crossings will generally be at right angles to the stream channel. The purpose of right angle crossings is to achieve an adverse grade in both directions from the stream crossing. This will prevent water from running down the road surface during high flow events.

Maintain the water table within the floodplain by not cutting through the soil and developing a ditch that will drain the area.

Flood plains will remain intact and water will be allowed to flow over the entire width of the flood plain without being constricted by the road, (i.e. do not elevate the roadbed above the flood plain without additional outlets through the fill area; do not constrict the channel). Additional outlets may consist of culverts or low water fords that are placed throughout the entire length of the fill (if feasible) to maintain floodplain function.

R-13. Title: Diversion of Flows Around Construction Sites
The Oregon State Guidelines for Timing of In-water work to protect fish and wildlife will be followed (attached). Waivers may be sought from time to time in emergency situations (such as catastrophic floods that wash roads out that require immediate replacement) or other factors affecting the timing of the project. In such cases, coordinate with Zone Fisheries Biologist and local State biologist to obtain a waiver. If threatened, endangered or proposed species occur in or downstream of the project area, contact the Level I Team member on the Forest for coordination with Fish and Wildlife Service. When diversion of flows around a construction site is not feasible, document rationale in appropriate NEPA documents.

The LRMP Standard and Guidelines, pg 200, identifies that project activities will be conducted in a manner to ensure that turbidity levels do not exceed ten percent of the pre-activity levels on perennial streams.

Short-term violations for required in-stream construction work (i.e., Restoration measures, bridges, etc.) are acceptable. Thus, projects that would result in long-term violations should use methods such as diverting water around the work area to reduce turbidity.

R-14. Title: Bridge and Culvert Installation and Protection of Fisheries

BMP R-13 provides guidelines for timing of instream construction. The preconstruction engineer shall design culverts on fish bearing streams that will provide fish passage. This will require coordination with the fisheries biologist to determine the species, maximum velocities and other features that are necessary to obtain fish passage.

Excavated materials shall be kept out of live streams unless it is designed to be placed there (i.e. riprap, etc.).

Sediment producing materials will not be left within the 100 year flood plain any longer than necessary to construct the facility. Once the construction is complete fill material will be removed and properly disposed of in upland areas. If a flood is anticipated during the construction period, the fill shall not be placed within the 100-year floodplain.

Traffic will not be allowed to cross the stream during construction, except for short-term duration projects that meet the instream guidelines in the Fremont National Forest, Guidelines for Timing of Instream Construction. Otherwise, bypass and access roads shall be suitably located including plans for their subsequent obliteration.

As defined in the LRMP through inclusion of the Inland Native Fish Strategy, culverts, bridges and other stream crossings shall be designed to accommodate the 100-year flood.

R-15. Title: Disposal of Right-of-Way and Roadside Debris

This practice is used to keep debris and slash generated during road construction and reconstruction out of watercourses. Slash shall not be disposed of within RHCAs unless specifically identified in the EA as mitigation to enhance large woody debris in the stream channel. Piling and burning, chipping, scattering, windrowing, and disposal into cutting units would be acceptable options depending upon site-specific conditions in roaded areas.

R-17: Title: Water Source Development Consistent With Water Quality Protection

The purpose of this practice is to provide water for road construction, maintenance, livestock, wildlife and fire protection while maintaining the integrity of the water source. Timing and amount of withdrawal shall be directed towards maintaining instream flows and fish habitat. When flows are too low to allow withdrawal, water should be obtained from another approved source.

The Fremont National Forest Water Use Plan should be followed in water source development. The following are general guidelines from the Water Use Plan. More specific guidelines are found in the Plan.

<u>Streams</u>

Pumping, damming or other activities that dewater a stream will not be allowed, except as described under R-13 for dewatering of construction site.

Recommended discharge rates listed in Table 23 of the Forest Plan will be considered minimums.

