

# Preliminary Decision Memo

## GW Fire Timber Salvage Project

**USDA Forest Service**  
**Sisters Ranger District, Deschutes National Forest**  
**Deschutes County, Oregon**  
**T14S, R08E, Section 13 W.M.**  
**T14S, R09E Section 18 W.M.**

### Background

On August 31, 2007 a fire started in the Mt. Washington Wilderness. The fire subsequently burned to the east and outside the wilderness. At the time of containment the fire had burned about 7,357 acres, including 6,029 acres of National Forest System lands administered by the Deschutes National Forest. The effects of the fire on various resources and the level of environmental analysis appropriate to document the project were evaluated with the Region Six Rapid Assessment Team (RAT). Initial reconnaissance by the Sisters Ranger District interdisciplinary team (IDT) indicated that about 626 acres of fire killed timber may be available for salvage harvest. Further review and analysis narrowed this to about 218 acres (213 acres of salvage and five acres of danger trees located along log haul routes) of economically viable ground-based salvage opportunities. This is about 4% of the total area of National Forest System lands burned in the GW Fire. The project area is located in the dry mixed conifer forest, white fir series, at elevations ranging from 3,600 feet to 4,200 feet. The design of the project focused on reducing or eliminating impacts to extraordinary circumstances (resources of concern).

The project is located on the Sisters Ranger District of the Deschutes National Forest northwest of the town of Sisters. The legal description is: Section 13, Township 14 South, Range 8 East, and Section 18, Township 14 South, Range 09 East, Willamette Meridian.

### Need for Action

Some stands of economically valued species such as ponderosa pine and white fir were severely burned, resulting in 75-100% mortality. As time progresses these fire killed trees lose economic value due to staining, insect damage, and checking (cracks in the wood that occur as the burned wood dries). By the late spring or early summer of 2008 up to 60% of the economic value of these trees could be lost. There is a need to harvest some of the fire killed timber to provide economic benefits and generate receipts that can be used for reforestation.

It is possible that many of the stands that experienced stand replacement fire will not have an adequate natural seed source to regenerate the forest to the desired future condition. There may be a need to plant trees in stands where natural regeneration is inadequate.

The GW Fire burned across about 3.0 miles of roads that would be used as commercial haul routes. Danger trees could pose a hazard to log hauling in the project area. There is a need to improve safety along these roads.

## Purpose of the Project

The purposes of the GW Fire Timber Salvage Project are to:

- Harvest fire killed timber that has economic value within the Matrix land allocation of the Northwest Forest Plan.
- Reforest desired tree species (where natural, on-site, seed sources are lacking) within salvage harvest units to aid in the accelerated development of forest conditions consistent with management plan objectives.
- Improve public, administrative and operational safety by removing danger trees along commercial haul routes.

## Proposed Action

The Sisters Ranger District proposes to salvage log about 218 acres of fire killed timber located in the Northwest Forest Plan Matrix land allocation.

This project is currently estimated to yield about 1.80 million board feet of ponderosa pine and white fir from 12 economically viable harvest units. All harvest units are located in analysis units (polygons) identified during the public scoping process. Harvest would remove fire killed dead ponderosa pine, Douglas-fir, and white fir in areas of high fire severity, as well as heavily scorched white fir with a low likelihood of survival in areas of high and mixed (moderate) fire severity. All units would be logged using ground-based systems. Approximately 0.25 mile of new temporary road may be needed for access. Temporary roads will be closed and restored at the conclusion of the project.

Of the 218 acres that have been identified for harvest, 213 acres are in harvest units and five acres are for removal of danger trees along the haul route(s). Sixty eight acres of the total number of acres are located in mixed fire severity units in which only fire killed or fire damaged white fir with a low likelihood of survival would be removed. Reforestation would occur on up to 150 acres that are within high severity fire harvest units. The mix of species planted would reflect the composition of the original stand(s).

