

Purpose & Need 1

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Chapter 1: Purpose and Need

Introduction

This chapter provides background information about the fire, its effects, and events leading to the development of an EIS. It describes the purpose and need for action and how the North Fork John Day Ranger District proposes to address those needs. Public participation in development of this project is described in the scoping and issues sections. Map 1 (found in the separate map packet) shows both the location of the Tower Fire and the area considered in analysis. The sections in bold-type below are particularly important to the decision-maker. Topics discussed in this chapter include:

- ❖ Location of the area being considered for projects
- ❖ History leading up to development of an Environmental Impact Statement
- ❖ **The purpose and need for action** (which also contains a summary of existing conditions by resource) along with actions proposed in response to the needs
- ❖ **Management direction summarized from the Forest Plan and other direction documents**
- ❖ **Decisions to be made**
- ❖ Scoping (which involves informing the public of proposed activities to solicit a variety of public viewpoints)
- ❖ **Key issues** (considered to be unresolved conflicts between alternative uses of the same resource that would result in alternatives to the proposed action)
- ❖ Tracking issues (which are of public interest and may result in modifications to the action, but would not result in development of a separate alternative)
- ❖ Issues expressed by the public, but beyond the scope of this analysis

Location

The project area includes all acres burned by the Tower Fire, except for the portion of the North Fork John Day Wilderness (which partially lies within the southern boundary of the burned area). The fire occurred about 8 air miles southeast of the town of Ukiah, Oregon (see Figure 1.1), in Umatilla and Grant counties. Approximately 50,800 acres burned; 46,300 acres of those occur on the Umatilla National Forest. The burned area occurs entirely within the North Fork John Day Sub-basin, and major streams that were affected include North Fork Cable, South Fork Cable, Hidaway, Texas Bar, Oriental, Winom, and Big creeks and a number of unnamed tributaries. The South Fork Tower Roadless Area (16,280 acres) lies completely within the burned area (no road construction or harvest are proposed within the roadless area).

A legal description of the fire area is:

- | | |
|---|---|
| T4S: R32E, section 36;
R33E, sections 31 and 32 | T6S: R32E, sections 12-15, 22-27, and 34-36;
R33E, sections 1-5 and 7-36;
R34E, sections 1-36;
R35E, sections 17-19 and 30 |
| T5S: R32E, sections 1, 3, 4, 9-15, 23-25,
and 36;
R33E, sections 5-8 and 15-36;
R331/2E, sections 22-27, and 34-36;
R34E sections 31-33 | T7S: R32E, sections 1-3 and 11-13;
R33E, sections 1-18 and 20-24; |

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R34E, sections 3-9, 17, and 18

All are Willamette Meridian surveyed. Project proposals are confined to the interior of the burned area outside of the Wilderness, with the exception of some road projects just outside the fire perimeter.

Most analyses were conducted at the subwatershed scale (see Chapter 3 for details). Subwatersheds included in analysis are Lower Cable (33A), Lower North Fork Cable (33B), South Fork Cable (33C), Upper North Fork Cable (33D), Texas Bar (35B), North Fork John Day/Otter (35C), North Fork John Day/Camp (35D), Oriental (35E), Winom (95A), Big (95B), and Upper Hidaway (96B). Map 1 (found in the separate map packet) shows the location of the fire, roadless area, Wilderness, and affected subwatersheds.

Background

The Tower Fire ignited during a lightning storm on August 13, 1996. Heavy fuel conditions, steep terrain, and strong gusting winds following the storm resulted in unusually severe fire behavior. The fire burned about 50,800 acres across six watersheds (see Table 1.1) within the headwaters of the North Fork John Day River Sub-basin. In addition, all of the South Fork-Tower Roadless Area was burned, as well as portions of the North Fork John Day Wilderness (see Map 1). The fire was controlled on September 9, 1996.

Table 1.1: Watersheds affected by the Tower Fire

National Forest Watershed #	Watershed Name	Acres in Watershed	Acres in Fire Area	Percent of Watershed Burned
85	Upper Grande Ronde/Fly*	36,184	32	<1
33	Cable Creek	24,272	16,441	68
34	Bridge/Pine*	34,151	126	<1
35	North Fork John Day	67,063	15,668	23
95	Big	38,807	12,404	32
96	Hidaway	19,202	6,146	32
Total	-	219,679	50,818	23

* This watershed is not included in analysis for the proposed Tower Fire Rehabilitation Projects EIS due to the small number of acres that were burned by the fire.