Discharge rates in all perennial streams not listed in Table 23 will be maintained as follows:

a. Flows will not be reduced more than 50% of the flow occurring at the time of withdrawal.

b. In no case will flows be reduced to less than 1.0 CFS.

Be cautious that downstream-appropriated water rights may necessitate maintenance of flows higher than these minimums.

Springs and Seeps

Pond sources developed from springs and seeps will have a minimum of 25% of the water present at the time of withdrawal reserved in place.

These sources should not be used for road construction or reconstruction or dust abatement.

R-18. Title: Maintenance of Roads

Maintenance of roads associated with the timber sale should be commensurate with the Purchaser's use to prevent erosion damage to the road and adjacent lands. Minimum road maintenance requirements are:

a. Blading and shaping of the road surface and ditches to maintain the original cross sections. Banks will not be undercut. Minimize the amount of gravel or other road surfacing material should bladed off the road surface.

b. Ditches, culverts, and other drainage features shall be kept clear of earth, slash, and other debris to maintain their efficient functioning.

c. Purchaser shall repair all damage to the road surface, drainage system, and associated structures resulting from the Purchaser's operations.

d. Road fills that wash or settle shall be restored.

e. Snow will be removed during Purchaser operations by plowing it from the roadway so the road surface, road drainage, and adjacent resources are protected. This is further addressed under the BMP, R-21.

f. Preventative maintenance will be performed before fall/winter periods of precipitation. This should include waterbarring, insloping, outsloping, and closing roads.

R-20. Title: Traffic Control During Wet Periods

Roads that are used for all weather use will have a stable surface and sufficient drainage to allow use during moderate runoff events. Roads could be temporarily closed when soil conditions would result in road damage as defined in the Fremont N.F. Road Damage Policy FSM 7770.3 Supplement. The authority

for this action is under the Forest Supervisor, to be recommended by the District Ranger and Forest Engineer.

R-21. Title: Snow Removal Controls to Avoid Resource Damage

This BMP should be used to prevent damage to watershed quality and minimize the impact on road surfaces and embankments as the result of snow removal operations and/or melt water drainage. Forest Snow Removal Policy should be used when snow removal is performed. This policy includes the following:

a. Banks shall not be undercut nor shall gravel or other surfacing material be bladed off the road.

b. Roadbed drainage ditches and culverts shall be functional during operations and upon completion of operations. Snow will not be plowed into ditches and culvert inlets, nor will the existing snow in those locations be packed down.

c. Snow removal shall be controlled to identify the usable traveled way having roadbed support. Over-width plowing shall be reshaped as necessary to define the usable width. Snow will be removed from the total width of the travel-way, including all turnouts. Snow will be plowed away from ditches and brought across the travel-way. Snow shall be cast over the edge of fill slopes and off the shoulders whenever practical to do so, with the exception that snow shall not be deposited in stream channels.

d. Drain holes shall be constructed, and maintained in the dike of snow or berm after each snow removal operations. Drain holes shall be placed to obtain surface drainage without discharging on erodible fills. The Purchaser shall be responsible for periodic inspections and maintenance to ensure that the drain holes, ditches, and culvert facilities remain open and functioning properly. Changes in this responsibility may occur if other use occurs and is agreed to in writing by both parties.

e. Roads shall be effectively closed after operations to wheeled vehicles at times and in the manner specified, on the operation plan.

f. Remove snow for either public access or project use as established in the parent contract or permit.

R-23. Title: Decommissioning of Temporary Roads and Landings\ Road Closures

Decommissioning/Obliteration

Block the road to vehicles using gates, earth mounds, or other types of barriers that have proven effectiveness in deterring vehicular use.