Snag retention levels have been developed for snag dependent focal species and their prey base based on plant association group. Six (6) of the larger and more likely to persist snags per acre would be left in harvest units to meet wildlife habitat needs. Wildlife snags would be predominately ponderosa pine, but other species could be left if ponderosa pine is absent.

Table 1 provides a harvest area summary by fire severity and unit acres.

**Table 1. Harvest Area Summary**

Unit Number	Fire Severity	Acres
1	High	1.4
2	High	1.6
3	High	17.1
4	High	7.3
5	High	20.7
6	High	32.2

Unit Number	Fire Severity	Acres
7	High	6.3
8	Moderate	4.5
9	Moderate	30.5
10	Moderate	6.9
11	High	59.1
12	Moderate	25.8
Total		213.4

Total acres: 218 acres (213 acres of salvage harvest and five acres of danger tree removal along log haul routes)

## DECISION

I have decided to implement the proposed action and harvest about 1.80 million board feet (MMBF) of fire killed timber (including heavily scorched white fir that has a low likelihood of survival based on the degree of crown and bole scorch) from about 218 acres within the GW Fire area. All of the harvest units, including removal of danger trees along haul routes, are located exclusively in the Matrix land allocation as described in the Northwest Forest Plan. Dead and or dying trees will not be harvested in Riparian Reserves; however, danger trees would be felled and left in place to abate any hazard to vehicular traffic. The timely harvesting of fire-killed trees would maximize their economic value.

I have concluded that fire killed timber can be harvested in an environmentally sound manner without adversely impacting resources of concern in the project area. All units would be harvested using ground-based logging equipment. To the extent possible, fire-killed trees would be whole-tree yarded, and logging slash would be treated at log landings. About 0.25 mile of temporary road construction is necessary to access unit four and would be closed after logging is completed; no new permanent road construction would take place. No green trees, with the exception of heavily scorched white fir that have a low likelihood of survival, would be harvested. In the mixed fire severity only dead and dying white fir that meets Scott's Guidelines for survival (Scott et. al. 2002) would be harvested; no dead or dying Douglas-fir or dead or dying Ponderosa Pine would be removed in the mixed fire severity units. The mixed fire severity units would have the same snag retention strategy as the high fire severity units. In addition, the removal of danger trees along haul routes would improve public, administrative, and operational safety.

My decision would salvage harvest fire killed and fire damaged timber from 12 units. The original public scoping letter identified eight harvest units located in areas of high fire severity. Further field review identified four mixed fire severity units that are consistent with the purpose and need for the project and were incorporated into the proposed action. This preliminary decision memo provides the opportunity to comment on harvest activities in mixed fire severity areas in the project area.

## Effects to the Northern Spotted Owl

I have assessed the potential impacts of salvage logging on northern spotted owl habitat. The project does not occur within an active home range; nesting, roosting, and foraging habitat; or dispersal habitat for the northern spotted owl. The nearest nest site is about five miles away from

the project area. The project would not remove any constituent elements (i.e. nesting, roosting, and foraging habitat) for the northern spotted owl. In addition, legacy materials such as snags and down woody debris would be left within harvest units that could provide future habitat for the northern spotted owl and their prey.

I have reviewed the effects of the project to a northern spotted owl Critical Habitat Unit (CHU) and home range. The project area is located in CHU OR-4. About two acres of the Critical Habitat Unit is located in high fire severity harvest units; none of the mixed fire severity units are located in the Critical Habitat Unit. The Critical Habitat Unit does not currently contain functioning nesting, roosting, and foraging habitat for the northern spotted owl. In addition, the Programmatic Biological Assessment of 2006 concluded that the Dry Creek historic northern spotted owl home range is not viable due to high mortality from insects and disease. Surveys were conducted in 2004 and 2005 according to Region Six protocol; no northern spotted owls were located during the surveys. Therefore, I have concluded that the project **May Affect, But is Not Likely to Adversely Affect** the northern spotted owl, including Critical Habitat. In addition, my decision meets all Project Design Criteria as listed in the FY 2006-2009 Programmatic Biological Assessment. Further consultation with U.S. Fish and Wildlife Service is not required.

