

Snow Basin Vegetation Management Project

Record of Decision

USDA Forest Service

Wallowa-Whitman National Forest

Whitman Ranger District

Baker County, Oregon

March 2012

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**WALLOWA-WHITMAN NATIONAL FOREST WHITMAN RANGER DISTRICT
SNOW BASIN VEGETATION MANAGEMENT PROJECT**

Record of Decision

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RECORD OF DECISION FOR THE SNOW BASIN VEGETATION MANAGEMENT PROJECT

1. Introduction

The USDA Forest Service recognizes the importance of maintaining ecological resilience of National Forest System (NFS) lands and associated resources to achieve sustainable management and provide a broad range of ecosystem services. Healthy, resilient landscapes will have greater capacity to survive natural disturbances and large scale threats to sustainability. Current scientific information indicates there is broad agreement that resilience of many western forest landscapes is at risk due to past fire suppression and logging activities. With considerable changes in species composition, structure, and densities having occurred over the last several decades, the Snow Basin project area is representative of such situations. The intent of this project is to reestablish and retain resilience of forest ecosystems across the Snow Basin project landscape in order to promote sustainability of these forest ecosystems and associated human values.

The Snow Basin Vegetation Management Project planning area is within the Wallowa-Whitman National Forest Whitman Ranger District. The project area is 28,545 acres and is within Baker County, Oregon. The towns of Richland and Halfway are to the south and southeast and Medical Springs is to the west. A vicinity map of this project area is provided in appendix A.

The project planning area is within portions of T7S, R44E, all sections, and T8S, R44E, most sections. The project area is primarily within two main subwatersheds (Paddy Creek-Eagle Creek and Little Eagle Creek) and has minor acreages within three other subwatersheds (Goose Creek, Lower Eagle Creek, and East Fork Eagle Creek). Refer to the Snow Basin Final Environmental Impact Statement (FEIS, March 2012) for a more detailed description of the project area.

Purpose and Need

The purpose and need and desired future conditions of the Snow Basin Vegetation Management Project are summarized here and described in detail in the FEIS.

Purpose and need 1: Manage forest composition, structure, and density towards the historic range of variability (HRV) across the landscape and improve sustainability

Based upon current vegetative conditions that are outside the HRV and fuel conditions that clearly indicate the landscape is moderately to significantly altered from historic disturbance regimes, there is need to reestablish and retain ecological resilience and sustainability in the Snow Basin project area. One purpose of the project is to manage forest structure, composition, and density towards landscape HRV to create a more resilient and sustainable forested ecosystem.

Purpose and need 2: Maintain and increase landscape resilience to reduce the risk of uncharacteristic disturbance, including the risk of high severity, stand replacing fires, insect outbreaks, and disease

There is a need to reduce stand densities, develop specific stand structures, alter species compositions, and reduce fuel loading in order to reduce conditions favorable to insect and disease outbreaks and wildfire damage. By moving these forest attributes towards HRV, ecosystem processes, such as response to wildfire and insects and disease, will be more resilient and self-sustaining. The second purpose of the project is to move the landscape toward conditions of historic range to reduce the risk of uncharacteristic disturbance in both scope and magnitude.

Purpose and need 3: Provide a supply of forest products for the public to utilize, and provide a supply of materials to local markets

Wood products play an important role in the local economy by providing employment and revenue. There is a need to provide wood products to help maintain the existing lumber and forest products infrastructure and to support local employment, providing for community stability. The third purpose of the project is to provide for the production of wood fiber consistent with resource objectives, environmental requirements, and economic efficiency insofar as possible while providing jobs to area residents.

Desired Conditions

The desired condition for the Snow Basin area can be described as a mosaic landscape that has a distribution of forested species compositions, structural stages, tree diameters, and relative densities within the natural (historic) range of variability for these sites. Returning stands to more characteristic conditions will create resilient¹ and sustainable² forest conditions, which are able to respond to disturbance processes and ensure continued forest productivity. Specifically, the desired landscape is one comprised predominantly of large, open grown ponderosa pine and western larch forest intermixed with a diversity of other species, structural stages, and densities at varying scales. Specific components of the desired condition across this landscape include:

- In warm dry grand fir, Douglas-fir/ponderosa pine and warm moist Douglas-fir biophysical environments, the majority (75 to 90 percent) of forested stands contain species compositions dominated by ponderosa pine and/or western larch trees.
- In cool moist grand fir biophysical environments, 30 to 60 percent of forested stands contain species composition dominated by ponderosa pine and western larch trees.
- The understory re-initiation stage abundance is reduced across the planning area to 5 to 25 percent or less in all biophysical environments.
- Between 15 to 55 percent of forested stands are in the single story large trees common structural stage in the warm dry grand fir, Douglas-fir/ponderosa pine, and warm moist Douglas-fir biophysical environments.
- The amount of high density (closed) forest is between 5 to 15 percent of the area in the warm dry grand fir, Douglas-fir/ponderosa pine and warm moist Douglas-fir biophysical environments.
- The amount of high density (closed) forest is between 15 to 30 percent of the area in cool moist grand fir biophysical environments.
- Insects and diseases operate mostly at the endemic levels. Host species occur in the same proportions that they occurred historically.
- Mistletoe infection levels are within natural ranges of a fire maintained landscape; mistletoe infections exist at an endemic level without threatening the development and maintenance of late and old structure (LOS).
- Trees in the planning area have more vigorous growth rates as a result of low inter-tree competition, resulting in increased LOS recruitment.

¹ Forest Service Manual 2020 Ecological Restoration and Resilience (effective date August 30, 2011) defines *resilience* as “the ability of a social or ecological system to absorb disturbances, while retaining the same basic structure and ways of functioning, the capacity for self-organization, and the capacity to adapt to stress and change.”

² Forest Service Manual 2020 Ecological Restoration and Resilience (effective date August 30, 2011) defines *sustainability* as: “Meeting needs of the present generation without compromising the ability of future generations to meet their needs. Sustainability is composed of desirable social, economic, and ecological conditions or trends interacting at varying spatial and temporal scales, embodying the principles of multiple-use and sustained-yield (FSM 1905).”

- Western larch, quaking aspen, and ponderosa pine exist in the proportions found historically in the planning area. The existing 29 hardwood sites in the planning area are restored and protected.
- The majority of landscape in the planning area has a fire regime condition class (condition class 1) indicating a low departure from reference conditions.
- Overall, less than 25 percent of the Snow Basin landscape has a high potential for supporting a high severity, stand replacing wildfire.
- Predicted flame lengths are less than 4 feet and rates of fire spread (2 to 16 chains per hour) make direct attack firefighting methods feasible.
- The project area provides more sawlogs, pulp, biomass, and fuelwood to private and public markets.

To achieve the purposes of this project and the associated desired conditions, the forest plan, and in particular the Eastside Screens amendment, needs to be amended to allow for the removal of uncharacteristic and unsustainable large trees (21 inches DBH and greater) in high risk biophysical environments. Current conditions interfere with attainment of characteristic LOS conditions in warm dry forest. Mistletoe infection and grand fir jeopardize targeted reserve conditions, most particularly ponderosa pine and larch LOS, by increasing mortality, slowing growth, increasing the risk of uncharacteristic wildfire and insect attacks, and prohibiting the successful regeneration of pine and larch.

2. Decision

The decision to be made and documented in this record of decision is whether or not the Snow Basin Vegetation Management Project should proceed at this time. If so, then:

- Where and how should forest species composition and structure be managed?
- Where and how should fuels be reduced?
- Which roads should be closed and for what periods of time?
- Which roads should be decommissioned and/or obliterated?
- What management requirements and mitigation measures should be incorporated?
- What sale area improvement projects should be implemented?
- What monitoring requirements are appropriate to evaluate project implementation?
- What forest plan standards and guidelines need to be amended to implement this project?

Based on my review of the Snow Basin Vegetation Management Project purpose and need, desired conditions, proposed action, and the other alternatives described in the FEIS, I have decided to proceed with the Snow Basin Vegetation Management Project. I have selected alternative 3 as presented in the FEIS, with modifications as described below. This decision shall be referred to as the selected alternative, and is described in detail in appendix A.

Description of the Selected Alternative

The selected alternative includes all components of alternative 3 as described in the FEIS with the following clarifications and refinements:

- Old trees (150 years or more) of all species will be retained throughout the project area.
- Only grand fir 21 inches DBH and greater will be harvested in treatment units, except in situations where there is excessive mistletoe infestation impeding development of healthy conditions in Douglas-fir, or where large trees of other species are affecting the health and vigor of aspen stands.
- The emphasis in all treated units is to provide for variable density within stands, depending upon the site conditions and plant associations. Drier plant associations will generally be more open with less canopy closure than those on moister sites. Basal areas will generally range from 60 to 90 square feet in drier plant associations, with more sites being at the lower end of that range. The concept of skips and gaps, from a variety of basal area prescriptions within units, will allow for variations as much as 10 to 200 square feet, depending on the particular within stand characteristics.

- Unit 342 (along Torchlight Gulch) will not be included, in order to protect five acres of riparian habitat conservation area (RHCA) located within that stand. This modification will reduce the amount of road reconstruction by 0.65 miles.
- Approximately 38.75 miles of road reconstruction are included in the selected alternative.
- Approximately 5.3 miles of new temporary road construction is included, along with 3.7 miles of existing non-system routes that will be used. All temporary roads will be closed and rehabilitated using current standards for resource protection and restoration.
- Several units will be identified for firewood gathering along closed roads. These roads will be open seasonally for firewood gathering by people with a valid fuelwood permit.
- Grapple and hand piles of slash may be available for firewood gatherers on a case-by-case basis, reducing the need to burn all slash piles.
- Several non-commercial thinning units will be identified as fuelwood areas.
- Priority for implementing fuels reduction and prescribed underburning treatments in the Snow Basin landscape will be in the wildland urban interface (WUI) areas identified by Baker County.

A full description of the selected alternative is provided in appendix A of this record of decision.

Management direction, design criteria, and monitoring

The selected alternative incorporates all management requirements, mitigation measures and monitoring items identified for alternative 3 in the FEIS, with minor changes based on the refinements described previously. All management requirements, mitigation measures, and monitoring items for the selected alternative are described in appendix B of this record of decision.

Non-significant Forest Plan Amendment (Amendment #44)

The selected alternative will require two forest plan amendments.

Forest plan amendment 1

A site-specific non-significant forest plan amendment is needed to allow timber harvest activities within LOS stages that are below HRV in particular biophysical environments. Treatments in these stands are needed to change multi-story stands dominated by large grand fir trees to single story stands dominated by large early-seral ponderosa pine and western larch trees. In addition, treatments are needed to maintain declining desired tree species, such as ponderosa pine and western larch, by reducing competition with over represented large grand fir.

This proposed amendment will allow timber harvest activities on 626 acres of qualifying LOS stands. This amounts to approximately 15 percent of the LOS stands within the planning area and less than 0.1 percent of the 1.09 million acres classified as suitable for timber management activities within the Wallowa-Whitman National Forest. This amendment would update Regional Forester's Forest Plan Amendment 2 as specified:

Page 9, Appendix B Revised Interim Direction:

“DO NOT allow timber sale harvest activities to occur within LOS stages that are BELOW HRV.”

Amended direction would read:

“DO NOT allow timber sale harvest activities to occur within LOS stages that are BELOW HRV except within the Snow Basin project area during implementation of Snow Basin Vegetation Management Project activities as described in the Snow Basin Vegetation Management Project Record of Decision, dated March 2012.”

Forest plan amendment 2

A site-specific non-significant forest plan amendment is proposed to remove a limited amount of grand fir of any size from all units and to allow harvest of trees 21 inches DBH and greater in situations where there is excessive mistletoe infestation impeding development of healthy conditions in Douglas-fir or where large trees of other species are affecting the health and vigor of aspen stands. This amendment is needed to remove conifers within harvest treatment stands based on the greatest benefit to residual tree survival and stand sustainability rather than based on conifer diameter.

This amendment would apply to 11,013 acres, or approximately 41 percent of the 26,494-acre Snow Basin planning area, which accounts for approximately 1 percent of the 1.09 million acres considered suitable for timber management within the Wallowa-Whitman National Forest. This amendment would update the Regional Forester's Forest Plan Amendment 2 as specified:

Page 10, Appendix B Revised Interim Direction:

“Scenario A: Outside of late and old structural stages, many types of timber sale activities are allowed. Intent is still to maintain and/or enhance late and old structure components in stand subject to timber harvest such as possible, by adhering to the following standards: a) Maintain all remnant late and old seral and/or structural live trees greater than 21 inches DBH that currently exist within stands proposed for harvest activities.”

Amended direction would read:

“Scenario A: Outside of late and old structural stages, many types of timber sale activities are allowed. Intent is still to maintain and/or enhance late and old structure components in stand subject to timber harvest such as possible, by adhering to the following standards: a) Maintain all remnant late and old seral and/or structural live trees 21 inches DBH and greater that currently exist within stands proposed for harvest activities, except grand fir, within 11,013 acres of proposed commercial harvest units in the Snow Basin project area, except for other conifer species in situations where there is excessive mistletoe infestation impeding development of healthy conditions in Douglas-fir or where large trees of other species are affecting the health and vigor of aspen stands within the Snow Basin project area during implementation of the Snow Basin Vegetation Management Project.”

Implementation Plan

Implementation of the selected alternative will occur in stages. A number of commercial, non-commercial, and service contracts will be offered over the course of the next several years to achieve the desired outcomes. Initial stages of implementation are scheduled to begin in 2012.

3. Rationale for the Decision

The selected alternative achieves the purpose and need for action, and responds to the key issues identified in response to comments received regarding the proposed action and draft environmental impact statement. I believe the selected alternative best meets the purpose and need for action, while reasonably addressing the key issues. My rationale is described in the following sections.

Meeting the Purpose and Need for Action

The selected alternative responds to the purpose and need for action by reestablishing and retaining resilience of forest ecosystems across the Snow Basin project landscape in order to promote sustainability of these forest ecosystems and associated human values. The selected alternative will increase forest resilience, reduce the risk of uncharacteristic disturbance, and promote sustainability while responding to the key issues concerning LOS forest, harvest of larger trees (21 inches DBH and greater), wildlife

connectivity corridors, American marten habitat, and temporary road construction. Treatments included in the selected alternative respond to land and resource management objectives and are designed to:

- Move forested stands towards HRV for species composition, structure, and densities at a landscape scale.
- Promote the development of more single story LOS and reduce insect and disease susceptibility by improving tree and stand vigor.
- Promote the health and vigor of early-seral species, including ponderosa pine and larch, in areas where they are underrepresented due to grand fir conversion.
- Maintain and enhance aspen stands by reducing conifer competition and reducing browsing pressures.
- Provide increased protection in wildlife connectivity corridors between LOS stands and MA 15 stands (old growth).
- Maintain existing American marten habitat requirements while reducing the risk of uncharacteristic high severity wildfire in these areas.
- Reduce fuel loading (surface, ladder, and canopy fuels) to a level that facilitates future reintroduction of natural fire severities (low to mixed fire regimes).
- Reduce fuels that would contribute to uncharacteristic high severity wildfire and resource damage.
- Increase protection from high severity wildfire and resource damage in WUI areas.
- Reduce potential impacts of temporary road construction, particularly in the wild and scenic river corridor.
- Provide sawlogs and wood products for utilization by local communities and forest products industries. This alternative will result in a potential yield of 48 MMBF.

Responding to Key Issues

Important to my decision was the way in which the selected alternative addressed the five key issues. Summaries and descriptions follow.

Late and old structure forest

Existing LOS forest would be affected by the selected alternative in two ways: (1) changing some multi-story with large trees (MSLT) stands to single story with large trees (SSLT) stands, and (2) a possible net loss of LOS in the short term as stand structure is changed from MSLT to SSLT. Table 1 displays the anticipated amount of change from MSLT to SSLT. This change reflects the desire to restore and maintain characteristic species composition in dry forest ecosystem types, particularly the dry ponderosa pine and larch communities.

Table 1. Anticipated LOS forest changes by biophysical environments in the treatment units

Key indicator: Change of MSLT to SSLT (acres)		
BPE	Alternative 1	Selected Alternative
Cool moist grand fir	0	77
Warm dry grand fir	0	510
Warm moist Douglas-fir	0	104
Warm dry Douglas-fir-ponderosa pine	0	558
Totals	0	1,249

Table 2 displays how the selected alternative will respond to improving future LOS forest by manipulating existing non-LOS forest. This will be done by creating single-story from multi-story, favoring resilient tree species, and reducing tree density to improve diameter growth rates. These acres will develop into LOS forest over time. Increasing diameter growth will promote development of larger trees (compared to the no action alternative). Retaining most trees 21 inches DBH and greater, and

retaining all old trees (150 years or older), will reduce the concern for losing LOS forest in the process of converting MSLT to SSLT.