Obliterated roads and skid trails should have compacted surfaces subsoiled. Subsoiling implies the shattering of the compacted roadbed to restore soil condition. Subsoiling should be performed across the entire width of the surface with a minimum of 80% of the soil in a shattered condition. The pattern of subsoiling should be a J-hook that results in a waterbar and allows water to drain off the road and back to an undisturbed soil surface. Spacing of J-hooks should be those recommended R-7 for drainage structures. On obliterated roads that are not J-hooked, waterbars

shall be constructed at the same spacing as recommended for J-hooks. Also utilize blocking, erosion seeding, and logging slash where feasible in order to control access and minimize erosion.

Alternatively, obliteration could also include pulling fill back and re-contouring the road/trail prism to the original (natural) slope.

Obliterated roads shall be permanently closed with large water bars/or other barriers that would prevent access to the area.

Where appropriate (stream crossings, areas immediately adjacent to channels, etc.) use measures to stabilize and/or capture sediment before it enters stream channels. Measures such as silt fences, straw wattles, straw bales are appropriate to capture sediment.

Blocked Roads

Provide the appropriate number and spacing of cross drains on blocked roads to assure proper drainage. See the table under T-16, page 7.

Roads that will have continued use for administrative purposes should have broad based dips constructed. Dips should be installed on a spacing recommended in the Fremont National Forest -Guide to Erosion Control on Forest Roads and Trails. Spacing = 400 feet/% Slope +100 feet. Broad based dips should be designed with an adverse grade on the downhill side and, where possible, should be armored with aggregate to prevent traffic from cutting through the structure.

Closed roads not needed for administrative purposes should have the culverts pulled and the floodplain reestablished. Providing the appropriate cross drain spacing on roads and skid trails will help keep water and eroded soil in the uplands. This will improve water quality by reducing unnaturally high levels of sediment and by keeping water in the uplands where it can be used by vegetation and where it is available for stream flow later in the season. The pulling of culverts or routine inventory and maintenance on closed roads will eliminate or reduce the likelihood of culverts and associated road fill failing releasing large quantities of sediment into the waterway.

R-24. Title: Landscape and Hazardous Material (Fremont National Forest Supplement)
The Contracting Officer shall not operate mechanical Equipment in live streams without written approval.

All petroleum products or other hazardous substances (as defined in 29 CFR 1910.120) shall not be released on or into land, rivers, streams, and impoundments, or natural or manmade channels leading thereto. Whenever equipment is required to work in or around water protective devices as required by State and Federal Regulations will be on site. Servicing of all equipment shall be done in areas approved by the Contracting Officer or their designated representative. The Operator/Contractor shall dispose of waste oil, vehicle filters (drained or free flowing oil), and oily rags in accordance with applicable State and Federal regulations and such material shall be transported off government property in accordance with State and Federal regulations.

If the total oil or oil products storage exceeds 1320 gallons or if any single container exceeds a capacity of 660 gallons, the Operator/Contractor shall prepare and submit a Spill Prevention Control and Countermeasures (SPCC) Plan. Such plan shall meet applicable EPA requirements (40 CFR

112) including certification by a registered professional engineer. This plan shall include notification of appropriate state and federal officials, the Contracting Officer, and other appropriate agencies.

The Operator/Contractor shall immediately take action to notify the appropriate agencies (including the Contracting Officer, or designated representative), contain, and clean up, without expense to the Government, all petroleum products or other hazardous substances releases which are in the vicinity of the project and which are caused by the Contractor's employees, directly or indirectly, as a result of the construction operations. In the event the Government determines that additional resources beyond those of the Contractor's are required, the Contractor may be held liable for all damages and costs of the additional labor, subsistence, equipment, supplies, and transportation deemed necessary by the Government for the containment and clean up of petroleum products or other hazardous substances releases caused by Contractor's employees or resulting from construction operations.

The Contractor shall notify the Contracting Officer, or designated representative, of any hazardous materials (as defined in 29 CFR 1910.120) to be used on the job and shall have Material Safety Data Sheets (MSDS) for those materials available on the job. All such materials shall be labeled in accordance with federal and state regulations.