### **Wildlife Snag Strategy**

To help meet habitat needs for snag dependent wildlife species I requested that a snag retention strategy specifically be developed for this project using the most currently available scientific literature. Six (6) of the most likely to persist snags would be left per acre in all harvest units to meet snag dependent wildlife habitat needs. These densities would provide adequate habitat for wildlife focal species and their prey base that prefer open stand conditions. The snags retained would primarily be large diameter ponderosa pine; however, white-fir would be retained if ponderosa pine is not present. Snags are expected to last through the early life of the developing stand (30 years) and would function as down woody material as the snags fall to the forest floor and begin to decay. Bird species, such as Black-backed woodpecker, would continue to benefit from post-fire closed stand conditions in areas outside of the harvest units.

### **Reforestation**

I will rely on the planting of conifers to reforest stands harvested in this project, depending on available natural seed sources. I will authorize the reforestation of up to 150 acres in order to achieve the objectives for the Matrix land allocation. This would provide for the rapid establishment of tree species important for the management of Matrix lands and to meet the desired landscape condition by plant association group. Artificial reforestation would allow succession to take place at a faster rate, helping to achieve Matrix objectives sooner.

### **Mitigation Measures and Project Design Criteria**

Various mitigation measures and project design criteria will be applied to the project. See Appendix A of this document for more details.

## **Emergency Situation Determination**

I have requested an Emergency Situation Determination (ESD) under 36 CFR 215.10 for the GW Fire Timber Salvage Project. Deterioration agents, particularly checking, are expected to reduce the value and volume of the salvage sale over time. An ESD, if granted, would help expedite the time period in which this salvage sale could be offered to the public by allowing implementation of the project to proceed immediately after a final decision has been signed and published. A formal ESD request will be submitted to the Washington Office (WO) for consideration and approval.

## **Categorical Exclusion**

This project meets the requirements found at **FSH 1909.15 - 31.12 Categories of Actions for Which a Project or Case File and Decision Memo are Required**. Specifically, the project meets **Category 31.12 (13). Salvage of dead and/or dying trees not to exceed 250 acres, requiring no more than ½ mile of temporary road construction.**

This category was established after extensive review of similar projects by the Forest Service which has determined that these types of projects do not have significant environmental effects when there are no extraordinary circumstances (Federal Register volume 68, Number 145, pages 44598-44599).

I have determined that the project Purpose and Need, limited scale, limited environmental effects, and findings in the Federal Register provide the rationale for the use of this category. Specialists Reports which were used as a basis for this analysis and decision are found in the project record located at the Sisters Ranger District, Sisters, Oregon.

## **Extraordinary Circumstances**

In determining the appropriateness of using a categorical exclusion, a determination of the potential impact to the resource conditions (extraordinary circumstances) identified in FSH 1909.15 Section 30.3(2) has been made. The mere presence of one or more of the following resource conditions does not preclude the use of a categorical exclusion. It is the degree of the potential effect of a proposed action on these resource conditions that determines whether extraordinary circumstances exist.

The following is a list of the potential effects to the resource conditions in the project area

**1) Federally listed threatened, endangered or sensitive (TES) species, or designated habitat or species proposed for Federal listing, or proposed critical habitat.**

### **Botanical Species**

There will be **No Adverse Impact** to threatened, endangered, or sensitive plant species. No threatened, endangered, or sensitive plant species are known to occur in the project area.

## **Wildlife Species**

### **Amphibians:**

#### **Oregon Spotted Frog (Status: Proposed for Listing, Federal Candidate, Region Six Sensitive Species)**

The project will have **No Effect** on the Oregon spotted frog or its habitat. Minimal potential habitat for the Oregon spotted frog occurs on the Sisters Ranger District and there are no known occurrences. Suitable habitat (marshes) is not located within the project area. Project activities will not incrementally add to any cumulative effects because there are no direct or indirect effects associated with this species.