Table 2. Key indicators comparison between alternative 1 (no action) and the selected alternative

Key Indicator	Alternative 1	Selected Alternative
Acres of non LOS structural stages treated to change stand development toward SSLT	0	6,375
Acres of LOS restored to characteristic conditions	0	1,784
Acres of increased radial growth for large tree development	0	7,356

The selected alternative will promote the development of LOS forest across the landscape, while emphasizing the need to manage for species composition, structure, and density based on site conditions. Since most of the landscape is comprised of the drier biophysical environments that support early seral species adapted to low- to mid-intensity disturbance, the emphasis is to restore more SSLT across the area. I believe the selected alternative promotes development of LOS forest better than the action alternatives described in the FEIS.

Harvest of trees 21 inches DBH and greater

The selected alternative will limit the harvest of trees 21 inches DBH and greater to only grand fir, with two exceptions: 1) situations where there is excessive mistletoe infestation impeding development of healthy conditions in Douglas-fir and 2) where large trees of other species are affecting the health and vigor of aspen stands. By doing so, treatments can be implemented to manage forest species composition, structure, and densities to manage towards HRV by biophysical group as appropriate, while leaving larger trees more characteristic of the desired species composition within stands across the landscape. In many areas, grand fir has proliferated to levels highly uncharacteristic in both the dry and cool moist forests across the Snow Basin landscape. Reducing the amount of grand fir, in conjunction with opening forest canopies (particularly on drier sites) will facilitate development of more characteristic species composition, as well as accelerate development of more LOS forest. I believe the selected alternative protects trees 21 inches DBH and greater better than the action alternatives described in the FEIS, with the possible exception of alternative 4.

Wildlife habitat connectivity corridors

Proposed treatments in stands identified as corridors connecting isolated patches of LOS would reduce canopy cover. Some respondents were concerned that canopy cover reductions in these corridors would negatively impact function of these areas.

The selected alternative provides an increased level of forest canopy closure (50 percent or more) in connectivity corridors throughout the project area. Retention of old trees, retention of most large trees (21 inches DBH and greater), and the increased level of forest canopy closure in connectivity corridors should minimize concerns for reduced function of these areas. I believe the selected alternative provides habitat connectivity corridors better than alternatives 2 and 3 in the FEIS.

American marten habitat

American marten are known to occur within the project area. Treatments are proposed in areas identified as marten habitat. Some respondents were concerned that treatments within identified marten habitat would reduce the quality of habitat for this species.

The selected alternative incorporates design features for marten habitat (refer to more specific description provided in appendix A. Retention of all old trees in the project area, an increased level of forest canopy closure in habitat connectivity corridors, and the additional design features for American marten habitat should minimize concerns for reduced quality of habitat for this species. I believe the selected alternative provides for protection of American marten habitat better than alternatives 2 and 3 described in the FEIS.

Potential impact of temporary roads

Some concern was expressed that constructing temporary roads would result in undesirable effects, including habitat fragmentation, contribution to unacceptable losses to soil productivity, contribution to unacceptable delivery of sediment to streams, and unauthorized motor vehicle use.

The selected alternative includes approximately 5.3 miles of new temporary road construction, along with 3.7 miles of existing non-system routes that will be used. This is a reduction of 0.65 miles from the preferred alternative described in the FEIS. Some amount of temporary road use is needed in order to achieve the purpose and need for action. However, all temporary roads used for project implementation will be closed and rehabilitated using current standards for resource protection and restoration. There will be long-term reduction in sediment delivery into streams due to road decommissioning, road improvements, and road closures. Roads will not be located on unstable landforms and will not be constructed in RHCAs. I believe the selected alternative provides better protection of resources from the potential impacts of temporary road construction, as compared to alternatives 2 and 3 in the FEIS.

Other Environmental, Social, and Economic Factors Considered in the Decision

The selected alternative addresses several other environmental, social, and economic factors not identified as key issues that are important in reaching a decision for the Snow Basin project area. Descriptions follow.

Riparian habitat conservation areas

The selected alternative allows for treatments on approximately 38 acres within RHCAs in order to improve stand conditions while facilitating treatment in adjacent upland units. This represents approximately 0.8 percent of the total acreage of RHCAs in the planning area. Forwarder trails will be established within an additional 61 acres of riparian habitat conservation areas where an existing NFS road will be used to access units above the road outside the RHCA. This represents approximately 1.2 percent of the total acreage of RHCAs in the planning area. Existing landings in or above RHCAs will be used to minimize potential concerns. An estimated 25 landings impacting approximately 5 acres within RHCAs will be used.

Threatened, endangered, and sensitive plant and animal species

The selected alternative addresses needs for protection of TES species and their habitats. Evaluation of project activities indicates that the actions will not have a detrimental impact on any listed species. Road maintenance and best management practices (BMPs) to reduce sediment and erosion from the road system will reduce potential adverse effects to listed fish.

Roadless areas, potential wilderness areas, and other undeveloped areas

The Little Eagle Meadows inventoried roadless area (IRA) is north of the planning area and the Eagle Cap Wilderness Area is north of the IRA. There are no inventoried roadless areas, potential wilderness areas, or other undeveloped areas in the Snow Basin project area. Neither status nor the boundary of the Little Eagle Meadows IRA will be affected by the selected alternative.

Visuals and scenery

Scenery provides the setting for many activities experienced by national forest visitors. Activities that include timber harvest and prescribed fire may affect current and future conditions of scenic resources. While short-term visual effects of activities included in the selected alternative may be apparent, the Snow Basin landscape will be appear natural with more open pine forests, clean water, and abundant wildlife in the long term. The selected alternative will meet the visual quality objectives of the Eagle Creek Wild and Scenic River corridor.

Wild and scenic rivers

The main stem of Eagle Creek was added to the National Wild and Scenic River System in 1988 with the Omnibus Oregon Wild and Scenic Rivers Act. Approximately 9.4 miles of Eagle Creek Wild and Scenic River is within the project planning area. The selected alternative incorporates several measures to address outstanding and remarkable values of the Eagle Creek Wild and Scenic River, including eliminating all temporary road construction and increasing forest resilience to promote a more aesthetically pleasing landscape. The selected alternative is consistent with the goals and objectives of the Eagle Creek Wild and Scenic River Plan and meets all management direction for Eagle Creek.

Wildland urban interface

Four communities, each comprised of private lands with widely spaced dwellings in a forested setting, are within or adjacent to the planning area: Surprise Springs, Sparta, East Eagle/Main Eagle, and Carson/Pine. Approximately 9,500 acres of wildland urban interface (WUI) area associated with these areas of settlement, as identified in the Baker County Community Wildfire Protection Plan (Baker County 2006), are within the planning area. The selected alternative contributes to the intent of the Baker County Community Wildfire Protection Plan by reducing the risk of high severity fires, resource or property damage, and exposure of firefighters within WUI.

4. Alternatives Considered

Alternatives for this project were designed to provide a range of possible actions. The interdisciplinary team (ID team) developed the range of alternatives, project design features, and mitigation measures based on the purpose and need for action and key issues described in chapter 1 of the FEIS. Forest plan goals and objectives, standards and guidelines, requirements of the Endangered Species Act, and other Federal and state laws and regulations also influenced the development of alternatives. In total, seven alternatives were considered, three were eliminated from detailed study and four were analyzed in detail. The ID team recommended and the responsible official approved three action alternatives and a no action alternative for detailed analysis. These four alternatives are summarized in the following sections and are described in detail in the FEIS.

Alternative 1 (No Action)

The no action alternative serves as the baseline used to compare the effects of the proposed action and alternatives. No new management activities are proposed. Current biological and physical processes would be allowed to continue on their present trajectories along with associated risks and benefits.

None of the management activities described in the proposed action or the other action alternatives would be implemented to accomplish project goals. Commercial thinning, fuels treatments for activity and natural fuels, and prescription burning would not be authorized. There would be no temporary road construction or treatment of fuels in riparian habitat conservation areas. Hardwood restoration and road decommissioning activities would not be authorized. There would be no amendment to the forest plan to allow specific treatments needed to increase stand health and resilience in the planning area. For the no action alternative, current management plans would continue to guide management of the project area. Other approved projects would continue in the project area. In addition, other public uses, such as recreation, hunting, and firewood gathering would continue as permitted.

Alternative 2 (Proposed Action)

Alternative 2 was designed to address the purpose and need for action by thinning overstocked stands to promote forest resilience and reduce the likelihood of uncharacteristic disturbance in the analysis area. Treatments in alternative 2 were designed to:

- Move forested stands towards HRV for species composition, stand densities, and stand structures on a landscape scale. Thinning treatments were proposed to reduce tree density, modify species

composition, promote the development of single story LOS, and reduce insects and disease susceptibility by improving tree and stand vigor.

- Reduce fuel loading (surface, ladder, and canopy fuels) to a level that facilitates future use of low-intensity surface fire to maintain stand health and vigor while reducing the risk of uncharacteristically intense, high severity wildfire and associated resource damage.
- Reduce overstory competition so that established regeneration (e.g., existing seedlings and saplings) can develop.
- Maintain and enhance underrepresented aspen stands by reducing conifer competition and reducing browsing pressures.
- Provide sawlogs and wood fiber products for utilization by local and regional industry.

This alternative was designed to address the large scale shift that has occurred in the planning area from a landscape dominated by large diameter, open, grown LOS ponderosa pine and western larch stands to one dominated by dense, younger, multi-layered, shade tolerant grand fir and Douglas-fir forests. Ponderosa pine, western larch, and quaking aspen have all declined in health, vigor, and abundance as a result of their intolerance to shade and the lack of disturbance within the planning area. A corresponding increase in live and dead fuel loads has occurred. These changes in landscape condition have increased the potential for occurrence of uncharacteristic disturbance patterns, including high intensity, stand replacing fire, and insects and disease disturbances.

Alternative 3 (Preferred Alternative)

Alternative 3 was designed to respond to the agency's purpose and need for action by thinning overstocked stands towards historic species compositions, structure, and density, and by promoting resilience to disturbance processes. It responds to the following key issues: maintaining LOS, connectivity corridors, American marten habitat, and temporary road construction. Proposed treatments included in alternative 3 respond to land and resource management objectives established for the Snow Basin project, and to a lesser extent, meet the objectives previously described for alternative 2.

Treatments in alternative 3 were designed to:

- Implement project activities that provide increased protection in wildlife connectivity corridors between LOS stands and MA 15 stands (old growth).
- Implement project activities that maintain existing American marten habitat requirements while reducing the risk of uncharacteristically severe wildfire in these areas.
- Reduce the impacts of temporary road construction.
- Move forested stands towards HRV for species composition, stand densities, and stand structures at a landscape scale. Thinning treatments were proposed to reduce tree density, modify species composition, promote the development of single story LOS, and reduce insects and disease susceptibility by improving tree and stand vigor.
- Reduce fuel loading (surface, ladder, and canopy fuels) to a level that facilitates future reintroduction of natural fire severities (low to mixed fire regimes) and reduce fuels that would contribute to uncharacteristic wildfire and resource damage.
- Improve forest sites where early-seral species are no longer present in ecologically viable amounts as a result of grand fir conversion.
- Maintain and enhance underrepresented aspen stands by reducing conifer competition and reducing browsing pressures.
- Provide sawlogs and wood fiber products for utilization by local and regional industries.

Alternative 4

Alternative 4 was designed to respond to the agency's purpose and need for action by thinning overstocked stands towards historic species compositions, structure, and density, and by promoting resilience to disturbance processes. It responds to the following key issues: maintaining LOS, minimizing

impacts to trees 21 inches DBH and greater, connectivity corridors, American marten habitat, and temporary road construction. Proposed treatments included in alternative 4 respond to land and resource management objectives established for the Snow Basin project and, to a greatly reduced extent, meet the objectives previously described for alternative 2. Treatments in alternative 4 were designed to:

- Eliminate the removal of trees 21 inches DBH and greater while providing a short-term reduction in stand density and reduced movement toward sustainable historic stand conditions.
- Implement project activities that provide increased protection in wildlife connectivity corridors between LOS stands and MA 15 stands (old growth).
- Implement project activities that maintain existing American marten habitat requirements while reducing the risk of uncharacteristically severe wildfire in these areas.
- Eliminate the impacts of temporary road construction.
- Move forested stands towards HRV for species composition, stand densities, and stand structures at a landscape scale. Thinning treatments are proposed to reduce tree density, modify species composition, promote the development of single story LOS, and reduce insects and disease susceptibility by improving tree and stand vigor.
- Reduce fuel loading (surface, ladder, and canopy fuels) to a level that facilitates future reintroduction of low-intensity surface fire and reduces fuels that would contribute to uncharacteristic wildfire and resource damage.
- Improve forest sites where early-seral species are no longer present in ecologically viable amounts as a result of grand fir conversion.
- Maintain and enhance underrepresented aspen stands by reducing conifer competition and reducing browsing pressures.
- Provide sawlogs and wood fiber products for utilization by local and regional industries.

Alternatives considered but eliminated from detailed study

Federal agencies are required by NEPA to rigorously explore and objectively evaluate all reasonable alternatives and to briefly discuss the reasons for eliminating any alternatives that were not developed in detail (40 CFR 1502.14). Public comments received in response to the proposed action provided suggestions for alternative methods for achieving the purpose and need. Some of these alternatives may have been outside the scope of the purpose and need for the Snow Basin project, duplicative of the alternatives considered in detail, or were determined to have components that would cause unnecessary environmental harm. Therefore, a number of alternatives were considered but dismissed from detailed consideration. These alternatives are described in the FEIS.

5. The Environmentally Preferable Alternative

NEPA implementing regulations require agencies to specify “the alternative or alternatives which were considered to be environmentally preferable” [40 CFR 1502.2(b)]. Forest Service policy further defines the environmentally preferable alternative as “...an alternative that best meets the goals of Section 101 of NEPA...” (FSH 1909.15). Section 101 of NEPA describes national environmental policy, calling on Federal, state, and local governments and the public to “...create and maintain conditions under which man and nature can exist in productive harmony.” Section 101 further defines this policy in six broad goals:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations
- Assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings
- Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences
- Preserve important historic, cultural, and natural aspects of our national heritage, and maintain wherever possible, an environment which supports diversity and variety of individual choice

- Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources

Based on the description of the alternatives considered in detail in the FEIS and this record of decision, I believe that the selected alternative best meets the goals of Section 101 of the National Environmental Policy Act and is therefore the environmentally preferable alternative for this proposed Federal action.

6. Changes made between the DEIS and FEIS

Several changes were made between the draft and final environmental impact statements for this project, and are described as follows.

Changes to chapter 1 include:

- Editorial changes to the text and format in all sections of the chapter
- Clarification of the purpose and need, including incorporation of recent agency guidance at FSM 2020 that provides foundational policy for using ecological restoration to manage NFS lands in a sustainable manner
- Identification of additional key issues in response to comments
- Identification of other resource issues that could have a cause-and-effect relationship with proposed activities and associated measures that are provided to compare environmental effects of the alternatives

Changes to chapter 2 include:

- Editorial changes to the text and format in all sections of the chapter
- Clarification of the proposed action and amendments
- The term "partial overstory removal" has been replaced by "overstory removal" in all instances
- Adopted USDA Forest Service Region 6 old growth definition establishing 150 years of age as the minimum age of old growth trees; trees exhibiting old growth characteristics following Van Pelt guidelines (Van Pelt 2008) would be retained in all areas regardless of size
- Elimination of all regeneration harvest in alternatives 2, 3, and 4
- Large wood additions to approximately 7.5 miles of stream has been added to alternatives 2, 3, and 4 to enhance fisheries habitat
- The long-term management of stands surrounding the Paddy Creek seed orchard as a shaded fuel break has been clarified
- Addition of guidelines for retention of trees within 20 feet of large, old grand fir trees identified as wildlife trees
- Minor modification of treatments, acres, and road miles in all action alternatives to reflect updates in the analysis and additional data gathering
- Change in acres treated by prescribed burning in all action alternatives to more accurately reflect expected accomplishments and smoke management guidelines
- A forest plan amendment allowing treatment in late and old structural stands with uncharacteristic species compositions was added to alternative 3
- Alternative 3 was modified to better protect wild and scenic river values by eliminating temporary roads within the Eagle Creek Wild and Scenic River corridor and associated harvest units
- Alternatives 3 and 4 were modified to better protect habitat for American marten by adjusting prescriptions to maintain 50 percent or greater canopy closure in areas identified as potential American martin habitat

- Alternatives 3 and 4 were modified to better protect wildlife connectivity corridors by retaining basal area at a level between the upper and mid management zone (approximately 10 to 20 additional square feet of basal area per acre)
- Comparison tables were updated to reflect modified alternatives and to display resource measures

Changes made to chapter 3 between the DEIS and FEIS include:

- Editorial changes to the text and format in all sections of the chapter
- New bird survey data was added to the wildlife effects analysis
- Additional soil erosion hazard modeling results were added to the soils section
- Pre-implementation and post-implementation soils monitoring were added for all commercial harvest units with additional mitigations proposed for any units falling outside acceptable parameters; complete descriptions of these activities can be found in appendix B
- Modification and/or additions to most effects sections in response to public comments and additional information
- Modification of treatment prescriptions to meet wildlife connectivity corridor and American marten habitat objectives
- Summaries of the effects analyses are included in this chapter; full reports can be found in the project record
- Additional silviculture analysis includes historic range of variability (HRV) for tree density and species composition
- New data was used to calculate estimates of trees 21 inches DBH and greater that would be removed for the action alternatives

7. Forest Plan Consistency

This record of decision and the FEIS are tiered to the Wallowa-Whitman National Forest Land and Resource Management Plan FEIS and ROD (USDA 1990) and incorporate by reference the accompanying Land and Resource Management Plan (forest plan), as amended, as permitted by 40 CFR 1502.20.