Burned Area Emergency Rehabilitation was completed in 1996 and 1997 to provide short-term mitigation of the fire's effects. Burned Area Emergency Rehabilitation projects included seeding, felling of dead trees along the contour to trap eroding soil, resizing or removal of culverts and installation of drain dips on roads, and reinstallation of drainage controls, bridges, and log trailbed supports on trails. These measures were implemented on high-risk areas within the fire perimeter (high fire severity, steep slopes, and erodible soils) to reduce the likelihood of damage to life and property.

Next, District and Forest specialists met with personnel from the Wenatchee National Forest to learn from their experiences with rehabilitation after the extensive 1993 Tye Fire. An overall strategy for continuing post-fire recovery efforts in the burned area was developed using the Wenatchee's experiences, information from local resource specialists and scientists, and comments from the public. At the same time, an ecosystem analysis at the watershed scale was conducted for the Tower Fire area (called "*Tower Fire Ecosystem Analysis*") and this was completed in January of 1997. This analysis was also vital in developing the recovery strategy and proposed rehabilitation projects because it characterized the physical and biological condition of the area, identified issues and key questions, compared current resource conditions to reference conditions, and identified resource protection and restoration measures.

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Figure 1.1: Location of the Tower Fire.

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Based on the Tower Fire Ecosystem Analysis and existing conditions within the analysis area, the North Fork John Day District initiated four projects: Hairy Hazard Tree CE, Big Tower Salvage and Revegetation Project EA, South Tower Fire Recovery Projects EA, and Cable Fire Recovery Project EA. These projects were staged over several years in order to address the most urgent needs first (i.e. public safety along roads and recovery of economic value from accessible dead timber) then focus on long-term rehabilitation. The objectives of these projects were to improve public safety within the area, salvage value from fire-killed timber, reduce existing and future fuel levels, and accelerate re-establishment of forest vegetation.

In January 1998, the Big Tower Fire Recovery Projects Decision Notice and Environmental Assessment was challenged in court. The Federal District Court upheld the project decision and the three salvage sales associated with the Big Tower Salvage and Revegetation Projects were sold and awarded (as was the Hairy Hazard Tree Sale) in the spring of 1998. The court was petitioned for a stay of implementation during appeal to a higher court, but the stay was denied and activities associated with the Big Tower Salvage and Revegetation Projects began.

The District Court's decision was appealed and the Ninth Circuit Court of Appeals overturned the decision on November 5, 1998. The judge enjoined *“any logging, road construction and reconstruction, and other ground-disturbing activities within the Tower Fire area of the Umatilla National Forest, until such time as the Forest Service has prepared, circulated, and considered an environmental impact statement, to analyze proposed actions within the Tower Fire Area.”* All activities on the three timber sales associated with the Big Tower Salvage and Revegetation Projects EA, as well as the Hairy Hazard Tree Sale (which was to remove hazard trees along open roads), were stopped. At the time of the halt order, 19 million board feet of the 26 million board feet of timber sold had been cut and removed from three of the four timber sales. The Forest Service requested further clarification from the Court to determine whether all restoration activities were required to halt. An order of clarification was filed on November 10, 1998, stating that the order does not prohibit road maintenance, water bar installation, ditch and culvert cleaning, or other erosion-prevention measures designed to put the roads to bed for the winter. Hunting and other recreational activities were conditionally exempt as long as they did not exacerbate erosion or erosion-inducing conditions. A second order of clarification was filed December 3, 1998, pointing out that hauling of felled logs was not permitted under the injunction. A third order of clarification was filed March 23, 1999, which stated that replanting of trees and ground cover or closure and revegetation of roads and landings was not prohibited. Completion of this EIS and its associated Record of Decision will satisfy the conditions of the Court injunction. Depending on the alternative selected, this will allow completion of sales that were enjoined (they are no longer under contract, and would be resold) and implementation of the remaining watershed restoration projects prohibited under the injunction.

Purpose & Need/Proposed Actions

The overall purpose of this project is to enhance long-term recovery of resources impacted by the Tower Fire. This section lays the framework for why action is needed to achieve this goal. Because of the complexity caused by the size of the fire and interrelatedness of resources affected, this section is displayed differently than the typical EIS format. There are five subsections: soil and water, fish habitat, forests, wildlife habitat, and recreation. Under each subsection, the current condition is briefly described (see Chapter 3 for more detail), followed by the resulting needs for action and the District's proposed methods of resolving each need. There are 47 proposed actions in all, and they are described immediately following the need they address, instead of together in a separate section, to better illustrate their relationship. A particular need for action and its associated activities may appear under more than one subsection.