### **Birds:**

#### **Northern Spotted Owl (Status: Federal Threatened, Management Indicator Species)**

The project **May Effect, but is not likely to Adversely Affect** the northern spotted owl or their habitats. The project does not occur within an active home range, nesting, roosting and foraging habitat, or dispersal habitat. The project will not remove any constituent elements for the northern spotted owl. Legacy materials will be left within the units to provide future habitat for the northern spotted owl and their prey.

#### **Northern Spotted Owl Critical Habitat**

The project **May Effect but is not likely to Adversely Affect** northern spotted owl critical habitat. The Critical Habitat Unit is not currently functioning as intended. About two acres of timber salvage are located in stand replacement areas within the Critical Habitat Unit. No nesting, roosting, or foraging habitat is located in the stand replacement areas; these areas are not currently functioning as northern spotted owl habitat. The Critical Habitat Unit is not located in mixed severity areas where only individual dead or white fir with a low likelihood of survival would be harvested. Planting desired tree species for the development of long-term habitat will have beneficial effects. The project will not remove primary constituent elements for the northern spotted owl. The project will not preclude the northern spotted owl or their prey from utilizing the area in the future.

### **Mammals:**

#### **Canada Lynx (Status: Federal Threatened, NWFP Protection Buffer Species)**

The project will have **No Effect** on the Canada lynx or their habitat. There is not an adequate amount of primary vegetation to identify any lynx habitat or a Lynx Analysis Unit on the Deschutes National Forest.

#### **Pacific Fisher (Status: Federal Candidate, Region Six Sensitive Species)**

The project will have **No Impact** on the fisher or its habitat. Fishers are not known to utilize the area. They would avoid the high intensity burned areas of the fire. The project will not treat any Riparian Reserves. Legacy down wood and snags will be left in the Riparian Reserves as well as the upland areas, in varying densities. Reforestation associated with the project could expedite the development of habitat benefiting the fisher in the long-term.

### **Region Six Sensitive Species**

The project will have **No Impact** on the following Region Six Sensitive Species. After a review of the records, habitat requirements, and existing habitat components, it was determined that the following sensitive species do not occur and have no habitat in the project area and will not be included in any further analysis: bufflehead, harlequin duck, red-necked grebe, tri-colored blackbird, yellow rail, western sage grouse, American peregrine falcon, horned grebe, California wolverine, Crater Lake Tightcoil, and pygmy rabbit.

### **Aquatic Species**

There will be **No Effect** to Columbia River Bull Trout in the project area. The project area does not contain bull trout habitat and the species has not been documented.

There will be **No Impact** to Interior Redband Trout in the project area. The project area does not contain interior redband trout habitat and the species has not been documented.

There will be **No Adverse Effect** to Chinook salmon in the project area. The project area does not contain Chinook salmon habitat and the species has not been documented.

### **2) Flood plains, wetlands, or municipal watersheds.**

Floodplains: Executive Order 11988 provides direction to avoid adverse impacts associated with the occupancy and modification of floodplains. Floodplains are defined by this order as, “. . . the lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands, including at a minimum, that area subject to a one percent [100-year recurrence] or greater chance of flooding in any one year.”

- There are no floodplains within the project area.

Wetlands: Executive Order 11990 was promulgated to avoid adverse impacts associated with destruction or modification of wetlands. Wetlands are defined by this order as, “. . . areas inundated by surface or ground water with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds.”

- There are no wetlands within the project area.

#### **Municipal Watersheds**

- There are no municipal watersheds within the project area.

### **3) Congressionally designated areas such as wilderness, wild and scenic rivers, or national recreation areas.**

- The project is not located within a congressionally designated wilderness, wild and scenic river corridor, or national recreation area. The Mt. Washington Wilderness area is located

about 2.5 air miles to the west, the Metolius Wild and Scenic River is located about 5 air miles to the northeast, and the Oregon Dunes NRA is located about 200 miles air miles west of the project area.