This action responds to the goals and objectives outlined in the Wallowa-Whitman National Forest forest plan (USDA 1990) and helps move the project area towards desired conditions described in the forest plan. Management areas in the Snow Basin project area are shown in the table 3.

Table 3. Wallowa-Whitman National Forest forest plan management areas for the Snow Basin project

Management Area and Description	Forest Plan Page Reference	Acres in Project Area
MA 1 Emphasize wood fiber production while providing high levels of forage and recreational opportunities	4-56	16,388
MA 1W Timber production emphasis while meeting identified winter range habitat objectives	4-58	1,157
MA 3 Timber production emphasis while providing near optimum cover forage conditions on big game winter range	4-60	5,567
MA 7 Manage to not diminish the special values of the Wild and Scenic Rivers	4-71	2,702
MA 15 Maintain habitat diversity, aesthetic values, and provide old growth habitat for wildlife	4-89	10
MA 15-7 Old growth preservation within a wild and scenic river corridor (MAs 7 and 15 combined)	4-91	592
MA 16 Meet administrative and recreation site retention objectives	4-71 and 4-89	77
Totals	NA	26,493

Analysis and documentation for this project has been prepared according to direction contained in the National Forest Management Act, National Environmental Policy Act, Council on Environmental Quality regulations, Clean Water Act, Clean Air Act, National Historic Preservation Act, and the Endangered Species Act. Please refer to the FEIS for more discussion regarding consistency with the forest plan.

8. Compliance with Environmental Laws and Regulations

Clean Air Act of 1970, as amended 1990

The Clean Air Act of 1970, as amended, is designed to protect and enhance the quality of the nation's air resources. It establishes a national goal to prevent future and remedy existing visibility impairment in certain wilderness areas the Forest Service manages. It also directs the Forest Service as a Federal land management agency to protect air quality related values from man-made air pollution in these same areas.

The Snow Basin Vegetation Management Project is designed to meet the standards of this act through management practices that consider air quality, health, and visibility standards (see appendix B of this ROD).

Clean Water Act 1977 as amended 1982, 303(d)

The Clean Water Act provides overall direction for the protection of waters of the United States from both point source and non-point source pollutants. Oregon Department of Environmental Quality (ODEQ) implements the Clean Water Act in Oregon. Section 303(d) of the act requires improvement of impaired streams. ODEQ publishes a list of impaired water bodies in Oregon. This list is available from the project record.

The EPA has certified the Oregon Forest Practices Act and regulations as best management practices (BMPs). The state of Oregon has compared Forest Service practices with state practices and concluded that Forest Service practices meet or exceed state requirements. Site-specific BMPs have been designed to protect beneficial uses. The application of water quality BMPs and list of applicable BMPs that will be utilized to implement the activities in the selected alternative are discussed in appendix B.

The selected alternative will result in reductions in stream sedimentation and will lead to an improving trend in stream sedimentation targets. The selected alternative also meets anti-degradation standards through planning, application, and monitoring of BMPs.

Secretary of Agriculture Memorandum 1042-156

The May 30, 2011, Secretary of Agriculture Memorandum 1042-156 reserves authority to the Secretary for most activities related to road construction, road reconstruction, and timber harvesting in inventoried roadless areas (IRAs) administered by the Forest Service. The selected alternative is consistent with this memorandum based on analysis in the IRAs and PWAs report referenced in the FEIS and available from the project record. The selected alternative does not authorize any route construction or maintenance in IRAs and does not authorize tree cutting in IRAs.

Roadless Area Conservation Rule

The Roadless Area Conservation Rule was published in the Federal Register (Volume 66, No. 9) on January 12, 2001, and established prohibitions on road construction, road reconstruction, and timber harvesting in IRAs. The selected alternative does not include any road construction or reconstruction in IRAs.

CFR 212.5(B) Identification of the Road System and CFR 212.55 (a) and (b) Criteria for Designation of Roads, Trails and Areas and Executive Order 11644 (as of February 8, 1972) Use of Off-road Vehicles on the Public Lands

The minimum road system analysis for the Wallowa-Whitman National Forest is being conducted as a separate analysis that will be completed for at least the southern portion of the national forest by early

2012, with the analysis for the remainder of the national forest scheduled to be completed by the end of 2012. The analysis presented in the Wallowa-Whitman National Forest Travel Management Plan ROD and FEIS discloses the findings to designation of roads, trails and areas under CFR 212.55 and for Executive Order 11644.

Knutson-Vandenberg Act 1930 (16 U.S.C. at 576b)

The Knutson-Vandenberg (KV) Act specifies that the Secretary may require any purchaser of national forest timber to make deposits of money in addition to payments for the timber. These payments may be used to cover the cost of planting, sowing with tree seeds, and cutting, destroying or otherwise removing undesirable trees or other growth on the national forest land cut over the purchaser, in order to improve the future stand of timber or for protecting and improving the future productivity of the renewable resources of the forest land on such sale area. The proposals for funding under the KV Act are listed in table 5 of the FEIS. KV funds are collected from the sale of timber. If KV funds are limited, appropriated funding would be pursued for the implementation of these activities. KV and sale area improvement projects associated with the implementation of the selected alternative are analyzed for environmental effects in chapter 3 of the FEIS.

Endangered Species Act of 1973, as amended (P.L. 93-205, 87 Stat. 884; 16 U.S.C. 1531-1544, as amended)

The purpose of this act is to provide a means for conserving the ecosystems that endangered species and threatened species depend upon and provide a program for the conservation of such endangered species and threatened species. Under the act, conserve means the use of methods and procedures necessary to bring any endangered or threatened species to the point at which the measures provided under the act are no longer necessary. Appropriate coordination, conferencing, and consultation with the U.S. Fish and Wildlife Service (USFWS) and NOAA Fisheries (formerly National Marine Fisheries Service, NMFS) have been completed.

Biological assessments were prepared to document possible effects of proposed activities on threatened, endangered, and Federal candidate species in the Snow Basin project area.

For Columbia River basin bull trout critical habitat, the assessments concluded with the determination for the selected alternative: “may effect, but not likely to adversely affect.” The determination was concurred upon by the USFWS with a letter dated January 11, 2012.

There would be “no effect” to Columbia River bull trout, Snake River spring/summer Chinook salmon, Snake River fall Chinook salmon, and Snake River steelhead and their critical habitat as these species or their critical habitat does not occur within the project area.

More detailed information is available in appendix A in the FEIS, the completed biological assessments in the project file, and the biological opinions. Appropriate coordination, conferencing, and consultation with USFWS and NMFS have been completed and those agencies have concurred with the Forest Service finding for Snake River spring/summer Chinook salmon, Snake River fall Chinook salmon Snake River steelhead, Columbia River basin bull trout, and Mid-Columbia River steelhead and their critical habitat.

The project botanist identified one threatened plant that is known to occur in Baker County, *Thelypodium howellii* ssp. *spectabilis* (Howell’s spectacular thelypody), which is confined to alkaline flats of the Powder River valley between Baker City and North Powder, Oregon. Habitat for *Thelypodium howellii* ssp. *spectabilis* is not present in the project area, so there would be “no effect” on the species.

An assessment regarding Canada lynx and gray wolf, two species listed under the Endangered Species Act, showed that the Snow Basin project would have a “no effect” determination for these species.

Executive Order 13175

Executive Order 13175 clarifies government-to-government relations with American Indian governments.

The Forest Service, through the Secretary of Agriculture, is vested with statutory authority and responsibility for managing resources of the national forests. Commensurate with the authority and responsibility to manage is the obligation to consult, cooperate, and coordinate with American Indian tribes in developing and planning management decisions regarding resources on NFS lands that may affect tribal rights.

The Snow Basin project planning area is within the interest areas of the Nez Perce Tribe and the Confederated Tribes of the Umatilla Indian Reservation (CTUIR).

Elements of respective American Indian cultures, such as tribal welfare, land, and resources, were sometimes entrusted to the United States government as a result of treaties. Trust responsibilities resulting from treaties dictate, in part, that the United States government facilitates the execution of treaty rights and traditional cultural practices of American Indians by working with them on a government-to-government basis in a manner that attempts a reasonable accommodation of their needs without compromising the legal positions of the respective tribes or the Federal government. Specific treaty rights applicable to the land base managed by the Wallowa-Whitman National Forest are generally articulated in Article III of the 1855 Nez Perce Treaty:

“The exclusive right of taking fish in all the streams where running through or bordering said reservation is further secured to said Indians: as also the right of taking fish at all usual and accustomed places in common with citizens of the territory, and of erecting temporary buildings for curing, together with the privilege or hunting, gathering roots and berries, and pasturing their horses and cattle upon open and unclaimed land.”

And as part of Article I of the 1855 Walla Walla, Cayuse, and Umatilla Treaty:

“Provided, also, that the exclusive right of taking fish in the streams running through and bordering said reservation is hereby secured to said Indians, and at all other usual and accustomed stations in common with citizens of the United States, and of erecting suitable buildings for curing the same; the privilege of hunting, gathering roots and berries and pasturing their stock on unclaimed lands in common with citizens, is also secured to them.”

For this project, a government-to-government scoping letter was sent to tribal staff members of the Nez Perce Tribe and the CTUIR on December 4, 2008, informing them of the Snow Basin proposed project and requesting comment or concerns. The project was also included in the Wallowa-Whitman National Forest program of work presentation to the CTUIR on February 22, 2012, as well as program of work presentations in 2008, 2009, and 2010. Project information was also presented at the Nez Perce Tribe as part of the program of work presentations during the three previous years.

General concerns received from tribal staff members on previous projects include:

- Potential effects to archaeological and traditional properties and traditional food resources
- Potential effects to water quality
- Potential effects to fish habitat, including salmonid species federally listed as threatened or endangered under ESA
- Potential effects to wildlife habitat, including elk security
- Potential effects to economic recovery
- Potential effects to treaty rights

Because tribal trust activities often occur in common with the public, the Forest Service will strive to manage tribal ceded lands to enable the execution of tribal rights, as far as practicable, while still providing goods and services to all people.

Civil Rights and Environmental Justice, Executive Order 12898

Executive Order 12898 directs each Federal agency to make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. The President also signed a memorandum on the same day, emphasizing the need to consider these types of effects during National Environmental Policy Act (NEPA) analysis. On March 24, 1995, the Department of Agriculture completed an implementation strategy for the executive order. Where Forest Service proposals have the potential to disproportionately adversely affect minority or low-income populations, these effects must be considered and disclosed (and mitigated to the degree possible) through NEPA analysis and documentation.

All Forest Service actions have potential to produce some form of impacts, positive or negative, on the civil rights of individuals or groups, including minorities and women. No environmental justice issues are expected to occur with the approval of the Snow Basin Vegetation Management Project (FEIS Section 3.10.9 Civil Rights and Environmental Justice). The project is consistent with Executive Order 12898.

Executive Order 12898 also requires Federal agencies to identify and address any disproportionately high and adverse human health or environmental effects on minority and low income populations. The analysis focused on potential effects from the project to minority populations, disabled persons, and low-income groups. Disparate impact, a theory of discrimination, has been applied to the Snow Basin Vegetation Management Project planning process in order to reveal any such negative effects that may unfairly and inequitably impact beneficiaries regarding program development, administration, and delivery. The objectives were to prevent disparate treatment and minimize discrimination against minorities, women, and persons with disabilities and to ensure compliance with all civil rights statutes, Federal regulations, and USDA policies and procedures. The selected alternative, given the size of potential social and economic effects, is not likely to result in civil rights impacts to Forest Service employees or customers of its programs. Based on the social and economic analysis presented in chapter 3 of the FEIS, no potentially disproportionately high and adverse human health, environmental, or social effects to minority or low-income populations is identified.

Under section 504 of the Rehabilitation Act of 1973, no person with a disability can be denied participation in a Federal program that is available to all other people solely because of his or her disability. The Snow Basin Vegetation Management Project is not discriminatory towards persons with disabilities, because it has been determined that it applies equally to all groups. A more detailed description of the study area demographics is included in the Social and Economic section in chapter 3 of the FEIS.

Federal Noxious Weed Act of 1974 and Executive Order 12112

This act provides for the control and management of non-indigenous weeds that injure or have the potential to injure the interests of agriculture and commerce, wildlife resources, or the public health. Executive Order 13112 requires Federal agencies whose actions may affect the status of invasive species to, among other things, respond to and control populations of invasive species and provide for the restoration of native species and habitat conditions on the ecosystems that have been invaded by non-native invasive species. The selected alternative is in compliance with this act as it provides for survey and treatment of noxious weeds within the project area (see appendix B of this ROD).

Oregon Forest Practices Act of 1971

All project activities are designed to meet or exceed the requirements of the Oregon Forest Practices Act. The FEIS lists BMPs and contract provisions that will be used to meet specific Oregon Forest Practices Act regulations. In addition, appendix B lists site specified requirements.

Migratory Bird Treaty Act of 1918, as Amended and Executive Order 13186

The purpose of this act is to establish an international framework for the protection and conservation of migratory birds. Executive Order 13186 directs executive departments and agencies to take certain actions to further implement the Migratory Bird Treaty Act. Federal agencies that undertake actions that may affect migratory birds must develop and implement a memorandum of understanding with the USFWS that would promote the conservation of migratory birds. Federal agencies must also “ensure that environmental analysis of federal actions required by NEPA...evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern.” Under the National Forest Management Act, the Forest Service is directed to “provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives” (P.L. 94-588, Sec 6 (g) (3) (B)). The January 2000 USDA Forest Service Landbird Conservation Strategic Plan, followed by Executive Order 13186 in 2001, in addition to the Partners in Flight (PIF) specific habitat conservation plans for birds and the January 2004 PIF North American Landbird Conservation Plan all reference goals and objectives for integrating bird conservation into forest management and planning. In late 2008, a memorandum of understanding between the Forest Service and the U.S. Fish and Wildlife Service to Promote the Conservation of Migratory Birds was signed.

Opportunities to promote conservation of migratory birds and their habitats in the project area were considered during development and design of the Snow Basin project. Potential impacts to habitats and selected migratory bird populations resulting from the project have been assessed in detail within the project MIS report and impacts to selected TES birds and their habitats have been analyzed in the project biological evaluation. The selected alternative is consistent with the Migratory Bird Treaty Act, as amended, and Executive Order 13186.

National Environmental Policy Act of 1969, as amended

This ROD and the Snow Basin Vegetation Management Project FEIS comply with NEPA and its implementing regulations (40 CFR 1500-1508).

National Forest Management Act of 1976

The National Forest Management Act (NFMA) contains several required findings for forest plan preparation as well as implementation, including timber sale decisions such as this one. The Wallowa-Whitman National Forest plan is consistent with NFMA, and this project decision is consistent with the forest plan. Therefore, the project also complies with NFMA. This section specifically documents that compliance.

Suitability for timber production: NFMA states, “No timber harvest, other than salvage sales or sales to protect other multiple-use values, shall occur on lands not suited for timber production” [16 U.S.C. 1604 (k)]. No acres not suited for timber management will be harvested when the selected alternative is implemented.