A complete description of the proposed actions is discussed in Chapter 2 and a summary of all the proposed actions is contained in Table 2.3 (starting on page 2-38). Chapter 2 also details the changes between the Draft EIS and this Final EIS.

Soil and Water

Before the Tower Fire, riparian communities within the area were considered to be in poor to fair condition due to previous dredge mining, timber harvest, grazing, and recreation (Tower Fire Ecosystem Analysis 1997). The hot, dry summer climate of the area naturally results in low summer water flows and warm water temperatures, but such climatic effects have been amplified by past practices that allowed removal of riparian vegetation (which shades creeks, providing a thermal buffer). In 1996, Cable, Hidaway, and Big creeks and the North Fork John Day River (from the Middle Fork to Granite) appeared on Oregon State's List of Water Quality Limited Water Bodies (ODEQ 1996) for not meeting state standards for stream temperatures and fish habitat modification.

The Tower Fire further degraded stream conditions by consuming small organic matter and some large instream woody debris, and killing much of the vegetation where it burned with moderate and high severities (42% of the burned area, see Map 2). Approximately 141 miles of stream habitat burned at these severities. While large woody debris has returned to desired levels in most streams, some of the severely burned areas still do not contain adequate riparian vegetation to maintain cool water and entrap sediment before it reaches the stream.

The loss of vegetation on upland sites due to the wildfire has increased overland water flows, and the inadequate soil cover has allowed surface and rill erosion to occur. Monitoring in 1997 revealed that the Burned Area Emergency Rehabilitation seeding (700 acres) helped to reduce surface erosion (Umatilla National Forest Monitoring Report, 1998). However, upland vegetation in many areas is still deficient and, as a result, sediment delivery to streams has increased (although the magnitude of the change is unknown due to lack of pre-fire baseline data). The geology in some severely burned areas (unconsolidated landslide deposits in the Texas Bar vicinity and granitic soils adjacent to Oriental and Winom creeks) is prone to surface and mass erosion. Reductions in vegetation have exposed these soils and increased instability, particularly where deep-rooted trees were killed. Two landslides occurred after the fire: a 10-acre slide within an old harvest unit above Hidaway Creek and a 5-acre slide above Texas Bar Creek. These landslides continue to show signs of instability.

The above conditions also appear to have intensified residual effects from past logging and road building. Overland flows and erosion have been observed where roads and past tractor-based harvest compacted soils. Soil compaction reduces the infiltration of surface water and inhibits root growth (which particularly affects establishment and health of trees). Roads also interrupt subsurface water flows, causing them to surface and add to already increased overland flows. Cutbanks adjacent to roads have exhibited increased instability since the fire destroyed vegetative cover, particularly along Forest Road 5510, which traverses the headwaters of Oriental Basin through a combination of granitic soils and old landslide deposits. Sediment resulting from the increases in erosion and instability has further compounded the effects of roads by filling road drainage structures, forcing surface water to flow down the roadbed itself. Burned Area Emergency Rehabilitation efforts reduced this where culverts were removed on a number of closed roads, but many roads (open and closed) remain untreated. Erosion, instability, and sediment add to the cost of maintaining and repairing roads and increase the threat of catastrophic roadbed failure. The latter occurred in 1998 when a storm resulted in debris flows in the Oriental Creek drainage. Because of the fire's debris and increased sediment, culverts on Forest roads 5506 and 5507 became plugged, backing up stream flows and washing out these stream crossings. Emergency flood rehabilitation was completed to stabilize streambanks after this flood; however, some of the damaged crossings remain impassable and continue to add sediment directly to the streams. Forest Road 5510 now serves as the primary route through Oriental Basin, but it is currently too narrow for the increased volume of traffic. Loss of vegetative cover and increased overland flows have also increased erosion adjacent to recreational trails, filling drainage structures which, like roads, results in degraded trailbed integrity and increased maintenance costs.