#### **4) Inventoried Roadless Areas.**

- There are no Inventoried Roadless Areas (IRA) in the project area. The nearest IRA is about 3 air miles southwest of the project area. The project would not result in the construction any permanent or temporary roads in Inventoried Roadless Areas.

#### **5) Research Natural Areas.**

- There are no existing or proposed Research Natural Areas (RNA) in the project area. The Metolius RNA is located about 9 air miles northeast and the Cache Mountain RNA is located about 3 air miles northwest of the project area.

#### **6) American Indian and Alaska Native religious or cultural sites. Archaeological sites, or historic properties or areas.**

Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effect of a project on any district, site, building, structure, or object that is included in, or eligible for inclusion in the National Register. Section 106 of the National Historic Preservation Act also requires federal agencies to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment. The Archaeological Resources Protection Act covers the discovery and protection of historic properties (prehistoric and historic) that are excavated or discovered in federal lands. It affords lawful protection of archaeological resources and sites that are on public and Indian lands. The Native American Graves Protection and Repatriation Act covers the discovery and protection of Native American human remains and objects that are excavated or discovered in federal lands. It encourages avoidance of archaeological sites that contain burials or portions of sites that contain graves through “in situ” preservation, but may encompass other actions to preserve these remains and items.

- This decision complies with the cited Acts.

Surveys were conducted for Native American religious or cultural sites, archaeological sites, and historic properties or areas that may be affected by this decision. One prehistoric site is located in the project area. With proper mitigation adverse affects to this site can be avoided. A **No Historic Properties Affected** determination was made for the project.

- No cultural resource sites will be impacted by the project.

#### **Review of Effects Determinations**

After a thorough review of the project file and other relevant information I have concluded that there would be no adverse effects to any federally listed or endangered wildlife, fish, or botanical species or their habitats. I conclude based on the environmental analysis that the project will not have a significant effect on the quality of the natural and human environment. Therefore, the project is excluded from documentation in an environmental assessment (EA) or environmental impact statement (EIS).



## **Silvicultural Prescription**

A silvicultural prescription was developed to guide the treatment of the harvest units in the project area. The prescription calls for the salvage harvest of fire killed trees and dead and dying white fir in areas of high and mixed fire severity in tandem with the implementation of the above mentioned snag strategy. Ponderosa pine and Douglas-fir with any amount of detectable live foliage will be left standing. White fir with live foliage will be left or taken depending on the degree of crown and bole scorch from the fire.

The following criteria will be used to assess the probability of survival for white fir (Scott et. al. 2002).

### **White Fir**

- Trees greater than 30” diameter at breast height (DBH) with greater than 85% crown volume scorch or trees less than 30” DBH with greater than 50% crown volume scorch, **or**
- Trees greater than 30” DBH with 20-85% crown volume scorch AND greater than 80% bole circumference charred (any height), or trees less than 30” DBH with 20-50% crown volume scorch AND greater than 40% of bole circumference charred (any height), **or**
- Trees with 100% bole circumference charred (any height), **or**
- Trees near the threshold of damage under #1 or #2, and also have evidence of charring of lateral roots in two or more quadrants.

## **PUBLIC INVOLVEMENT**

The GW Fire Timber Salvage Project public scoping letter was mailed on October 17, 2007 to about 164 people, including the Confederated Tribes of Warm Springs Reservation of Oregon. Ten replies were received; five from individuals and five from various organizations including the Cascadia Wildlands Project, Oregon Wild, Tykeson-Associated Enterprises, the American Forest Resource Council, and the Sierra Club. The comments from the public were reviewed to help identify any issues associated with the project. Most of the issues and concerns raised by the public related to the NEPA process, snag dependent wildlife species, cumulative effects, post-harvest planting, sale design, effects to fish, and area hydrology. Many of the comments helped to clarify the project analysis and were incorporated into the project design and mitigation. Our responses to the public scoping comments are contained in the project file.