Restocking: 36 CFR 219.27 (c)(3) requires regeneration stocking within five years for final timber harvest on suited timber lands for silvicultural practices that, by their definition, necessitate regeneration to achieve timber growth and yield objectives. Regeneration methods are described for this project in chapter 3 of the Snow Basin Vegetation Management Project FEIS Vegetation section. Plantations similar to those proposed in this project have been successfully established in and near the project area. Therefore, the Forest Service expects similar success with this project’s regeneration efforts.

Vegetation manipulation: NFMA Regulations state that, “Management practices that involve vegetative manipulation of tree cover for any purpose” must comply with seven requirements found at 36 CFR 219.27 (b). They must:

1. “Be best suited to the goals stated in the Forest Plan.” Chapter 1 of the FEIS refers to the forest plan goals and objectives, and chapters 2 and 3 further describe the management practices including vegetation and fuels manipulation that seek to meet the project goals.
2. “Assure that technology and knowledge exists to adequately restock lands within five years after final harvest.” The knowledge and technology exist to restock the lands within that time, as evidenced by existing successful plantations within the project area.
3. “Not be chosen primarily because they will give the greatest dollar return or the greatest output of timber, although these factors shall be considered.” As described in chapter 2 of the FEIS, treatments were prescribed for each harvest unit considering timber stand composition and condition, and with an objective to improve those characteristics, not to maximize dollar or volume outputs.
4. “Be chosen after considering potential effects on residual trees and adjacent stands.” The process of developing a site-specific silvicultural prescription for each unit included consideration of effects on adjacent uncut stands and residual trees within the units.
5. “Avoid impairment of site productivity and ensure conservation of soil and water resources.” As documented in chapter 3 of the FEIS, effects on soil and water are within forest plan standards and guidelines designed to maintain productivity of these basic resources.
6. “Provide the desired effects on water quantity and quality, wildlife and fish habitat, regeneration of desired tree species, forage production, recreation uses, aesthetic values, and other resource yields.” The selected alternative, including management requirements and mitigation measures for resource protection, moves toward the desired condition for these and other resources derived from the forest plan. Chapter 3 of the FEIS documents this consistency for the major issue resources.
7. “Be practical in terms of transportation and harvesting requirements and total costs of preparation, logging, and administration.” The selected alternative uses the existing road system to access most harvest units. The alternative was designed to be physically, economically, silviculturally, and environmentally feasible. Its cost-efficiency is documented in the Rationale section of this ROD and in the Issues section, under Economics in chapter 1 of the FEIS.

Clearcutting and even-aged management: NFMA states: “When timber is to be harvested using an even-aged management system, a determination that the system is appropriate to meet the objectives and requirements of the Forest Plan must be made, and where clearcutting is to be used, it must be determined to be the optimum method” [16 U.S.C. 1604 (g)(3)(F)(i)].

Even-aged management: Timber stands in the Snow Basin Vegetation Management Project area that are mixed conifer, dominated by grand fir, ponderosa pine, and Douglas-fir are suitable for even-aged management. Vigorous seed-bearing specimens of the desired species (ponderosa pine, Douglas-fir, and western larch) are generally available in the overstory as reliable seed and shade sources. Shade-tolerant grand fir dominates much of the understory. Historically, these stands were even-aged with clumped or dispersed larger trees in the overstory. Implementation of the selected alternative will harvest these stands using even-aged methods to achieve forest plan direction and move toward the desired condition. Desirable trees of all sizes will be maintained giving an irregular appearance. Even-aged management will better improve stand resilience given the existing stand conditions of closed density, late seral, and multi-story structure.

Clearcutting: No regeneration harvest is proposed.

Green tree replacements (GTRs): GTRs are trees that will be available to become snags through time. Snags can occur through natural mortality or can be created. Natural mortality occurs by competition, lightning strike, disease, insects, or wildfire. Induced mortality can occur through mechanical means or by using prescribed fire. All silviculture treatments being proposed would remove only a percentage of the existing trees, leaving stands that are fully stocked or above the lower limit of the stand's management zone as determined by plant associations.

National Historic Preservation Act of 1966 (NHPA)

This act requires Federal agencies to consult with the State Historical Preservation Office and American Indian tribes before nonrenewable cultural resources, such as archaeological sites and historic structures, are damaged or destroyed. Section 106 of this act requires Federal agencies to review the effects project proposals may have on cultural resources in the project area. A vegetation and fuels management project is considered an "undertaking" pursuant to the definition provided in section 301(7) of the National Historic Preservation Act. This undertaking will have a "no historic properties affected" determination pursuant to 36 CFR 800.4, Stipulation III (B) 2 of the Programmatic Agreement (PA). The undertaking meets the criteria in the PA for a "historic properties avoided" determination.

Wild and Scenic Rivers Act

The act established the National Wild and Scenic Rivers System and policy for managing designated rivers and designated additions to the system. The act prescribes for designated rivers and their immediate environments the protection and enhancement of their free-flowing character, water quality, outstanding remarkable scenic, recreational, geological, fish and wildlife, historic, cultural, and other similar values.

The management actions of the selected alternative meet the intent of this act by moving the forest composition, structure, and density within the wild and scenic river toward a desired range of conditions and by protecting water quality.

9. Minimization of Environmental Harm and Monitoring

The selected alternative incorporates all practicable means to avoid or minimize environmental harm. Monitoring will also help to ensure that all aspects of the project are implemented as intended, to determine that the effects of the activities are consistent with the intent, and to allow adaptation if it is found that activities are not having the desired effects. Project design features, best management practices, and monitoring requirements incorporated into the selected alternative are described in appendix B.

10. Public Involvement

Public involvement has been an important part in identification and clarification of issues associated with this proposal and in alternative development in the FEIS for the Snow Basin Vegetation Management Project.

Preliminary scoping period: The Snow Basin project was first listed in the Wallowa-Whitman National Forest Schedule of Proposed Actions (SOPA) in July 2008, and has been included in all subsequent SOPAs on a quarterly schedule.

On December 3, 2008, a scoping letter with a detailed description of the proposed action, including maps, was mailed out to approximately 200 members of the public, other agencies, tribal governments and other organizations. Approximately 18 letters and emails were received from the public in response to the scoping letter. FEIS appendix B lists the letters and emails received during the scoping period. The complete scoping mailing list and all scoping letters and emails received are available from the project record. A notice of intent (NOI) to prepare an environmental impact statement was published in the Federal Register (FR Vol. 73, No. 240, pg 75667) on Friday, December 12, 2008. The NOI asked the public to comment on the Snow Basin Vegetation Management Project proposal.

Newspaper articles regarding the Snow Basin project were published in local newspapers on several occasions. Appendix B in the FEIS lists these articles and the date of publications. Copies of these articles are available from the project record.

Public meetings and correspondence: Public meetings and field trips for interested parties, tribal governments, and other organizations were held on several dates, both prior to publication of the DEIS, and as a response to comments received. Approximately 40 members of the public attended or participated in these events. More detailed information is available from the project record.

DEIS comment period: On Friday, April 15, 2011, a notice of availability (NOA) for the Snow Basin Vegetation Management Project DEIS was published in the Federal Register (FR Vol. 76, No. 73, p. 21345). A legal notice was published in the Baker City Herald, the newspaper of record, to request comments on the same day.

In addition, approximately 200 members of the public, other agencies, tribal governments and other organizations were notified of the availability of the DEIS for review and comment. Approximately 70 letters and emails were received from the public in response to this solicitation. Appendix B of the FEIS lists the comments received during the comment period and how they were addressed in the FEIS. The complete mailing list and all letters and emails received are available from the project record.

Analysis and incorporation of public comment response: The substantive comments received on the DEIS were analyzed and then addressed in the FEIS. An alternative was suggested at a public meeting held during the scoping period. Most of the design elements identified during this meeting were considered in detail in one or more of the alternatives analyzed in detail. All of the alternatives excluded harvest in the regeneration units. Alternative 4 eliminated the removal of trees 21 inches DBH and greater, which would maintain high mistletoe infection in LOS and Douglas-fir stands by removing mostly mid-canopy trees. In addition, alternative 4 would maintain existing snag recruitment levels and retain residual basal area above the lower management zone of stand density index in all cases. Alternatives 3 and 4 include an individual tree release prescription in American marten habitat within cool moist grand fir biophysical types, which would only remove grand fir trees less than 21 inches DBH within 30 feet of viable ponderosa pine or western larch trees. This alternative was eliminated from detailed study.

An alternative similar to alternative 4 that proposed managing mistletoe with fire rather than through harvest, girdling trees 21 inches DBH and greater instead of removing them, and would use an individual tree release prescription extensively in all grand fir biophysical types was considered.

Chapter 4 of the Snow Basin Vegetation Management Project FEIS provides responses to the substantive comments received regarding the proposed action and DEIS. The Snow Basin project record and chapter 4 of the FEIS contain additional information on public involvement for this project.

The Snow Basin project scoping documents, maps, Federal Register NOI, and other associated information can be accessed online at http://www.fs.fed.us/nepa/project_content.

Using the comments from the general public, organizations, tribal governments, and other state and Federal agencies, the ID team developed a list of issues and subsequently developed alternatives to address those issues. A summary and analysis of potential issues was completed by the ID team and is available from the project record.

11. Appeal Rights and Procedures

This decision is subject to appeal and administrative review, as described in this section. The 45-day appeal period begins the day following the date the legal notice of this decision is published in The Baker City Herald of Baker City, Oregon, the official newspaper of record. Written notice of appeal must be filed with the reviewing officer at:

Appeal Deciding Officer
Pacific Northwest Region, USDA Forest Service
Attn: 1570 Appeals
333 SW First Avenue, PO Box 3623
Portland, OR 97208-3623

Appeals may also be filed electronically by email to appeals-pacificnorthwest-regional-office@fs.fed.us and by facsimile to (503) 808-2339. They may be hand-delivered to the above address between 7:45 a.m. and 4:30 p.m., Monday through Friday, except legal holidays. The appeal must be postmarked or delivered within 45 days of the date the legal notice for this decision appears in The Baker City Herald newspaper. The publication date of the legal notice in the newspaper is the exclusive means for calculating the time within which to file an appeal, and those wishing to appeal should not rely on dates or timeframes provided by any other source.

Digital file appeals must be submitted as part of the email message, or as an attachment using Microsoft Word (.doc or .docx), or in the one of the following formats: rich text format (.rtf) or portable document format (.pdf). Appeals submitted to email addresses other than the one listed above, in formats other than those listed, or containing viruses will be rejected.

It is the responsibility of those who expressed an interest during the comment period and wish to appeal a decision to provide the regional forester sufficient written evidence and rationale to show why my decision should be changed or reversed. The appeal must be filed with the appeal deciding officer (§ 215.8) in writing. At a minimum, an appeal must include the following:

- Appellant's name and address (§ 215.2), with a telephone number, if available
- Signature or other verification of authorship upon request (a scanned signature for electronic mail may be filed with the appeal)
- When multiple names are listed on an appeal, identification of the lead appellant (§ 215.2) and verification of the identity of the lead appellant upon request
- The name of the project or activity for which the decision was made, the name and title of the responsible official, and the date of the decision
- The regulation under which the appeal is being filed, when there is an option to appeal under either this part or part 251, subpart C (§ 215.11(d))
- Any specific change(s) in the decision that the appellant seeks and rationale for those changes
- Any portion(s) of the decision with which the appellant disagrees, and explanation for the disagreement
- Why the appellant believes the responsible official's decision failed to consider the comments
- How the appellant believes the decision specifically violates law, regulation, or policy

12. Contact Persons

Copies of the Final EIS were mailed to those who expressed interest in the document. The Final EIS and this ROD are available on the internet at <http://www.fs.usda.gov/projects/wallowa-whitman/landmanagement/projects>. For additional information concerning the specific activities authorized by my decision, you may contact:

Jeff Tomac
District Ranger
Whitman Ranger District
PO Box 907
Baker City, OR 97814
(541) 523-1901
jtomac@fs.fed.us

or Dea Nelson, NEPA Coordinator
Wallowa-Whitman National Forest
Forest Supervisor's Office
1550 Dewey Ave.
Baker City, OR 97814
(541) 523-1405
dnelson@fs.fed.us

Responsible Official:



March 19th 2012

Monica J. Schwalbach
Forest Supervisor
Wallowa-Whitman National Forest

Date

APPENDIX A THE SELECTED ALTERNATIVE

Selected Alternative Purpose and Design

The selected alternative was designed to respond to the agency's purpose and need for action to move forested stands toward the historic species compositions and stand structures and to increase forest resilience and reduce the risk of uncharacteristic disturbances, particularly high severity wildfire, and insects and disease disturbances. The selected alternative addresses key issues concerning maintaining LOS, trees 21 inches DBH and greater, connectivity corridors, American marten habitat, and reducing the potential impacts of temporary road construction.

As an outcome of the activities in the selected alternative, the desired landscape is one comprised predominantly of large, open grown ponderosa pine and western larch forest intermixed with a diversity of other species, structural stages and densities at varying scales. Specific components of the desired condition across this landscape include:

- Forested stands are moving towards HRV for species composition, stand densities, and stand structures at a landscape scale. Thinning treatments reduce tree density, modify species composition, promote the development of single story LOS, and reduce insects and disease susceptibility by improving tree and stand vigor.
- Fuel loading (surface, ladder, and canopy fuels) is reduced to a level that facilitates future reintroduction of natural fire severities (low to mixed fire regimes) and fuels that would contribute to uncharacteristic wildfire and resource damage are reduced.
- Overstory removal improves forest sites where early-seral species are no longer present in ecologically viable amounts as a result of grand fir conversion.
- Underrepresented aspen stands are maintained and enhanced by reducing conifer competition and reducing browsing pressures.
- In warm dry grand fir, Douglas-fir/ponderosa pine and warm moist Douglas-fir biophysical environments, the majority (75 to 90 percent) of forested stands contain species compositions dominated by ponderosa pine and western larch trees.
- In cool moist grand fir biophysical environments, 30 to 60 percent of forested stands contain species composition dominated by ponderosa pine and western larch.
- The understory re-initiation stage abundance is reduced across the planning area to 5 to 25 percent or less in all biophysical environments.
- Between 15 and 55 percent of forested stands are in the single story large trees common structural stage in the warm dry grand fir, Douglas-fir/ponderosa pine and warm moist Douglas-fir biophysical environments.
- The amount of high density (closed) forest is between 5 and 15 percent of the area in warm dry grand fir, Douglas-fir/ponderosa pine and warm moist Douglas-fir biophysical environments.
- The amount of high density (closed) forest is between 15 and 30 percent of the area in cool moist grand fir biophysical environments.
- Insects and diseases operate mostly at the endemic levels; host species occur in the same proportions that they occurred historically.
- Mistletoe infection levels are within natural ranges of a fire maintained landscape; mistletoe infections are at an endemic level without threatening the development and maintenance of LOS.
- Trees in the planning area have more vigorous growth rates as a result of low inter-tree competition, resulting in increased LOS recruitment.
- Western larch, quaking aspen, and ponderosa pine exist in proportions found historically in the planning area. The existing 29 hardwood sites in the planning area are restored and protected.

- The majority of landscape in the planning area has fire regime condition classes (condition class 1) that indicate a low departure from reference conditions.
- Overall, less than 25 percent of the Snow Basin landscape has high potential for supporting a high severity, stand replacing wildfire.
- Predicted flame lengths are less than 4 feet and rates of fire spread (2 to 16 chains per hour) make direct attack firefighting methods feasible.
- The project area makes more sawlogs, pulp, biomass, and fuel wood available to private and public markets.