APPENDIX 5
Responses to Comments

Appendix 5

Response to Public Comments

In accordance with 36 CFR 215.6(a), the comment period for the Joker II Restoration Project was announced in the Herald and News (Klamath Falls, Oregon) on February 28, 2002. The announcement stated that comments would be acceptable until March 29, 2002. Copies of the Environmental Assessment were mailed to individuals who had expressed interest in this project during the analysis period.

During the comment period, letters were received from Mike Anderson of the Wilderness Society, Richard Hart, Gary Johnson of Fremont Sawmill, and Mary Jo Hedrick of the Oregon Department of Fish and Wildlife. Comments were also received from Doug Heiken of the Oregon Natural Resources Council but were postmarked four days after the close of the comment period.

Responses to the comments received are attached, as per 36 CFR 215.6(d). Comments, not necessarily quoted, are in bold text with responses to the comments in standard text.

March 6, 2002 letter from Mike Anderson, The Wilderness Society

1. I am concerned that the EA does not mention or utilize the Forest Service's newly adopted goals and monitoring criteria for the LFSU (Lakeview Federal Sustained Yield Unit).

The goals listed in the Policy Statement for the Lakeview Federal Sustained Yield Unit (LFSYU) as Amended (01/11/01) are:

1. Sustain and restore a healthy, diverse, and resilient forest ecosystem that can accommodate human and natural disturbances.
2. Sustain and restore the land's capacity to absorb, store, and distribute quality water.
3. Provide opportunities for people to realize their material, spiritual, and recreational values and relationships with the forest.

Though these goals are not specifically addressed or referenced in the Joker II EA, the purpose and need of the Joker II Restoration Project parallel the LlFSYU Policy Statement stating "...the project is aimed at maintaining the health of the large, old overstory trees within forest stands. With respect to the difference between the current and desired condition within the Joker II Analysis Area, the objectives of this project are to:

> Tend, by understory removal, thinning, and fuels treatment, late or old stands with multi-storied structures and mid seral stands so as to produce, maintain, and enhance single storied late and old forest characteristics as identified in the *Regional Forester's Eastside Forests Plan Amendments*. Resultant stands could be prescribed for underburning activities within the context of the greater landscape at a future date.
>
> Improve wildlife habitat, riparian health conditions, and other special features such as range productivity, aspen stands, and meadows with respect given to landscape connectivity between late and old structure (LOS) habitat. Promote diversity between stands (and to some extent within stands) by maintaining diverse seral structure within post-fledging areas (PFA), Maintaining a continuum of large live and dead ponderosa pine for winter roosts and not treating key areas in the amount and proximity that serve as important wildlife habitat (e.g. retaining snag clumps, big game cover, stands remaining dense and at risk of insect or disease attack). Consider possible road closures as a tool to improve habitat effectiveness. Provide final boundaries for a proposed Bald Eagle Management Area (BEMA). Improve habitat with a special emphasis of improving those values critical for bald eagles in this area, namely roost trees.
>
> To the extent in excess of the ecosystem's desired needs, provide wood fiber in the form of merchantable products to the timber dependent portion of the local economy." (Joker II Restoration Project EA, p. 2)

2. In reviewing proposed activities and EAs, such as Joker II, it would be very helpful to us if the agency documentation explicitly referenced the applicable goals and criteria. While it may be too late to do so for the Joker II EA, at least the decision notice should address how the project comports with the LFSU goals and criteria.

As stated above, the LFSYU goals are parallel to the purpose of and need for the proposed action of Joker II. A direct link will be incorporated into the decision notice. The criteria referenced are listed as monitoring criteria in the LFSYU, used to measure the management activities applied in the Sustained Yield Unit. This type of monitoring is established to be accomplished "...during the Forest Planning Process" (Policy

Statement for the LFSYU, p.5) and "...when closure of all manufacturing facilities occurs in both Lakeview and Paisley." (Policy Statement for the LFSYU, p.5) Joker II activity-monitoring takes place during any activity in the form of contract compliance inspections and sale administrator reviews, and also with post activity specialists' reviews.