## **FINDINGS REQUIRED BY OTHER LAWS**

My decision is consistent with the Deschutes National Forest Land and Resource Management Plan (LRMP), as amended by the Record of Decision for Amendments to the Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl (Northwest Forest Plan).

Proposed salvage activities are consistent with riparian and water goals as outlined in the Deschutes National Forest LRMP, as well as aquatic objectives outlined in the Decision to Clarify Provisions Relating to the Aquatic Conservation Strategy (2004 ROD Amendment to the NWFP). The project will not impede the attainment of the nine objectives of the Aquatic Conservation Strategy (ACS) at the fifth field watershed level (Upper Metolius River watershed). The project is consistent with the Clean Water Act and Executive Orders 11988, 11990, and 12088.

Management Indicator Species (MIS) are discussed in the Wildlife Specialists Report. My decision would not lead to a trend toward Federal listing for Coopers Hawk, Sharp-shinned hawk, Northern Goshawk, Red-tailed Hawk, Woodpeckers, American Marten, Elk, Mule Deer, Western Big-eared Bat, Snags, Down Wood and Log Dependent Species, and Special Habitat Species.

In addition, my decision would not lead to a trend toward federal listing for Birds of Conservation and Bats.

### **IMPLEMENTATION DATE**

This Preliminary Decision Memo is subject to a 30-day comment period. Comments and a Response to Comments will be incorporated into a Final Decision Memo. The Final Decision Memo will then be subject to a 45-day appeal period. If there are no appeals, the project can be implemented five business days after the appeal period ends.

Harvest operations could occur as early as mid-June 2008 if an Emergency Situation Determination (ESD) is granted.

### **ADMINISTRATIVE REVIEW OR APPEAL OPPORTUNITIES**

This decision is subject to public notice, comment, and appeal pursuant to 36 CFR 215.5. You are invited to comment on this Preliminary Decision Memo. Your comments will be reviewed and addressed in a Response to Comments section in the Final Decision Memo. There is a 30-day comment period. Please submit your comments by May 19, 2008.

Submit your written comments to GW Fire Timber Salvage Project, Project Manager, Michael Keown, Post Office Box 249, Sisters, Oregon 97759; FAX (541) 549-7746. E-mails comments should be sent to [comments-pacificnorthwest-deschutes-sisters@fs.fed.us](mailto:comments-pacificnorthwest-deschutes-sisters@fs.fed.us)

Those submitting electronic copies must do so only to the email address listed above, must put the project name in the subject line, and must either submit comments as part of the e-mail message or as an attachment only in one of the following three formats: Microsoft Word, rich text format (rtf) or Adobe Portable Document Format (pdf).

## CONTACT PERSON

For additional information concerning this Preliminary Decision Memo or any other questions regarding the project, please contact Michael Keown, Environmental Coordinator, Sisters Ranger District, 541-549-7735.

/s/ William Anthony  
**WILLIAM ANTHONY**  
**District Ranger**

4/15/2008  
**Date**

**GW Fire Timber Salvage Project  
Preliminary Decision Memo**

**Appendix A: Mitigation Measures and Project Design Criteria**

The following mitigations and project design criteria will be used in the GW Fire Timber Salvage Project (Specialists Reports are found in the project record located at the Sisters Ranger District, Sisters, Oregon):

**WILDLIFE**

**Northern Spotted Owl**

- Disruptive work activities will not take place within ¼ mile (1.0 miles for blasting, ½ mile for helicopter) of any newly discovered nest sites or activity centers March 1 and September 30. This condition may be waived in a particular year if nesting or reproductive success surveys reveal that spotted owls are non-nesting or that no young are present that year. Waivers are valid only until March 1 of the following year.
- Along the haul routes all danger trees will be felled and left within the Cache/Trout Late Successional Reserve (LSR).
- Along temporary roads all danger trees outside of units will be felled and left in place.

**Seasonal Restrictions**

Restrict disturbance activities within ¼ mile of newly discovered nest sites.