The selected alternative management requirements and components:

- Old trees (150 years or more) of all species will be retained throughout the project area.
- Only grand fir 21 inches DBH and greater will be harvested in treatment units, except in situations where there is excessive mistletoe infestation impeding development of healthy conditions in Douglas-fir, or where large trees of other species are affecting the health and vigor of aspen stands.
- The emphasis in all treated units is to provide for variable density within stands, depending on the site conditions and plant associations. Drier plant associations will in general be more open, with less canopy closure than those on moister sites. Basal areas will generally range from 60 to 90 square feet in drier plant associations, with more sites being at the lower end of that range. The concept of skips and gaps, or a variety of basal area prescriptions, within units will allow for variations as much as 10 to 200 square feet, depending on the particular within-stand characteristics.
- Unit 342 (along Torchlight Gulch) will not be included, in order to protect five acres of riparian habitat conservation area located within that stand. This modification will reduce the amount of road reconstruction by 0.65 miles.
- Approximately 38.75 miles of road reconstruction are included in the selected alternative.
- Approximately 5.3 miles of new temporary road construction is included, along with 3.7 miles of existing non-system routes that will be used. All temporary roads will be closed and rehabilitated using current standards for resource protection and restoration.
- Several units will be identified for firewood gathering along closed roads. These roads will be open seasonally for firewood gathering by people with a valid fuelwood permit.
- Grapple and hand piles of slash may be available for firewood gatherers on a case-by-case basis, reducing the need to burn all slash piles.
- Several non-commercial thinning units will be identified as fuelwood areas.
- Priority for implementing fuels reduction and prescribed underburning treatments in the Snow Basin landscape will be in the wildland urban interface (WUI) areas identified by the Baker County Community Wildfire Protection Plan.
- All treatments within riparian habitat conservation areas will use a forwarder harvester to reduce impacts to soils (units 1, 33A, 34, 57, 301, 303, 311A, 314A, 316A, 342, 401).
- Winter harvest restrictions were added to commercial harvest activities in unit 121.
- There are no regeneration units.
- Stand density will be retained between the mid and upper management zone in identified connectivity corridors between late and old structure stands and forest plan designated old growth to address connectivity concerns. A prescription for cool moist stands containing potential American marten habitat has been developed for use in units identified as marten habitat.
- No temporary road construction will occur within the Eagle Creek Wild and Scenic River corridor in order to address public concerns regarding the impacts of temporary road construction. Commercial harvest treatments associated with proposed temporary roads were eliminated in some units.
- A forest plan amendment to allow harvest in LOS stands that are currently below HRV was added to to allow harvest in stands that were historically comprised of ponderosa pine and western larch and are currently dominated by large grand fir trees.

- Project activities that provide increased protection in wildlife connectivity corridors between LOS stands and MA 15 stands (old growth) will be implemented.

Vegetation and prescribed fire treatments

The selected alternative would implement the following treatments. Refer to table A1 for a summary of activities in the selected alternative, table A2 for a summary of silvicultural treatments by unit, and map A1 for the location of selected alternative activities.

Commercial harvest

Commercial harvest is proposed on approximately 11,002 acres using a combination of intermediate thinning and overstory removal. This alternative will result in a potential yield of 48 MMBF.

Intermediate thinning from below

Intermediate thinning from below is proposed on approximately 10,246 acres.

Warm dry Douglas-fir and ponderosa pine types

Intermediate thinning from below is proposed on approximately 4,124 acres of warm dry Douglas-fir/ponderosa pine forest types in the planning area.

Warm moist Douglas-fir types

Thinning from below is proposed on 879 acres of warm moist Douglas-fir types.

Warm dry grand fir types

Intermediate thinning from below is proposed on approximately 3,969 acres of warm dry grand fir forest in the planning area. All grand fir trees with severe defect (broken tops, Indian Paint conks, weeping frost cracks, etc.) would be protected to provide snag dependent wildlife habitat.

Cool moist grand fir types

Thinning from below would occur on 732 acres of cool moist grand fir forest type in the planning area.

Harvest treatments occur in 39 acres identified as American marten habitat within the cool moist grand fir type. The prescription in American marten habitat is designed to maintain existing American marten habitat requirements (50 percent canopy closure, large trees, and large down logs), ponderosa pine, and western larch while reducing the risk of uncharacteristic disturbance. Within American marten habitat, all grand fir within 30 feet of a viable ponderosa pine or western larch would be removed. All grand fir with severe defect (broken tops, Indian Paint conks, weeping frost cracks, etc.) would be retained. All trees within 20 feet of these grand firs would be retained. Slash would be spot burned after harvest. All large down logs would be protected.

Overstory removal

Overstory removal would occur on approximately 718 acres.

Aspen restoration conifer overstory removal

Aspen restoration would involve removal of conifer competition in aspen stands on a total of 38 acres in 29 sites.

Harvest methods

Commercial harvest would include ground-based harvesting utilizing a tractor or skidder that would operate on designated trails with selected spacing criteria in combination with whole tree yarding on approximately 8,256 acres on slopes with up to and including 35 percent rise. Skyline cable yarding would use leave tops attached yarding on 2,284 acres on slopes exceeding 35 percent rise. A forwarder

harvester and in-woods processing would be used on 955 acres to reduce soil impacts, landing numbers, and landing size.

Grapple pile and burn

Grapple pile and burn will occur on approximately 4,494 acres to reduce activity created fuels. However, some of these areas will be identified for fuelwood gathering.

Hand pile and burn

Hand pile and burn will occur on approximately 124 acres (in commercially treated areas close to private lands in the WUI and within aspen restoration stands). However, some of these areas will be identified for fuelwood gathering.

Elements Common to all Commercial Harvest Units for the Selected Alternative

Snags and down logs

All existing snags would be protected except those that are a risk to the public or forest workers. Down logs greater than 12 inches DBH would be protected. Prescribed fire would be conducted with low intensity fire when weather conditions minimize the loss of existing large down logs.

Green replacement trees

All prescriptions maintain a full stocking of trees of various sizes except for the overstory removal units. In overstory removal units 16 green replacement trees per acre greater than 10 inches DBH would be retained.

Dwarf mistletoe management

All prescriptions manage dwarf mistletoe to reduce dwarf mistletoe severity through removal of infected trees in order to increase normal development, diameter growth and survival of residual uninfected trees. Proposed treatments would protect uninfected understory trees by removing infected overstory trees of the same species and by spacing infected trees away from same species uninfected trees. All infected Douglas-fir trees less than 21 inches DBH would be removed. All uninfected Douglas-fir trees less than 21 inches DBH within 30 feet of an infected Douglas-fir would be removed. All infected Douglas-fir trees 21 inches DBH or greater within 30 feet of any ponderosa pine or western larch trees which 21 inches DBH or greater would be removed. Based on this approach, dwarf mistletoe would be retained at endemic levels in order to provide biodiversity on the landscape.

Operational hazard trees

Operational hazard trees are those standing trees, live or dead, that need to be removed for safe harvest operations. Most operational hazard tree removals occur at landing locations. Operational hazard trees are designated and approved Forest Service personnel prior to felling. Operational hazard trees would be commercially removed for biomass, except in riparian habitat conservation areas where they would be left in place on the ground to provide large woody debris.

Non-commercial thinning and fuels treatments

Non-commercially thin approximately 8,945 acres following commercial harvest treatments.

Non-commercially thin approximately 74 acres as a stand-alone treatment.

Prescribed underburning

Prescribed underburning would occur on 10,322 acres to reduce fuels following commercial treatments.

Prescribed underburning only would occur on 3,972 acres.

Wildlife connectivity corridors

Harvest units within wildlife connectivity corridors between LOS areas and designated old growth preservation stands (MA 15) would maintain stand density between the mid and upper management zone. Approximately 2,779 acres of wildlife connectivity corridor would be treated.

Riparian habitat conservation areas

Silviculture treatments would occur on approximately 38 acres within RHCAs in order to improve stand conditions while facilitating treatment in adjacent upland units. This represents approximately 0.8 percent of the total acreage of riparian habitat conservation areas in the planning area. Forwarder trails would be established within an additional 61 acres of riparian habitat conservation areas where an existing Forest Service system road is used to access units outside the riparian habitat conservation area above the road. This represents approximately 1.2 percent of the total acreage of riparian habitat conservation areas in the planning area. Existing landings in riparian habitat conservation areas above these roads would also be used. An estimated 25 landings would be used within riparian habitat conservation areas impacting approximately 5 acres. Prescribed fire treatment unit boundaries within RHCAs would rely on natural barriers and minimize constructed line where practical. Fire would be allowed to back into RHCAs where natural barriers do not exist.

Wild and scenic rivers corridor

Activities within the wild and scenic rivers corridor consist of 72 acres of prescribed fire and 154 acres of commercial harvest in the recreation section of the river and 493 acres of prescribed fire and 107 acres of commercial harvest in the scenic section. No road temporary road construction is allowed in the wild and scenic rivers corridor.

Follow-up treatments

Intermediate commercial thinning and overstory removal would usually be followed by non-commercial thinning to treat the non-commercial sized understory trees (generally seedlings to 7 inches DBH). Depending on slash and debris levels, this may be followed by grapple or hand piling. It is common for this harvest treatment to be followed by prescribed burning. Some areas will be identified as available for firewood gathering by people holding a valid fuelwood permit.

Non-commercial thinning units where the felled trees are primarily less than 2 inches DBH are usually left to deteriorate naturally. Areas where the felled trees pose an unacceptable hazard would be either piled and burned or underburned. Machine piling would occur on slopes less than 30 percent and hand piling would occur on slopes greater than 30 percent.

Transportation system activities

Within and in close proximity to the project area, approximately 224 miles of road would be used for log hauling (221 miles are NFSRs and 3.0 miles are private). There are 6.5 miles of Baker County roads that will be used in the project area. Outside of the project area, there are 33 miles of NFSRs and county roads that will be utilized for haul between the project area and State Highway 86. No new permanent road construction is planned. Danger trees would be removed from along the haul roads for public and worker safety and would include some commercial removal for biomass.

Approximately 5.3 miles of new temporary road construction is proposed and in addition the project would utilize 3.7 miles of existing non-system routes. These temporary roads are in short segments ranging in length from less than 0.1 mile to 0.6 miles, and the average length is 0.2 miles. Temporary roads would be closed and rehabilitated prior to the closure of the timber sale.

Little Eagle Bridge - Types of activity included under reconstruction include a bridge replacement (on FSR #7735 across Little Eagle Creek in Section 24) and repair of an abutment on one bridge (FSR #7735450 across Little Eagle Creek in Section 30).

All NFS roads would be maintained in accordance with standard timber sale road maintenance specifications. Of the estimated 224 miles of NFS haul roads; approximately 105 miles are currently closed roads (ML 1). Roads currently closed would be opened to allow harvest activities to occur and closed upon completion. Most of these roads, 93 miles, need only normal maintenance to be usable. The other 12 miles will need some reconstruction work; those are described in detail in appendix B-10 of the FEIS. Under normal operations, only a few harvest units are active at one time. It is estimated that up to 5 miles of closed road may be open at one time. These roads would be reclosed when harvest operations are completed, normally within four to eight months of opening. Post-sale activities, such as planting and thinning, may present the need to reopen some of these roads temporarily. They open for a period of two to four months and would be reclosed upon completion of work. Firewood gathering along closed roads would be considered on a case-by-case basis.

Approximately 38.7 miles of road reconstruction will occur. Road reconstruction on approximately 13 miles of road will not be funded through the timber sale and will be funded through a different means. Here, the term reconstruction refers to road work outside the scope of timber sale maintenance specifications and would be listed in the timber sale contract for specified road reconstruction and applicable to contract clause BT 5.2. Types of activity included under reconstruction include a bridge replacement, as discussed previously for Little Eagle Bridges, and the following: realign road location, which would create new ground disturbance (1.0 mile); restore roads to a serviceable standard by clearing heavily overgrown roads; removing slides and slough and repairing slumps greater than 10 cubic yards; repairing and improving drainage structures; drainage and subgrade reinforcement for seeps and springs; culvert installation; and rock surfacing (39.8 miles). Of the roads proposed for reconstruction, approximately 14 miles are currently closed roads (ML 1) and 26 miles are open roads maintained for high clearance vehicles (ML 2). Reconstruction is also proposed (by agreement) for 2.4 miles of Baker County Road 923 consisting of clearing, drainage, and rock surfacing

Pit development and rock sources: Six existing larger sources have been identified for proposed crushed rock aggregate sites. Each of these sites has been previously developed for crusher and stockpile sites, and approximately 5,000 to 15,000 cubic yards would be crushed from these sources. Rock crushed from various sources is estimated to total approximately 30,000 cubic yards. The pit development area may be increased by 1 to 2 acres. In addition, there are numerous smaller sites that may be used for aggregate sources. No aggregate sources within the wild and scenic river corridor would be used for this project. Detailed lists of all potential material rock sources are available from the project record.

Easement acquisition: In cases where NFS roads cross inholdings of private land without permanent easements, the Forest Service will proceed with permanent easement acquisition. In the event a permanent easement cannot be acquired before project implementation, the Forest Service will seek a temporary road use permit. In the event that no easement or permit can be acquired, alternative routes will be used. None of these outcomes would change the decision or effects of this project. This applies to a total of 1.3 miles of road.

For locations of all treatment activities, refer to map A1.

Table A1. Summary of selected alternative activities

Management Activity	Measure
Forested Stand Treatments Rx (only on N FS lands)	Acres
Intermediate commercial thinning acres	9,947
Intermediate commercial thinning acres in riparian habitat conservation areas	38
Intermediate commercial thinning acres in Wild and Scenic River corridor	261
<i>Total Intermediate Commercial Thinning</i>	<i>10,246</i>
Partial over story removal	718
Aspen restoration/conifer removal	38
<i>Total Commercial Harvest Treatment</i>	<i>11,013</i>
Non-commercial thinning post-harvest	8,945
Non-commercial thinning only Rx	74
<i>Total Non-commercial Thinning</i>	<i>9,019</i>
Fuels Treatments (only on NFS lands)	Acres
+Post activity prescribed fire fuels treatments in commercial harvest acres	10,322
+Natural fuels prescribed fire	3,972
Post-harvest machine grapple pile and burn	4,577
Post-harvest hand pile and burn	124
<i>Total Fuels Treatments</i>	<i>18,995</i>
Logging System Activities	Acres
Tractor logging system	7,912
Skyline/cable logging system	2,165
Forwarder harvester	936
<i>Total Logging System</i>	<i>11,013</i>
Transportation Activities	Miles
Maintain NFSRs for log hauling	224.5
Open (maintenance level 2-3)	119.6
Closed (maintenance level 1)	104.9
Danger tree removal (along system haul roads)	225
<i>Total temporary road construction</i>	<i>9.0</i>
New construction	5.3
Existing non-system roads	3.7
Reconstruction of NFSRs	38.7
Open (ML 2)	Miles/Structures
Deferred maintenance/repairs	26.3
Bridge replacement (1 bridge)	1 bridge
Bridge abutment repair (1 bridge)	1 bridge
Closed (ML 1)	Miles
Deferred maintenance/repairs	12.1
Realign NFSRs	1.0
<i>Total NFSRs reconstruction</i>	<i>39.4</i>

Table A2. Summary of silvicultural treatments for the Snow Basin project selected alternative by unit (includes acres, logging system, and code)

Unit	Acres	Logging System	Code
1	25	LF	INT
3	42	T	INT
7	64	T	INT
7A	23	T	INT
8	19	S	INT
9	19	S	INT
10	21	T	INT
11	57	T	INT
12	53	T	INT
13	18	S	INT
14	9	S	INT
15	7	S	INT
15A	2	S	INT
16	7	S	INT
17	15	S	INT
18	28	T	INT
18A	5	T	INT
19	41	T	INT
20	15	S	INT
20A	14	S	INT
21	24	T	INT
22	18	T	INT
23	7	T	INT
24	23	T	INT
25	7	S	INT
26	6	S	INT
27	90	T	INT
27A	67	T	INT
28	7	S	INT
29	29	LF	INT
30	21	S	INT
31	69	T	INT
31A	10	T	INT
31B	4	T	INT
32	11	S	INT
33	157	T	INT
33A	26	LF	INT
34	55	LF	INT
35	39	S	INT

Unit	Acres	Logging System	Code
36	10	T	INT
37	19	S	INT
38	27	T	INT
39	106	T	INT
40	29	T	INT
41	14	T	INT
44	31	T	INT
45	14	S	INT
45A	5	S	INT
46	21	S	INT
48	194	T	INT
49	22	T	HOR
49A	9	T	HOR
50	87	T	INT
50A	21	T	INT
51	48	T	INT
52	15	S	INT
54	137	T	INT
54A	6	T	INT
55	30	T	HOR
56	15	S	INT
57	102	LF	INT
57A	5	S	INT
58	51	T	INT
59	34	T	INT
60	10	T	HOR
61	11	T	INT
62	8	S	INT
63	43	S	INT
64	23	T	INT
65	34	T	INT
66	39	S	INT
67	11	S	INT
68	51	T	INT
69	2	S	INT
70	8	T	INT
71	90	S	INT
72	20	S	INT
73	7	S	INT