3. I am concerned that the use of tractor or other ground-based logging on all 600 acres planned for partial cutting could result in significant damage to soils in the area. According to the soils section of the EA, moderate to high impacts from tractor logging are predicted. These predicted impacts on soils appear to be in conflict with Criteria 1C and 2E of the LFSU policy.

The soils discussion, starting on page 1 of Chapter 3 in the EA, reviews the types of soils in the Joker II area, the suitability of these soils to various activities, and the expected impacts on these soils by the activities. This information is presented in the first three paragraphs under a. Soils. The effects of the alternatives on the soils are discussed on pages 2 and 3 of Chapter 3. This section identifies the use of Best Management Practices (BMPs) and other mitigation measures to reduce the effects of the proposed actions. As stated in the EA, "Harvesting activities may contribute to these risk factors but the impact would be minimal as BMPs will be followed. Upland watershed impacts from roads and compacted soils will be ameliorated to a certain degree by the obliteration of existing skid trails, spur roads, and landings that are used for this entry. Although soil compaction is above the 20% standard within a few units in the project area, following the Forests Soil Productivity Guidelines will aid in moving the area closer to Forest Plan Standards." (Joker II Restoration Project EA, Chapter 3, p.3)

The EA also identifies mitigation and resource protection measures discussed in the Fremont National Forest Soil Productivity Guidelines: the use of designated skid trail systems, scheduling activities when soil strength is the highest (dry, frozen or snow covered), type of equipment used (low ground pressure equipment), and natural processes such as frost heave, shrink swell and root penetration to break up compacted soil. In some cases, soil tillage (subsoiling) may be used where roads, and other severe compaction occurs. Following these guidelines would help achieve the goal of having less than 20 percent of the soil in a detrimentally impacted condition, thus reducing the predicted impacts logging may have on these soil types.

4. Only 6 of the 14 harvest units have been monitored for soil compaction, but 2 of the units were found to be 29% compacted while the others were within the Fremont forest plan's <20% compaction standard. Given the significant risk of adverse soil impacts from Joker II, it would be advisable to conduct pre- and post-project soil monitoring in all 14 of the units. What are the Forest Service's intentions regarding post-project soils monitoring?

As with all surveys and monitoring procedures, sampling is done instead of 100% coverage. The procedure used by the soil survey crew involved 4 steps. First, units were reviewed by aerial photo for the presence of previous management activity (skid trails, man-made openings, landings) and classed as having low, moderate, or high impacts. Second, soil types for each unit were identified using the Forest Geographic Information System (GIS) soils layer. Third, units were grouped by same estimated level of impacts and soil types. Then, depending on the number of units in each grouping, 1-2 units per group were randomly selected for field sampling. Fourth, field sampling was done on a random line drawn through the stand following a specific compass bearing, with compaction samples taken every six to ten feet. A minimum of 100 sample points was taken per unit. Random sampling is based on the educated interpolation that similar actions on same soil types will result in similar impacts.

Contract officer representatives and timber sale administrators do soil monitoring during activities. Post project monitoring is done on randomly selected projects for specialist review.

5. It is not clear from the EA why the Forest Service considers tractor (or other ground-based equipment) logging to be the only feasible option for removing trees from the Joker II area. The EA states that slopes in the area range from 16 to 40 percent, and that slopes greater than 35% are "unsuited for tractor logging." Why shouldn't other methods like helicopter, horse, or cable logging be used, at least for the areas with 35-40% slopes? Is it solely because other methods would make the project uneconomical?