Species	Seasonal Restriction Dates
Cooper’s Hawk	April 15 to August 31
Sharp-shinned Hawk	April 15 to August 31
Northern Goshawk	March 1 to August 31
Red-tailed Hawk	March 1 to August 31

**Snags and Down Wood**

- All down logs that existed pre-fire will remain post harvest.
- Snags that fall prior to harvest that were marked to retain will be left as down logs.
- Along the haul routes all danger trees will be felled and left within the Cache/Trout LSR.
- Along temporary roads all danger trees outside of units will be felled and left in place.

**American Marten**

- Along the haul routes all danger trees will be felled and left within the Cache/Trout LSR.
- Along temporary roads all danger trees outside of units will be felled and left in place.

**Recommendations:**

Cavity Nesters and Landbirds

- To avoid potential nest destruction and loss of broods, schedule harvest and post harvest activities outside of nesting season in appropriate habitat (March 15 through June 30).

## **BOTANY**

### Invasive Plant Species

- Use contract clauses to prevent the inadvertent introduction of invasive plant species by contractors.

## **SOILS**

Apply appropriate Best Management practices (BMPs) to all ground disturbing management activities, as described in General Water Quality Best Management Practices (Pacific Northwest Region, 1988). These BMPs are tiered to the Soil and Water Conservation Practices (SWCP) Handbook (FSH 2509.22), which contains conservation practices that have proven effective in protecting and maintaining soil and water resource values. The Deschutes Forest Plan states that BMPs will be selected and incorporated into project plans in accordance with the Clean Water Act for protection of waters of the State of Oregon (Forest Plan 4-69).

Specific BMPs commonly used to minimize the effects of road systems, fuels and timber management activities on the soil resource are briefly described for this project proposal.

- Use old landings and skidding networks whenever possible. Assure that water control structures are installed and maintained on skid trails that have gradients of 10 percent or more. Ensure erosion control structures are stabilized and working effectively (LRMP SL-1; Timber Management BMP T-16, T-18).
- In all proposed activity areas, locations for new yarding and transportation systems would be designated prior to the logging operations. This includes temporary roads, spur roads, log landings, and primary (main) skid trail networks. (LRMP SL-1 & SL-3; Timber Management BMP T-11, T-14 & T-16).
- Surface drainage on temporary roads – minimize the erosive effects of concentrated water through the proper design and construction of temporary roads (Road BMP R-7).
- Road maintenance – conduct regular preventive maintenance to avoid deterioration of the road surface and minimize the effects of erosion and sedimentation (Road BMP R-18, R-19).
- Coarse woody debris/down wood – assure that on Ponderosa Pine sites, a minimum of 5 to 10 tons per acres of large woody debris (greater than 3 inches in diameter) is retained within activity areas to provide organic matter reservoirs for nutrient cycling that helps maintain long-term site productivity (LRMP SL-1). Assure that on Mixed Conifer sites, a minimum of 10 to 15 tons per acres (greater than 3 inches in diameter) is retained for long-term nutrient cycling.
- Use sale area maps for designating soil and water protection needs (Timber Management BMP T-4).

## HERITAGE

- Within the marked boundary of the prehistoric site no skidding, staging, landings, burn piles, or other heavy equipment operations will be allowed off the existing road surfaces. Use and maintenance of the roads through the site area should be minimized as much as possible but recognizing that this impact is already ongoing and these locations in the site are already disturbed by road use and maintenance, it should be allowed.
- The site should be monitored once during harvest operations and after harvest is completed to determine that avoidance has been effective and see if additional heritage resources are exposed from the project.

## Literature Cited

Scott, Donald W., Craig L. Schmitt, and Lia H. Spiegel. 2002. Factors Affecting Survival of Fire Injured Trees: A Rating System for Determining Relative Probability of Conifers in the Blue and Wallowa Mountains. USDA Forest Service, Pacific Northwest Region, Wallowa-Whitman National Forest, Blue Mountains Pest Management Service Center, BMPMSC-03-01, November 25, 2002.

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