Unit	Acres	Logging System	Code
74	10	T	INT
82	88	S	INT
83	30	T	INT
84	44	S	INT
86	26	T	INT
87	177	T	INT
88	8	T	INT
100	14	S	INT
101	16	T	INT
103	378	T	INT
105	48	T	INT
106A	45	T	HOR
107	14	T	INT
108	106	T	INT
109	30	S	INT
110	18	S	INT
111	6	T	INT
112	17	T	HOR
112A	13	T	HOR
113	28	T	INT
114	26	T	HOR
115	458	T	INT
116	46	S	INT
119	25	T	HOR
120	48	T	INT
121	68	T	INT
121A	29	T	INT
121B	33	T	INT
127	20	S	INT
128	16	T	INT
128A	8	T	INT
129	121	T	INT
129A	4	T	INT
129B	4	T	INT
130	31	T	HOR
131	9	S	INT
132	7	S	INT
133	54	T	INT
133A	60	T	INT
134	26	S	INT
135	13	T	INT

Unit	Acres	Logging System	Code
136	12	S	INT
136A	7	S	INT
137	31	S	INT
140	21	T	INT
141	44	S	INT
142	15	S	INT
143	7	S	INT
200	48	S	INT
201	20	S	INT
202	88	T	INT
203	32	T	INT
204	108	S	INT
205	6	S	INT
205A	2	S	INT
206	35	S	INT
207	12	T	INT
208	59	T	INT
209	24	S	INT
210	27	T	INT
213	11	S	INT
215	12	T	INT
216	15	S	INT
216A	14	S	INT
218	1	S	INT
219	9	S	INT
219A	9	S	INT
220	11	T	INT
222	14	S	INT
223	16	S	INT
223A	4	S	INT
224	10	S	INT
224A	3	S	INT
225	60	T	INT
226	20	S	INT
227	7	S	INT
228	40	T	INT
229	6	S	INT
230	9	S	INT
231	13	S	INT
232	4	S	INT
234	22	T	INT

Unit	Acres	Logging System	Code
235	7	S	INT
236	33	T	INT
238	18	S	INT
239	10	S	INT
242	7	T	INT
245	20	S	HOR
245A	11	S	HOR
253	20	S	INT
253A	7	S	INT
255	53	T	INT
256	2	S	INT
257	6	S	INT
258	17	S	INT
259	31	S	INT
259A	18	S	INT
260	9	S	INT
261	208	T	INT
262	25	T	HOR
263	22	T	INT
264	43	S	INT
265	20	S	INT
265A	21	S	INT
265B	3	S	INT
266	42	T	INT
267	8	T	INT
268	19	S	INT
269	73	T	HOR
270	11	T	INT
271	165	T	INT
272	10	S	INT
272A	9	S	INT
273	19	S	HOR
274	44	T	HOR
275	4	T	HOR
275A	3	T	HOR
276	19	T	INT
277	15	S	INT
278	6	S	INT
279	17	S	INT
280	22	S	INT
281	6	S	INT

Unit	Acres	Logging System	Code
300	187	T	INT
301	352	LF	INT
301A	102	T	INT
302	7	T	HOR
303	13	LF	HOR
304	35	S	INT
304A	15	S	INT
305	7	T	INT
306	18	T	INT
307	78	T	INT
307A	64	LF	INT
308	29	S	INT
309	40	S	INT
310	7	S	INT
311	181	T	INT
311A	112	LF	INT
312	67	T	INT
313	128	T	INT
314	108	T	INT
314A	31	LF	INT
315	131	T	INT
316	105	T	INT
316A	49	LF	INT
317	21	T	INT
318	6	T	INT
319	26	T	HOR
320	7	T	INT
321	37	S	INT
321A	13	S	INT
322	17	S	INT
323	18	S	INT
325	17	S	INT
326	25	S	INT
329	5	S	INT
329A	7	S	INT
344	8	T	INT
345	12	S	INT
345	5	T	INT
347	7	T	INT
349	24	S	INT
349A	6	S	INT

Unit	Acres	Logging System	Code
350	31	T	INT
350A	3	T	INT
351	13	S	INT
353	12	S	INT
353A	7	S	INT
401	67	LF	HOR
403	106	T	INT
404	121	T	INT
405	77	T	INT
406	50	T	HOR
407	30	T	INT
408	132	T	INT
409	96	T	HOR
410	65	T	INT
411	435	T	INT
412	5	T	INT
413	36	T	HOR
414	18	T	INT
415	114	T	INT
416	14	S	INT
417	11	T	INT
418	313	T	INT
419	13	S	INT
420	18	T	INT
420A	78	T	INT
421	4	S	INT
422	16	S	INT
423	83	T	INT
424	36	T	INT
425	37	S	INT

APPENDIX B PROJECT DESIGN FEATURES, BEST MANAGEMENT PRACTICES, AND MITIGATION MEASURES

The project design features (PDFs), best management practices (BMPs) and mitigation items displayed in table B1 are an integral part of the selected alternative and would be implemented as part of any project treatments. These items were developed to reduce or eliminate impacts on analysis issues, affected resource areas. Project design features are based upon standard practices and operating procedures that have been employed and proven effective in similar circumstances and conditions. In addition, table B2 displays planned monitoring activities.

Table B1. Project design features, best management practices, mitigation measures

PDF/BMP (by resource or activity)	Description of Project Design Features, Best Management Practices, and Mitigation Measures	Applicable Units or Activities	Reference
Botany TES Plants			
BO-1	Protection of TES plants, regardless of when they are located, is provided contractually under BT6.25 Protection of Threatened, Endangered and Sensitive species. Any TES plant populations found during the survey periods (prior to project implementation) would need to be designated as an area to protect (ATP).	Units 11, 13, 18A, 39, 40, 41, 44, 45, 57, 100, 101, 107, 109, 142, 321	
	Known TES plant populations (<i>carex cordillerana</i>) ATPs are marked on the ground and on project area maps. Any known or newly discovered populations would be protected (through avoidance) from post activity burning, site preparation, road closures, etc. The ranger district botany specialist would make locations known to sale administrators if TES plants are discovered during any phase of project implementation.	Prescribed fire units 1, 12, 13A, 19, 20, 30	
BO-2	Use INFISH/site-specific riparian buffers to protect riparian habitat and vegetation. No prescribed fire would be started or introduced in these areas, but prescribed fire would be allowed to back burn into riparian habitat under low fire intensity conditions.	All units	
BO-3	Avoid locating temporary road construction, skidding, landing piles, slash piling on previously undisturbed non-forest openings. These sites contain shallow soils and provide habitat for diverse plant species.	All units	
Noxious Weeds			
NX-1	Project personnel would inform ranger district weed specialists of upcoming project activities (i.e., temporary road openings, harvest, etc.), so reprioritization of treatment (if deemed necessary) and inventory can begin prior to the start of project activities.	All units	Specialist report
NX-2	New infestations would be inventoried and managed as rapidly as possible under early detection rapid response (EDRR) guidelines.	Project area	WWNF Invasive Plants EIS
NX-3	To reduce the potential spread from known invasive plant sites, these occurrences would be identified as areas-to avoid for moderate to high-risk ground disturbance activities. Coordination will occur with ranger district weed specialists for exceptions.	All units	Specialist report
NX-4	All landing piles, created as part of a whole-tree yarding system, would be rehabilitated and seeded with an approved native seed mix. Skid trails would also be reseeded following project activities.	All units	Specialist report

PDF/BMP (by resource or activity)	Description of Project Design Features, Best Management Practices, and Mitigation Measures	Applicable Units or Activities	Reference
NX-5	Actions conducted or authorized by written permit by the Forest Service that operate outside the limits of the roads prism, require cleaning of all heavy equipment prior to entering NFS lands.	Project area	R6 Invasive Plants EIS
NX-6	Use weed-free straw and mulch for all projects conducted or authorized on NFS lands.	Project area	R6 Invasive Plants EIS
NX-7	Use only gravel, fill, sand, and rock that are judged weed free by ranger district weed specialists.	All sources	R6 Invasive Plants EIS
Range/Livestock			
RG-1	All range improvements must be protected during project activities. If fences are damaged, repairs must be made immediately to prevent livestock from entering areas outside of established allotments.	All units	Specialist report
RG-2	No trees used as anchor trees along a fence line shall be marked for harvest.	All harvest units	Specialist report
RG-3	All gates must be closed while livestock are within the allotment adjacent to the harvest units.	All units	Specialist report
RG-4	Treatments located within grazing allotments will be coordinated with the ranger district range management specialist prior to treatment to adapt the administration of the allotment (if needed).	All units	Specialist report
RG-5	The allotments will be administered to standard following treatment to ensure the forest plan standards and guidelines set for allowable use are met.	Allotments within the project area	Specialist report and forest plan
RG-6	All burning activities will be coordinated with the ranger district range management specialist to identify needed adjustment to grazing activity based on the specifics of each burn block.	All prescribed fire units	Specialist report
Fire/Fuels			
FIRE/FUELS-1	Burns which consume more than 10 tons of fuel must follow requirements in the Oregon Smoke Management Plan.	All units that apply	
FIRE/FUELS-2	Smoke management forecasts will be obtained through Oregon Department of Forestry, the morning of ignition, and each subsequent day of ignition. Forecast must be favorable or reviewed with forecaster for the burn to proceed.	All units that apply	
FIRE/FUELS-3	Firelines will have appropriate waterbars in steep sections to reduce erosion and sedimentation.	All units that apply	

PDF/BMP (by resource or activity)	Description of Project Design Features, Best Management Practices, and Mitigation Measures	Applicable Units or Activities	Reference
FIRE/FUELS-4	Selected Overstory Protection: FDR Pullback of fuel accumulation as needed from designated trees prior to prescribed burning to limit overstory mortality from prescribed fire. Follow recommendations in RMRS-GTR-238.	All units that apply	RMRS-GTR-238
FIRE/FUELS-5	Where mechanical fuel reduction is necessary, use low ground pressure equipment, such as grapple mounted excavator, to reduce the impacts on the soil resource.	All units that apply	
FIRE/FUELS-6	Rehab firelines that have the potential to increase public off-road motor vehicle travel as necessary to ensure created firelines are near natural appearing, and do not pose potential for increase public off-motor vehicle and/or resource long-term adverse impact.	All units that apply	
Heritage/Paleontology			
HR-1	Activities are excluded from any known archaeological sites, except on established (open) roads; or allowed with coordination with the archaeologist and consulted upon with the Oregon State Historic Preservation Office (SHPO).	All units	
HR-2	No driving or staging of vehicles or other equipment or supplies, no mechanical logging or skidding, no piling, and no pile-burning, in known archaeological sites.	All units	
HR-3	For pre-commercial thinning activities, hand-cut vegetation in sites may be hand-carried from archaeological sites to aid in reducing hazardous fuels build-up in sites. This will be approved on a case-by-case basis and monitored by the ranger district archaeologist.	All units	

PDF/BMP (by resource or activity)	Description of Project Design Features, Best Management Practices, and Mitigation Measures	Applicable Units or Activities	Reference
HR-4	<p>Historic sites that could potentially be damaged by fire or associated, preparatory activities will be avoided and/or protected. During the layout and development of prescribed burn plans, district fuels specialists will work with the ranger district archaeologist to determine the location and appropriate protection measures for known heritage sites.</p> <p>Wooden structures are at the greatest risk of damage or loss during burning activities. In order to eliminate the risk of damage from fire an appropriately sized buffer zone around structures will be excluded from areas to be burned. Depending upon the size of the buffer zone and the fire behavior anticipated and observed during burning operations, additional protection from embers may also be required. In some instances unit boundaries will be modified to provide the necessary buffer zone, in others fire control methods will be identified and applied prior to or during burn operations in order to prevent fire spread into buffer zones. Fire control methods include the construction of control lines, by hand or with machinery, around historic sites (generally done prior to burning) and the use of wetlines, hoselays, engines or handcrews to prevent fire spread into buffer zones. If previously unknown historic sites are identified during implementation of burning, protection actions will be developed and implemented, including if necessary the delay of burn activities.</p> <p>Linear features and other historic evidence of human occupancy are at risk of some damage during burning activities, generally through the construction of control lines. Linear features will be identified in burn plans. Pre-burn fireline construction will be limited to the use of handlines and/or wetlines where potential exists to impact historic linear features. A dozer boss will be present to assist in identifying and avoiding historic sites when machinery is used in fireline construction.</p>	All units	
HR-5	<p>Water Transportation Ditches</p> <ol style="list-style-type: none"> 1. No machinery within 50 feet from the center of the ditch in either direction (corridor). 2. No trees will be marked for harvest on the ditch; this includes dead or green trees. 3. No new crossings or landings on the ditch without zone archaeologist review or agreement. 4. Trees adjacent to the ditch will be directionally felled away from the ditch. If trees cannot be felled away from the ditch, they will be left. 5. Any tree which falls on the ditch will be left, until the ranger district archaeologist can review the area. 6. Hand bucking and piling of slash will be the only method used within the ditch corridor. Slash may be hand piled immediately adjacent to, but not within the ditch. 7. Prescribed burning will only be used if no wooden features are present. No fireline other than light hand line should be constructed within the ditch corridor. 8. Tree planting may occur up to within five feet of the sides of the ditch, but no closer, nor within the ditch itself. 	All units affected by water transportation ditches	

PDF/BMP (by resource or activity)	Description of Project Design Features, Best Management Practices, and Mitigation Measures	Applicable Units or Activities	Reference
HR-6	<p>Lithic Scatters Intact Surface Sites</p> <p>These sites have high information content and are comparatively scarce. Therefore, project design criteria are limited to the following options:</p> <p>Logging</p> <ul style="list-style-type: none"> a. Logging the site over snow when there are appropriate ground conditions to protect the site: at least 20 inches of snow and overnight temperatures of less than 25 degrees (F) and afternoon temperatures less than 35 degrees (F), using existing skid trails, and employing cultural resource monitors on the site b. Directional felling of designated trees that are inside the site boundaries to limit impact c. Directional felling (towards the sites outer boundaries) of designated trees that are located on the periphery of the site d. Aerial logging with full suspension of the logs e. Skyline logging with full suspension of the logs <p>In all cases heavy equipment will be kept outside the site boundaries. Such logging techniques as ground yarding, cable yarding, skyline yarding with on end suspension, and directional felling with use of skid trails inside the boundaries of the site are not appropriate for intact surface sites.</p> <p>Fuels Treatment</p> <ul style="list-style-type: none"> a. Hand piling of slash in off site locations b. Broadcast burning at low temperatures c. Lopping and scattering of slash rather than burning it <p>In all case heavy equipment will be kept outside the site boundaries. Slash treatment and fire line construction will take place outside the site boundaries. Low temperature broadcast burning is not viewed as an adverse impact to the lithic resource composing these sites.</p> <p>Silviculture Treatment</p> <ul style="list-style-type: none"> a. Tree planting by hand, auger or mechanical equipment, mechanical site preparation, and rodent control will not be undertaken within the boundaries of intact surface sites. When silviculture treatment is necessary within site boundaries, mitigation will be under taken. b. Commercial timber thinning over snow when there is appropriate snow depth and conditions (frozen ground) is an appropriate option. c. Non-commercial thinning by hand and chainsaw is appropriate. 	All units that apply	

PDF/BMP (by resource or activity)	Description of Project Design Features, Best Management Practices, and Mitigation Measures	Applicable Units or Activities	Reference
HR-7	<p>Lithic Scatters</p> <p>Disturbed Surface Sites</p> <p>Sites that have been disturbed are less restrictive than intact surface sites, but still require sensitive treatment for most impacts.</p> <p>Logging</p> <p>a. Logging the site over snow when there are appropriate ground conditions to protect the site: at least 20 inches of snow and overnight temperatures of less than 25 degrees (F) and afternoon temperatures less than 35 degrees (F), using existing skid trails, and employing cultural resource monitors on the site</p> <p>b. Directional felling of designated trees that are inside the site boundaries</p> <p>c. Directional felling (towards the sites outer boundaries) of designated trees that are located on the periphery of the site</p> <p>Based on the degree of surface disturbance, the following logging systems may be employed following consultation with Oregon SHPO. System designs will consider the existing degree of disturbance.</p> <p>d. Skyline yarding with one end suspension</p> <p>e. Ground yarding</p> <p>f. Cable yarding</p> <p>g. Designated skid trails</p> <p>h. Constrained yarding based on soil moisture</p> <p>i. Horse logging</p> <p>In all cases, heavy equipment will be kept outside the site boundaries.</p> <p>Fuels Treatment</p> <p>Hand piling, lopping and scattering of slash without burning, or low temperature broadcast burning are the only appropriate methods of fuels treatment for this class of site.</p> <p>In all cases, heavy equipment will be kept outside the site boundaries. Piling and burning of slash will also take place outside of the site boundaries.</p> <p>Silviculture Treatment</p> <p>a. Tree planting by hand or auger may take place within the boundaries of a disturbed surface site. Mechanical equipment will not be allowed. If more extensive silvicultural treatment is necessary, site specific mitigation measures will be developed.</p> <p>b. Commercial timber thinning over snow when there is appropriate snow depth and conditions (frozen ground) is an appropriate option.</p> <p>c. Pre-commercial thinning by hand and chainsaw is appropriate.</p>	All units that apply	