The main reason for considering only units available by tractor is because the Joker II project is within the LFSYU. Though not stated in the EA, this coincides with the monitoring criteria on page 6 of the LFSYU policy which states the area will be monitored to track "... which management provides opportunities for people to realize their material, recreational and spiritual values and relationships with the forest including: ...Designing contracts for services and sales of products to be accessible and attractive as possible to local firms and individuals to the extent permitted by existing authorities and where it will help management objectives." Many other acres could be treated in the area, but the presence of slope puts it outside the capabilities of local firms.

6. I am also concerned about the project's potential impacts on goshawk habitat. According to the EA (Chap. 3, p. 12), "four historic and/or recently active goshawk nests occur within the planning area" and "[p]otential nesting habitat is likely to be reduced in the areas proposed for treatment...." This predicted impact appears to conflict with LFSU policy criterion 1B (***maintain and restore habitat for focal species)***.

Though potential nesting habitat is likely to be reduced, foraging habitat is expected to increase aiding survival. The wildlife biologist also stated that overall; goshawk populations are expected to remain the same.

7. While the EA states that "[n]o known nests are located within the proposed activity units," I question whether the Forest Service has adequately surveyed the units for goshawk nests. According to the EA, "timelines during this analysis did not allow for ... completing surveys in all areas proposed for treatment." I suggest that, at a minimum, the Forest Service thoroughly survey all the Joker II units for goshawk nests prior to project implementation. If nests are found, they should be protected from disruption.

All units will be surveyed this spring (2002). If additional nests are found, mitigations as stated in Chapter 2, pages 2 and 3, will be put in place to avoid disruptions. Existing known post-fledging areas will be monitored during activities.

March 18, 2002 E-Mail from Richard Hart, forwarded by Mike Anderson

Mr. Hart's comments concurred with Mr. Anderson's statements with the addition of some soil concerns.

1. I suggest that the operation be carried out on the existing trails, but that only 10% of the activity area be re-disturbed. The trails need to be identified and flagged as the useable network, and that it become dedicated for future reentry.

As stated in Chapter 2, page 1, existing or designated skid trails would be used. This is further addressed in the Soils discussion, page 3 of Chapter 3: "The mitigation and resource protection measures discussed in the Fremont National Forest Soil Productivity Guidelines provide techniques for minimizing the effects of proposed harvesting activities on soil resources, and improving the existing condition in those areas where the LRMP standards and guidelines have been exceeded. These measures include: the use of designated skid trail systems, scheduling activities when soil strength is the highest (dry, frozen or snow covered), type of equipment used (low ground pressure equipment), and natural processes such as frost heave, shrink swell and root penetration to break up compacted soil." The Best Management Practices (BMPs) in Appendix 4 identify the contract provisions to use in the timber sale contract providing for approved skid trail location and special yarding and skidding methods.

2. I do not promote the idea of sub-soiling as a mitigation tool "unto we have do the job of making sure that the FS knows where it does and does not work."

Resource protection measures in the Soil Productivity Guidelines, which will be used in Joker II (Chapter 3, p. 3), include: the use of designated skid trail systems, scheduling activities when soil strength is the highest (dry, frozen or snow covered), type of equipment used (low ground pressure equipment), and natural processes such as frost heave, shrink swell and root penetration to break up compacted soil. In some cases, soil tillage (subsoiling) would be used where roads, and other severe compaction occurs. Subsoiling will not be an automatic measure but will be used only under conditions identified by specialists.

March 22, 2002 letter from Gary Johnson, Fremont Sawmill

1. The big push within the R-6 Eastside Forests is to move all timber stands towards the Late Success ional Stage (LOS) of development. How will the F.S. justify any stand management in the future once all or the majority of stands have reached LOS status? The wildlife species dependent on younger and/or multistoried stands will suffer habitat loss.