PDF/BMP (by resource or activity)	Description of Project Design Features, Best Management Practices, and Mitigation Measures	Applicable Units or Activities	Reference
HR-8	<p>Intact Buried Site</p> <p>Logging</p> <p>a. Logging the site over snow when there are appropriate ground conditions to protect the site: at least 20 inches of snow and overnight temperatures of less than 25 degrees (F) and afternoon temperatures less than 35 degrees (F), using existing skid trails, and employing cultural resource monitors on the site</p> <p>b. Directional felling of designated trees that are inside the site boundaries to limit impact</p> <p>c. Directional felling (towards the sites outer boundaries) of designated trees that are located on the periphery of the site</p> <p>d. Aerial logging with full suspension of the logs</p> <p>e. Skyline logging with full suspension of the logs</p> <p>Ground yarding, cable yarding, skyline yarding with one end suspension, directional felling, and use of designated skid trails are appropriate when the logging system is designated to not affect the cultural deposit. This can occur when disturbance is limited to the non-cultural deposit above the buried cultural deposits. The type of logging system will depend on the depth of the sites buried cultural deposits.</p> <p>Fuels Treatment</p> <p>a. Hand piling of slash is the most appropriate method for treating slash inside site boundaries but wheeled and tracked equipment can be used under the following conditions:</p> <ol style="list-style-type: none"> 1. When the snow is of an appropriate depth and ground conditions are adequate to protect the site 2. When the sites cultural deposits lie beneath the impact zone <p>b. Broadcast burning at low temperatures and lop and scatter treatments are appropriate.</p> <p>c. Piling and burning of slash will take place outside site boundaries.</p> <p>Silvicultural Treatment</p> <p>a. Tree planting by hand, auger, or mechanical equipment and site preparation using mechanical equipment will not be undertaken within site boundaries unless:</p> <ol style="list-style-type: none"> 1. The excavation associated with planting and site preparation does not penetrate to the buried cultural deposits 2. The excavation associated with planting and site preparation takes place in areas peripheral to the cultural deposits 3. Hand tree planting with bar or hoe at 12x12 feet or greater spacing is used <p>b. Commercial thinning is appropriate within the site boundaries when snow is of appropriate depth and ground conditions are adequate to protect the site.</p> <p>c. Pre-commercial thinning by hand and chainsaw appropriate.</p>	All units that apply	

PDF/BMP (by resource or activity)	Description of Project Design Features, Best Management Practices, and Mitigation Measures	Applicable Units or Activities	Reference
HR-9	<p>Disturbed Buried Sites</p> <p>Logging</p> <ul style="list-style-type: none"> a. Logging over snow when there is appropriate snow and ground conditions to protect the site b. Directional felling of designated trees that are inside the site boundaries to limit impact c. Directional felling (towards the sites outer boundaries) of designated trees that are located on the periphery of the site <p>Ground yarding, cable yarding, skyline yarding with one end suspension, directional felling, and use of designated skid trails are appropriate when the logging system is designated to not affect the cultural deposit. This can occur when disturbance is limited to the non-cultural deposit above the buried cultural deposits. The type of logging system will depend on the depth of the sites buried cultural deposits.</p> <p>Fuels Treatment</p> <ul style="list-style-type: none"> a. Hand piling and burning slash is preferred within the site boundaries. Mechanical equipment can be used under the following conditions: <ul style="list-style-type: none"> 1. When snow atop the site is of appropriate depth and ground conditions are adequate to protect the site 2. When the sites cultural deposits lie beneath the impact zone <p>Silvicultural Treatment</p> <ul style="list-style-type: none"> a. Tree planting by hand, auger, or mechanical equipment and site preparation using mechanical equipment will not be undertaken within site boundaries unless: <ul style="list-style-type: none"> 1. The excavation associated with planting and site preparation does not penetrate to the buried cultural deposits 2. The excavation associated with planting and site preparation takes place in areas peripheral to the cultural deposits 3. Hand tree planting with bar or hoe at 12x12 feet or greater spacing is used b. Commercial thinning is appropriate within the site boundaries when snow is of appropriate depth and ground conditions are adequate to protect the site. c. Pre-commercial thinning by hand and chainsaw is appropriate. 	All units that apply	
HR-10	<p>It is recognized that even the most intensive field surveys may not locate all heritage sites therefore:</p> <p>If cultural resources are located/relocated during implementation of any of the action alternatives, work will be halted and the ranger district archaeologist will be notified. The cultural resource will be evaluated and a mitigation plan developed in consultation with the Oregon SHPO if necessary.</p>	All units that apply	

PDF/BMP (by resource or activity)	Description of Project Design Features, Best Management Practices, and Mitigation Measures	Applicable Units or Activities	Reference
PALEO-1	If paleontological resources are located or relocated during implementation of any of the action alternatives, work will be halted and the national forest geologist/paleontology staff will be notified.	All units that apply	
PALEO-2	<p>Tractor units will have the most effect to potential paleontological resources if tractors were continually running over outcrops. Rubber tired or tracked tractors need to be used to prevent fracturing and crushing of the bedrock and therefore the vertebrate fossils inside. A paleontological trained person will be on site to observe all temporary road building in tractor units that are partially or entirely within the Martin Bridge Limestone. During timber sale activities such as skidding and cross country travel, all limestone outcrops should be avoided and a paleontological trained person should be notified during work in the above units to do spot checking.</p> <p>(Should further ground-disturbing actions take place outside the proposed temporary roads and tractor units, or other activities come in contact and cut into bedrock, a Forest Service paleontologist will be contacted to determine if the resources on site will be impacted. If paleontological resources are found to be impacted during vegetation management activities, a survey will be required and further conservation strategies will be developed.)</p>	Tractor units that are partially or entirely within the Martin Bridge Limestone: 119, 133, 135, 213, 215, 202, 203, 207, 208, and 228	
Visuals/Scenery			
VIS-1	Screen landings from Forest Roads 77, 7015, 7755, 7735, the Martin Bridge Trail and the Main Eagle Trail.	All units that apply	
VIS-2	Limit naturally shaped openings to be a maximum of 5 to 10 acres in size with blended edges in areas of Retention and Partial Retention in both Middle and Background from Forest Roads 77, 70, 7015, 7725, 7730, 7755 and 7735.	All units that apply	
VIS-3	New temporary roads and landings may be evident but must remain subordinate to the shape and pattern of the natural appearing forest canopy. In areas of Retention and Partial Retention Foreground from Forest Roads 77, 70, 7015, 7020, 7725, 7730, 7755 and 7735.	All units that apply	
VIS-4	Foreground clearings (not to exceed 2 acres) should not be used frequently but can be used in specific circumstances to treat insect or disease infestations, or to open views to scenic attributes such as rock formations, large ponderosa pine or components, or views to distant mountain peaks in areas of Retention and Partial Retention in both Middle and Background from Forest Roads 77, 70, 7015, 7020, 7725, 7730, 7755 and 7735.	All units that apply	
VIS-5	Skid patterns, slash, soil exposure and stumps should be visually minor or unnoticed (4 inches maximum height of stumps) in areas of Retention Foreground as seen from Forest Roads 77, 70, 7015, 7020, 7725, 7755 and 7735.	All units that apply	

PDF/BMP (by resource or activity)	Description of Project Design Features, Best Management Practices, and Mitigation Measures	Applicable Units or Activities	Reference
VIS-6	Cut stumps at a height less than 4 inches that are within 100 feet of Forest Road 77 within the wild and scenic river corridor.	All units that apply	
VIS-7	Slash piles shall not be located within the immediate Foreground, (100 feet) of Forest Roads 77, 7015, 7020, 7755, 7735, the Martin Bridge Trail and the Main Eagle Trail.	All units that apply	
VIS-8	After burning piles within landings, scatter residue of burn piles and seed area within the areas of Foreground.	All units that apply	
Silviculture/Timber			
SILVI-1	Operating restriction, pine engraver: Restricts the creation of pine engraver breeding habitat (ponderosa pine) slash from December 1 to June 30. Applies to harvesting and road construction/reconstruction/maintenance to prevent outbreak of pine engraver beetles. In harvest units of greater than 2 MBF per acre gross harvest volume of ponderosa pine, avoid leaving the resulting green ponderosa pine slash in the woods from December 1 to June 30. Applicable units would be based upon the cruise volume. Should green ponderosa pine slash be created during this period, pine engraver breeding habitat (green cambium) should be destroyed prior to July 1. Log decks containing any ponderosa pine logs should be hauled prior to July 1.	Any unit where harvested ponderosa pine volume per acre is 2 MBF or greater.	
SILVI-2	Operating restriction, quaking aspen units: Requires heavy machinery access within the aspen treatment units to be pre-approved by the Forest Service in order to protect the aspen root system.	A1-A29	
Transportation			
TRANS-1	NFS roads planned for project use will be maintained to a standard needed for project use. Maintenance activities will be in accordance with the Wallowa-Whitman National Forest standard specifications for timber sales. Typical maintenance activities include; blading and shaping roadbeds, cleaning ditches and culverts, installing and replacing temporary culverts, removal or ramping over of small slumps and slides, road-side brushing of overhanging limbs and small diameter trees, logging out blow downs and felling danger trees. Haul activities may include; dust abatement on primary haul routes, and snow removal for winter haul. Post-haul maintenance includes; water barring and blocking closed roads; re-establishing and adding to cross ditches on lower standard open and closed roads, and final blading and shaping of all roads, as necessary.	All NFS roads used for the project	

PDF/BMP (by resource or activity)	Description of Project Design Features, Best Management Practices, and Mitigation Measures	Applicable Units or Activities	Reference
TRANS-2	NFS roads needing work beyond the intent of the road maintenance specifications will be reconstructed to the minimum standard needed to support haul. Typical reconstruction work includes heavy clearing, drainage work (springs, culvert replacements), removal and stabilization of landslides, relocating road segments, placing rock subgrade reinforcement and surfacing. Non-typical reconstruction included removal and replacement of a bridge structure.	NFS roads used for the project and determined to need reconstruction to be suitable for use	
TRANS-3	NFS roads that are closed will be opened for project use only and re-closed.	Closed (ML 1) NFS roads used for the project	
TRANS-4	Temporary roads will be constructed and then stabilized and blocked under the terms of the contract. Location, clearing width and any special construction requirements (including post-haul treatment) will be agreed to in writing prior to construction.	New temporary roads	
TRANS-5	Existing roads that are not NFS roads will be used for the project under the timber sale contract terms for temporary roads. Location, clearing width, and any special requirements (including post-haul treatment) will be agreed to in writing approval prior to construction and they will be closed and stabilized after use.	Existing non-NFS roads	
TRANS-6	Open and closed NFS roads (MLs 1 and 2) not necessary for public access may be closed to the public and signed for project use only during project operations.	Roads shown in contract road maintenance requirement tables for specifications T-838 or T-839	
TRANS-7	Bridges and culverts will be installed during instream work window. Culvert installation on Category 4 streams will occur during dry channel conditions.		
TRANS-8	Prevention of pine engraver beetle (<i>IPS Pini</i>) during road clearing and maintenance: Avoid leaving greater than or equal to 4 inches diameter small end ponderosa pine slash in the woods from December 1 to June 30. Avoid piling or decking during this period.		
Wildlife			
WL-1	<p>Snags and Down Woody Material</p> <p>All snags will be retained unless identified as posing a safety hazard.</p> <p>Snags felled for safety reasons will be retained onsite to contribute to coarse wood where coarse wood amounts are deficient.</p>	All units	Forest plan

PDF/BMP (by resource or activity)	Description of Project Design Features, Best Management Practices, and Mitigation Measures				Applicable Units or Activities	Reference	
WL-2	Down Woody Material Where material is available, all treatment units (harvest and prescribed burn) will exceed the minimum levels for down woody material described in the following table for each species:				All units	Forest plan	
	Species	Pieces per Acre	Piece Length and Small End Diameter				Total Lineal Length (feet)
			diameter	minimum length			
	Ponderosa pine	3-6	12 inches	6 feet			20-40
	Mixed conifer	15-20	12 inches	6 feet			100-140
Lodgepole pine	15-20	6 inches	8 feet	120-160			
WL-3	Green Tree Replacements (GTRs) In addition to the guidelines for logs and snags, sufficient green trees of adequate size are to be retained in harvest units to provide replacements for snags and logs through time via natural mortality. Generally GTRs need to be retained at a rate of 16 to 74 trees per acre, depending on biophysical group. All harvest prescriptions in the project would retain GTRs within or above this range. See the WWNF Green Tree Snag Replacement Guidelines for details associated with managing for induced mortality.				All units	WWNF green tree snag replacement guidelines	
WL-4	Raptors Any raptor sightings or active raptor nests observed during reconnaissance, layout, marking, or project activities will be reported to the ranger district wildlife biologist for further assessment and potential mitigation associated with project activities.				All units		
WL-5	Big Game Winter Range Logging operations within big game winter range will not be conducted between December 15 and April 30. A waiver to operate during this time period may be requested from the district ranger.				All units that apply	Forest plan	

PDF/BMP (by resource or activity)	Description of Project Design Features, Best Management Practices, and Mitigation Measures	Applicable Units or Activities	Reference
WL-6	<p>Landbirds and Neotropical Migratory Birds</p> <p>To reduce the potential for loss of snags during prescribed burning, employ passive lighting techniques near snags larger than 12 inches. Techniques include lighting at a slope position above snags, and avoid lighting directly adjacent to or at slope positions directly below snags. For larger snags (greater than 20 inches DBH) at higher risk due to heavy fuels accumulations at the base, pullback of fuels may be necessary prior to prescribed burning.</p>	All units	
WL-7	<p>Landbirds and Neotropical Migratory Birds</p> <p>To reduce the potential for impacts to nesting landbirds, prescribed burning activities projected to occur on or after May 20, and/or past the onset of vegetation leaf-out will be reviewed by a ranger district or national forest wildlife biologist. The ranger district biologist will then provide recommendations.</p>	All units	
WL-8	<p>Cavity-nester/Denning Habitat</p> <p>All non-merchantable grand fir 35 inches DBH and greater will be retained within treatment units.</p>	All units	
WL-9	<p>Connectivity</p> <p>All treatments within identified connectivity corridors will maintain canopy closure within the top one-third of site potential, where overstory canopy closure is maintained above 40 percent within dry forest PVGs and above 50 percent within moist and cold forest PVGs.</p>	All units that apply	
WL-10	<p>Sensitive Habitats</p> <p>Plant communities adjacent to sensitive/unique wildlife habitats will be protected by maintaining vegetative structure characteristic of the edge inherent to these areas. These areas include cliffs and talus. If encountered, buffer these sensitive habitats by at least 100 feet, possibly more on some habitats. The degree of activity allowed within these buffers will vary depending on the type of sensitive habitat and the current conditions associated with the sites. Coordinate with ranger district resource specialists.</p>	All units	
WL-11	<p>White-headed Woodpecker Nest Site</p> <p>Ensure that the known white-headed woodpecker nest tree is protected during implementation of prescribed fire-only treatments in Unit F-10. Also, conduct prescribed fire treatments within Unit F-10 outside the nesting season (after July 31), unless the nest tree is known to be unoccupied.</p>	Prescribed fire unit F-10	

PDF/BMP (by resource or activity)	Description of Project Design Features, Best Management Practices, and Mitigation Measures	Applicable Units or Activities	Reference
WL-12	Goshawk Nest Stand No harvest or disturbing activities will take place within the 30 acres established as the nest stand.	The 30-acre goshawk nest stand	
WL-13	Goshawk Post-Fledging Area (PFA) Underburning and prescribed fire-only treatments within the goshawk PFA will be implemented outside the nesting period (after July 31).	Goshawk PFA	
WL-14	Goshawk PFA Canopy closure in the portion of Unit 50 occurring within the delineated goshawk PFA will be maintained at a minimum of 60 percent.	Unit 50	
WL-15	Goshawk Surveys Conduct goshawk surveys prior to implementing timber harvest or prescribed fire-only treatments. If goshawk nesting is confirmed, apply appropriate mitigation measures identified in the Eastside Screens.	Units 48, 50, 51, 87, 420, 422, and 423	
WL-16	Pileated Woodpecker Nest Site Protect the known pileated woodpecker nest tree during implementation of prescribed fire treatments. Also, conduct prescribed fire treatments outside the nesting season (after July 31), unless the nest tree is known to be unoccupied.	Prescribed fire unit F-34	
Watershed/Soils/Fish			
WS-1	Riparian Habitat Conservation Areas (RHCAs) INFISH RHCAs will be established on all streams as follows: <ul style="list-style-type: none"> • Category 1: Perennial Fish Bearing (300 feet each side of channel) • Category 2: Perennial Non-Fish Bearing (150 feet each side of channel) • Category 3: Ponds, lakes, reservoir, wetlands greater than 1 acre (150 feet around perimeter of feature) • Category 4: Intermittent Non-Fish Bearing (100 feet each side of channel) • Category 4: Wetlands less than 1 acres, springs, seeps (100 feet around perimeter) • Category 4: Landslides (100 feet around perimeter of feature) Exception: Roads will be used as boundaries when located at least 100 feet from Category 1 and 3, and at least 50 feet from Category 4. This allows for harvest within the RHCAs (about 50 acres, alternative 2).	All units that apply	

PDF/BMP (by resource or activity)	Description of Project Design Features, Best Management Practices, and Mitigation Measures	Applicable Units or Activities	Reference
WS-2	<p>Fire/Fuels Rx in RHCAs</p> <p>Prescribed fire will be allowed in RHCAs consistent with a goal of enhancing or maintaining riparian management objectives (RMOs).</p> <ul style="list-style-type: none"> • No active lighting will take place within default RHCAs buffers except for pile burning. RX fire would be allowed to back into RHCAs, unless direct ignition is needed to reduce the intensity of fire within RHCA. • Avoid hand piling within 50 feet of Category 1, 2, and 4 stream channels. • Avoid machine piling within RHCAs (except at approved landings in RHCAs.) 	All prescribed fire units	
WS-3	<p>Channel Stability</p> <p>Maintain natural LWD and trees needed for future recruitment to protect or enhance stream channel and bank structure, enhance water quality, and provide structural fish habitat within all stream systems.</p>	All units	
WS-4	<p>Stream Temperature</p> <p>Prevent measurable temperature increases (greater than 0.5 degrees F change) in Category 1 streams. Temperatures in other streams may be increased only to the extent that water quality standards for downstream, fish bearing streams will not be affected. Normally stream shade management on Category 3 streams will differ little from treatment on Category 1 streams.</p>	All units	
WS-5	<p>Roads</p> <p>Avoid constructing temporary roads within RHCAs. Any planned reconstruction or construction of roads crossing riparian areas will not alter stream or groundwater flow characteristics to the extent that it will impact the riparian area. Design and maintain road drainage to prevent the influx of significant amounts of road sediment runoff into stream courses. When use of closed roads is complete, re-close as soon as possible. Seed as appropriate.</p> <p>Road Reconstruction within RHCAs</p> <p>Limit vegetation modification to the road prism, road surface plus ditch lines, to what is needed to maintain a safe travelway and functional drainage system.</p>	All units/project roads	

PDF/BMP (by resource or activity)	Description of Project Design Features, Best Management Practices, and Mitigation Measures	Applicable Units or Activities	Reference	
WS-6	Temporary Roads Management <ul style="list-style-type: none"> • Sediment mitigation strategy: provide low impact designs • Locate on benches where possible to reduce cut/fill construction, sedimentation risks • Provide adequate drainage • Adopt storm-proof designs: outsloping, water drainage features, location • Have post-harvest rehab plan for temp roads that include culvert removal, outsloped template, scarification, placement of slash materials, and seeding as appropriate • Utilize existing non-NFS road templates where possible • Temporary culverts will be located at stable sites to the extent possible 			
WS-7	Log Landings No new log landings or landing associated with slash pile burning within 100 feet of any channel. Existing landings within RHCAs must be upslope of the road system at the base of a unit. Rehabilitate landings to minimize bare soil and promote vegetation growth.			
WS-8	Skid Trail Rehabilitation Rehabilitate skid trails using water bars (WS-10), slash placement, and seeding as appropriate.	All units		
WS-9	Ground-based Operations Ground-based harvest will not normally operate on slopes with greater than 30 percent rise. Small inclusions with greater than 30 percent rise are included during layout if they can be operated on without causing excessive soil disturbance. Directional felling and winching of trees on slopes with greater than 30 percent rise can be done on small inclusions of steep ground. Ground based equipment will not be operated within RHCAs on slopes with greater than 30 percent rise.	All units		
WS-10	Water Bars Construct water bars on skid trails and firelines where soil disturbance is evident (and at the direction of the sale administrator), using the following spacing guide:	All units		
	Gradient			Spacing
	less than 20 percent			80 feet
	20 to 39 percent			40 feet
greater than 40 percent	25 feet			

PDF/BMP (by resource or activity)	Description of Project Design Features, Best Management Practices, and Mitigation Measures	Applicable Units or Activities	Reference
WS-11	<p>Skidding and Skid Trails in RHCAs</p> <p>Logging activities within RHCAs will be restricted to processor/forwarder operation. Skidding logs down stream courses or ephemeral draws will not occur. Locate trails crossings at right angles to stream channels. Prior approval of crossing locations is required. Suitable crossings will be mitigated to minimize impacts. Mitigation may include slash mats or rock armor. Damaged stream banks and crossings shall be reshaped to stable conditions. Within RHCAs, where soil has been exposed, operate equipment on slash as much as possible. For roads within RHCAs, only allow skidding to road when the road is at least 100 feet away from perennial streams, and 50 feet away from intermittent stream. Existing landing within RHCA may be used for decking and loading of logs only. No whole tree operations within RHCAs.</p>	All units	
WS-12	<p>Soils</p> <p>The mitigating measures listed below will be implemented to meet standards in the Wallowa-Whitman National Forest forest plan.</p> <p>These standards state:</p> <ul style="list-style-type: none"> • Minimize detrimental soil conditions with total acreage impacted (compaction, puddling, displacement, and severe burning) not to exceed 20 percent of the total acreage within the project area including landings and NFS roads. • The forest plan requires use of "approved skid trails, logging over snow or frozen ground or dry soils, or some equivalent system for limiting the impact and aerial extent of skid trails and landings and to prevent cumulative increases from multiple entries in tractor logging areas." • Skid trails and forwarder roads: Maintain a minimum of 100 feet between main skid trails to the extent possible. Where Forwarding is required, to the extent practicable, slash will be left in forwarder roads from clearing and product manufacture to create 'slash mats'. Forwarder roads will utilize existing skid trails to the extent practicable. Forwarder roads will maintain a minimum of 60 feet between roads to the extent possible. • Soil moisture: Skidding, forwarding and mechanical felling operations shall not be allowed when soils are wet enough that ruts greater than 6 inches deep and 50 feet long or more would form. • Existing skid trails will be used as much as possible, except where existing skid trails are inappropriately located, such as draw bottoms or too close together. • Winter logging/subsoiling: If pre-implementation or post-implementation field monitoring indicate the need, then landings and skid trails, or forwarder roads will be subsoiled or winter logging will be required or both. • Cover the subsoiled area with slash. This shall be done in the same pass as the subsoiling, without creating new disturbance. Slash cover shall provide a minimum of 65 percent effective ground cover, but shall not exceed the fuels prescription for the area. Ideally subsoiling and grapple piling would occur at the same time in a single pass. 	All units	Forest plan, Watershed Management Practices Guide for Achieving Soil and Water Objectives

PDF/BMP (by resource or activity)	Description of Project Design Features, Best Management Practices, and Mitigation Measures	Applicable Units or Activities	Reference
WS-12 continued	<ul style="list-style-type: none"> • Subsoiling shall utilize a winged subsoiling attachment on an excavator. • Subsoiling shall occur when soils are at an optimum moisture for the soil type. Subsoiling shall not occur when soils are wet, or when moisture is high enough to cause clodding. • Subsoil to a depth of 20 to 24 inches. • Subsoiling passes shall be made close enough to cause complete subsurface fracturing between passes, and passes shall lift and fracture, not turn over the soil. To better facilitate water dispersion, subsoiling passes shall be accomplished in a herring bone or other pattern that does not create a furrowed pattern that follows the treated trail of road. • Discontinue subsoiling where large rocks are continually brought to the soil surface, or operate with the shoes at a shallower depth (15 inches). • Grapple piling shall be done with low ground pressure (less than 8.5 psi) on dry, frozen or snow covered soil, and machinery would stay on existing skid trails where possible. On subsoiled units, ideally subsoiling and grapple piling will be accomplished in the same operation. 	All units	Forest plan, Watershed Management Practices Guide for Achieving Soil and Water Objectives
WS-13	Additional soil mitigations are required for Unit 121 to address existing DSCs. Winter logging required over frozen ground (2 feet of snow) or other measures which provide mitigation.	Unit 121	
INFISH standards			
WS-14	TM-1 INFISH: Prohibit timber harvest in RHCAs except to improve RHCA stand structure. Units identified overlap RHCAs and RHCA overlap areas will be treated with the rest of the unit to improve stand structure.	Units 1, 4, 33, 34, 57, 213, 300, 301, 303, 307, 311, 314, 316, 401	
WS-15	RF-2b INFISH: For each planned road, meet riparian management objectives and avoid diverse effects on listed anadromous fish (PACFISH) to inland native fish (INFISH) by: B. minimizing road and landing locations in RHCAs.	All units	
WS-16	RF-2d INFISH: For each planned road, meet riparian management objectives and avoid adverse effects on listed anadromous fish (PACFISH) to inland native fish (INFISH) by: D. avoiding sediment delivery to streams from the road surface.	All units	
WS-17	RF-2e INFISH: For each planned road, meet riparian management objectives and avoid adverse effects on listed anadromous fish (PACFISH) and to inland native fish (INFISH) by: E. avoiding disruption of natural hydrologic flow paths.	All units	
WS-18	RF-2f INFISH: For each existing or planned road, meet riparian management objectives and avoid adverse effects to inland native fish by: F. avoiding sidecasting of soils. Sidecasting of road material is prohibited on road segments within or abutting RHCAs in priority watersheds.	All units	

PDF/BMP (by resource or activity)	Description of Project Design Features, Best Management Practices, and Mitigation Measures	Applicable Units or Activities	Reference
WS-19	RF-5 INFISH: Provide and maintain fish passage at all new road crossings of existing and potential fish-bearing streams.	All units	
WS-20	FM-1 INFISH: Design fuel treatment so as not to prevent attainment of RMOs, and to minimize disturbance of riparian ground cover and vegetation. Strategies should recognize the role of fire in ecosystem function and identify those instances where fire suppression or fuel management actions could perpetuate or be damaging to long-term ecosystem function, or designated critical habitat or inland native fish.	All units	
WS-21	RA-2 INFISH: Trees may be felled in RHCAs when they pose a safety risk. Keep felled trees on site when needed to meet woody debris objectives.	All units	

Table B2. Monitoring activities

Monitoring (by resource area)	Description of Monitoring Activity
Botany TES Plants	
BO-m1	Monitor for five years to detect changes in population levels and plant community composition of <i>Carex cordillerana</i> . Responsible staff: national forest botanist or ranger district botany specialist
Noxious Weeds	
NX-m1	Monitor for noxious weeds on a yearly basis for three years after the project activities are completed. Responsible staff: national forest or ranger district invasive species coordinator
NX-m2	Monitor gravel, fill, sand and rock source sites for noxious weeds. Responsible staff: engineering personnel or ranger district invasive species coordinator
NX-m3	Re-seeding of landing piles, temporary roads, and skid trails. Responsible staff: sale administrator
Range/Livestock	
RG-m1	Concurrent and post activity monitoring for damage to range improvements including fences, cattleguards and water developments. Responsible staff: sale administrator or fuels AFMO
RG-m2	Monitor closure of gates while livestock are within the allotment adjacent to activities, when the activity requires opening of the gate. Responsible staff: sale administrator, engineering personnel, or fuels AFMO
Fire/Fuels	
Fire/Fuels-m1	Monitor in accordance with Monitoring Fuels Treatments on FS/BLM-Managed Lands in Oregon and Washington Responsible staff: Rx fire manager or burn boss or fuels AFMO
Fire/Fuels-m2	Smoke Dispersal Monitoring Nephelometer site readings as well as visual observation. Responsible staff: Rx fire manager or burn boss
Heritage/Paleontology	
HR-m1	Monitor any known heritage sites receiving protective treatments upon completion of the project to assure the preservation and protection of the heritage resources and determine the success of the proposed treatments. Responsible staff: national forest or ranger district archaeologist
PALEO-m1	Monitor temporary road construction in units that are partially or entirely within the Martin Bridge Limestone. Responsible staff: national forest geologist/paleontology staff or paleontological trained person
PALEO-m2	Monitor utilizing spot checks in units that are partially or entirely with the Martin Bridge Limestone. Responsible staff: national forest geologist/paleontology staff or paleontological trained person

Monitoring (by resource area)	Description of Monitoring Activity
Recreation	
REC-m1	Monitor dispersed recreation sites to ensure no project activities occur within the site or the 25-foot buffer. Responsible staff: sale administrator or ranger district recreation specialist
REC-m2	Monitor timing of activities within the semi-primitive motorized area which includes Unit 82 and Forest Roads 7725-150 and 7725-094. Responsible staff: sale administrator, fuels AFMO or ranger district recreation specialist
Visuals/Scenery	
VIS-m1	Monitor stump and slash treatments within the immediate foreground of concern of level 1 and 2 road segments. Responsible staff: ranger district landscape architect or designee
Silviculture/Timber	
Silvi-m1	Implementation monitoring to verify silviculture prescriptions, vegetation response, landscape change (HRV). Visual reconnaissance during sale preparation, harvesting, and implementation of thinning, burning, and reforestation activities. Harvest, thinning, and prescribed fire units would receive a field examination to assess implementation and to update the vegetation database. Responsible staff: ranger district silviculturist, AFMO fuels, GIS specialist, forestry technicians
Wildlife	
WL-m1	Monitor effectiveness of the PDFs for species noted. Responsible staff: national forest or ranger district wildlife biologist
Watershed/Soils/Fish	
WS-m1	Pre-implementation monitoring will be done to ensure DSC levels remain below the forest plan standard. Monitoring may result in requiring winter logging or other mitigation measures which limit DSC levels. This would be done in coordination with a hydrologist or soil scientist. Post-implementation monitoring will be done to ensure that DSC levels remain within forest plan standards. Monitoring may result in changes to the post-harvest activities. Responsible staff: national forest or ranger district soil scientist or hydrologist
WS-m2	Monitoring of sale layout and contract administration will be undertaken to ensure proper application of all identified constraints and mitigating measures. Post-harvest activities will be monitored to ensure that guidelines to minimize soil disturbance are being followed. Site preparation activities such as area subsoiling/scarifying and burning will be monitored to ensure the purpose is achieved without causing additional soil damage. Responsible staff: national forest or ranger district soils scientist or hydrologist
WS-m3	Monitor the implementation of RHCA buffers on streams and wetland to determine the proper buffer widths were adhered to (WS-1). Responsible staff: national forest or ranger district soils scientist or hydrologist
WS-m4	Monitor the project to ensure that all standards and guidelines in the LRMP are met through implementation of protection measures as identified by the interdisciplinary team. Responsible staff: national forest or ranger district soils scientist or hydrologist

Monitoring (by resource area)	Description of Monitoring Activity
WS-m5	<p>Implementation monitoring of the project and protection measures will take place throughout the life of the project by the TSA (timber sale administrator) and watershed specialist. Action will be taken if an event arises that requires special attention. For example, if an intense thunderstorm caused overland flow and subsequent excessive soil displacement or sediment production, harvest operations would cease until the soil moisture decreased or protection measures were complete. Potential effects from log haul on roads which parallel RHCAs will be monitored throughout the life of the project by the TSA and watershed specialist. Timber harvest operations will be halted if adverse impacts are observed at any point during the operation.</p> <p>Responsible staff: national forest or ranger district TSA staff, soils scientist, or hydrologist</p>
WS-m6	<p>Post-project effectiveness monitoring includes implementation and effectiveness monitoring to determine if applicable Best Management Practices (BMPs) and mitigation measures were effective in meeting soil and water resource protection.</p> <p>Responsible staff: national forest or ranger district soils scientist or hydrologist</p>

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