The Regional Forester's Eastside Forest Plans Amendments 1 and 2 directed forests to identify and manage toward the historic range of variability (HRV) for a particular landscape. The standard issued with these amendments states all remnant late and old seral and/or structural live trees $\geq$ 21 inches, dbh, will be maintained. The HRV represents the percent composition of species and structural stages maintained by dominant historical disturbance regimes. These percentages are classed by specie type and early, middle, late, and old seral stages. Historically, only 10 – 15% of the Joker II area was in early-middle seral stages; and more than 70% was in late and old seral stages. Current conditions are 43% in early-middle seral stages and 57% in late and old seral stages (Joker II Restoration Project EA, Chapter 3, p. 6). Because of the difference between the HRV and the current conditions in the Joker II area, the need exists to bring stands closer to those HRV percentages. Forest management to stay within HRV and natural occurrences will prevent the majority of stands favoring one seral stage. Changing the Regional Forester's Eastside Forest Plans Amendments is outside the scope of this project. Currently there is a good mix of young and old stands and the proposed action will maintain a mix, meeting needs of a variety of wildlife species.

2. In Chapter 2, page 2 it is mentioned that competing conifer will be felled in aspen stands and left in place to discourage ungulate use. I feel the merchantable portion of the conifers felled should be utilized for lumber production, unless the volume would be extremely insignificant.

Most of the aspen stands in Joker II are small and scattered across the 12,000-acre analysis area. The competing conifers are mainly smaller trees of limited volume. The range conservationist has stated that in aspen stands where competing conifers were felled and left in place, ungulate use has been limited, indicating this as a successful tool in aspen protection.

3. I object to the amount of acreage, 1085 acres, proposed for the Avery Creek Bald Eagle Management Area. The present proposal, a Forest Plan amendment, would decrease the amount of timber available to dependent mills and would thereby reduce employment in our local communities. I would recommend the Avery Creek Bald Eagle Management Area be reduced to that area north of F.S. Road 3510019 and the ridgeline between Avery and Fisher Creeks.

The establishment of the 1085 acres as a Bald Eagle Management Area (BEMA) would not remove that acreage from timber production. The management strategy would change to benefit roost sites but, as shown with the placement of 4 timber harvest units within the BEMA, timber would still be available. The boundary decision was based on the protection of 2 core roost sites, one of which is located south of F.S. Road 3510019, and to limit disturbance to roosting eagles and potential roost habitat.

4. As a big game hunter, I am also concerned with the lack of hunting access after November 1 of each year.

Hunting access will be limited to certain times of the year (May 2 – October 31) for this area, which will affect the second season general elk hunt. All other hunts are scheduled outside the closure period.

Information received from Mary Jo Hedrick, wildlife biologist with Oregon Department of Fish and Wildlife, disclosed that because there are not many elk in this area, impacts to hunting would be minimal.

5. I object to the closure of F.S. Roads 3510209 and 240 on the grounds that these roads are needed for fire protection and future management activities in the areas accessed by these roads. I have no problem with the roads being blocked to prevent vehicle use during periods of inactivity.

The Interdisciplinary Team had one meeting specific to road management in the Joker II area. During this meeting, resource concerns were addressed regarding the need for roads and impacts of roads on the various resources. Road 3510209 was identified as a hydrological and soil resources concern because it runs adjacent to the North Fork of King Creek. The road channels run-off and allows increased sedimentation to enter the creek. The team recommended obliterating the road to improve riparian habitat. F.S. Road 3510240 runs parallel to the 3510018 road and across a soft scab-rock flat. This type of micro-site is prone to run-off erosion and the presence of a road increases that situation. The area will still be accessible by the 3510018 road. If future management objectives require access to areas located off these roads, a new road system would be analyzed. Roads identified for obliteration will have culverts pulled (if any are present), natural flow areas re-established, ripped using J-hooks to allow for introduction of native plants, and possibly barricaded in some manner to discourage access during rehabilitation. Roads to be closed will be done so with some type of barricade at the point of closure, usually an intersection.

March 29, 2002 letter from Mary Jo Hedrick, Oregon Department of Fish and Wildlife

1. Given the potential for shrub loss through canopy closure within the Joker II analysis area we support the proposal to open the ponderosa pine stands. However, during my examination of the harvest units it appeared that most of the units are adjacent to clear cuts and/or previous understory removal, thinning and fuels treatment. Therefore, we recommend 5 to 30 acre cover patches be retained within 1200 feet of one another. These patches should be identified prior to treatment and protected during treatment.

The silviculturist's report, which is summarized with the table on page 4 of Chapter 2 and in the Alternative description on pages 6 & 7 of Chapter 3, identifies variable thinning using retention of white fir thickets in the BEMA, retention of 40% of the fir thickets in unit 7 (winter range), retention of 50% of areas of small pine in units 8 and 15 (post-fledging areas), and a more standard thinning in units 9 through 14. The North Zone wildlife biologist determined this prescription would still provide adequate cover in the area, both in summer range (38%) and winter range (71%).

2. We support the closing and/or obliterating of the roads within the Joker II analysis area. During scoping, I recommended closing roads eight roads (104, 110, 118, 205, 206, 210, 195 and 196) within the analysis area. Closing and/or obliterating these roads would have substantial benefits for wildlife.

A meeting with Mary Jo Hedrick, the District Engineer, and the Environmental Coordinator provided clarification of the road situation. Ms. Hedrick was using an old road map with some numbers no longer used in the system. Road 3510104 is already closed, road 3510110 is now 047 and already closed, road 118 is 050 and already closed, 205 and 206 are closed, 195 is listed on the transportation system map (GIS) as 036 and will stay open, 196 is listed as 197 and will stay open. Approximately 8.94 miles of roads will be closed and 3.89 miles of roads will be obliterated in the Joker II area.

3. We support the plan amendment to designate the Avery Bald Eagle Management Area. However, in addition to the proposed timing restriction no activities should occur within a minimum of 1/4 mile or a topographic line of sight from the roost when occupied to minimize negative impacts to Bald Eagles.

The Bald Eagle Management Area boundary encompasses the two core roost sites and is at least ¼ mile from the edge of these sites. This boundary was deemed adequate by several wildlife biologists working on the BEMA proposal.

4. Several unique rock formations occur in unit 11. The LRMP standards for cliff/caves/talus in forested stands recommend protection by management of the shade provided by nearby trees. It recommends at least 80 % of the shade be retained through use of buffer strips, leave trees, or other methods.

Although biologists did not locate rock formations in unit 11, any cliffs/caves/talus slopes found in the area will be protected by following the forest-wide standards on page 111 of the Forest Plan.

5. Since this is a project to restore LOS and old growth characteristics, snags and down wood necessary for dependent wildlife should be managed at 100% potential population levels (ICBEMP DEIS chapter 3 pg. 151,152), particularly in the Bald Eagle MA and the Goshawk post fledgling areas.

Mitigation measures discussed on pages two through three of Chapter 2 state all snags not identified as safety hazards will be maintained. Snag clumps within the BEMA will be flagged and activities will be reduced around the clumps providing protection.

The letter received from Doug Heiken of Oregon Natural Resources Council after the close of the appeal period stated the same comments as Mike Anderson's letter with the addition of "Roadless area concerns." Mr. Heiken states "Units 9, 12, 13, and 14 appear to be located in an uninventoried roadless area > 1,000 acres." County Road 2-10 C runs just north of the property boundary along unit 9. Just past the intersection of this county road and F.S. Road 3510014, another road leaves the 014 and goes into unit 9. Unit 12 is along the 3510014 road. Another road, mainly on private lands, comes into the middle of unit 12 from the south. A private road, running northeast off the 3510014 road, comes into the southwest corner of unit 13. Unit 14 runs along a portion of the 3628021 road with parts of the unit located on each side of the road. Though these units may appear to be in roadless areas according to mapping used by Mr. Heiken, they are accessible by current road systems.