As a result of the conditions stated above there is a need for:

-  Restoration of riparian vegetation for stream shade and future large, instream wood
-  Revegetation of upland sites to reduce overland flows, soil erosion, and related sediment

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-  Revegetation of four highly erodible or landslide prone areas to stabilize soil
-  Reduced soil compaction on old skid trails, landings and temporary roads associated with past tractor harvest to improve infiltration of water and vegetative root development
-  Improved drainage on roads that are closed to public travel, but maintained for administrative access
-  Improved conditions on 47.1 miles of open Forest roads, which could otherwise result in erosion and possible catastrophic roadbed failure
-  Obliteration of 6.4 miles of closed Forest roads that are no longer needed
-  Repair of remaining damage on Forest roads 5506 and 5507 and prevention of additional problems associated with the 1998 flood
-  Safe access into Oriental Basin that can support the volume of traffic while limiting instability and sediment production
-  Stabilization of erodible, burned slopes adjacent to system trails to reduce trail maintenance and sediment

The North Fork John Day District proposes to implement the following actions in response to these needs:

- ✦ Plant riparian shrubs, hardwoods, and conifers along intensely burned portions of the South and North forks of Cable Creek, Winom Creek, and Hidaway Creek
- ✦ Plant 10,285 acres of burned upland forest with coniferous tree seedlings
- ✦ Plant approximately 10 acres of conifers and hardwoods on a landslide along Hidaway Creek and 5 acres on a landslide along Texas Bar Creek
- ✦ Seed approximately 30 acres of highly erodible slope with pinegrass and/or prairie Junegrass (which is available within the subwatershed)
- ✦ Transplant approximately 10 acres of highly erodible cutbank along Forest Road 5510 with rooted cuttings of bearberry and common snowberry (taken from plants adjacent to the site)
- ✦ Subsoil up to 25 acres of existing landings, major skid trails, and temporary roads associated with past timber harvest using a tractor with a subsoiling attachment or excavator with extended bucket teeth
- ✦ Install cross-drains and water bars and remove culverts on 13.1 miles of Forest roads 5445, 5500-070 and -080, 5506-100, and 5507-270 (which are closed but needed administratively)
- ✦ Inslope or outslope, reduce fill height, harden/armor ditch lines, cuts, fills, or road surface, and install energy dissipaters on cross drains on 47.1 miles of Forest roads 5200-440, 5212, 5448, 5500-070, 5506, 5506-130, 5507, 5507-300 and -305, and 5510 (which are open to public travel)
- ✦ Replace the 3 adjacent culverts on Forest Road 5448 with an OHV bridge to improve stream flow patterns
- ✦ Replace culvert at the Forest Road 5506 crossing of Sheep Creek and at milepost 10.2 on Forest Road 5507

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- ✦ Obliterate (loosen soil compaction, restore to the original contour using heavy equipment, and seed with native grasses) 6.4 miles of closed Forest roads 5500-136, 5507-266, 5507-274, 5507-276, 5507-282, 5507-283, 5507-284, 5507-285, and 5507-400
- ✦ Construct a short-term hardened ford at the Forest Road 5506 crossing of Oriental Creek, then when the stream channel has stabilized, install a rip rap structure and culvert that allows fish passage
- ✦ Repair washouts and culverts on the closed portion of Forest Road 5507 from milepost 10.2 to the 100 spur junction (River Trail); install barricades with turn-arounds at the 100 spur and 130 spur junctions
- ✦ Make Forest Road 5510 the primary access to Oriental Basin (harden ditches and replace some culverts with rocked, drivable dips or low water fords on Forest Road 5510; lower fill heights over large culverts to allow overtopping during high flows; stabilize slide-prone cuts/fills; widen road on 5 curves to allow passage of larger vehicles; inslope, outslope, or crown 0.8 miles to provide safe wet weather traffic and long-term drainage)
- ✦ Seed slopes adjacent to recreational trails that traverse steep, moderate to intensely burned areas with native grasses and forbs
- ✦ Install signs at Round Meadows Trailhead, Three Culverts Camp, and Winom Campground to gain users' assistance in protecting fragile burned areas

Fish Habitat

The Forest Plan classifies most of the analysis area as C7-Special Fish Management Area. This reflects the area's importance as spawning and rearing habitat for several important fish species. Mid-Columbia summer steelhead (a species listed as "Threatened" under the Endangered Species Act) have been found throughout the burned area streams below natural barriers. Bull trout (also listed as "Threatened") are presumed to use the North Fork John Day River as a migratory corridor and historically used Hidaway Creek, but they are not known to currently utilize any of the area's tributary streams. Native, wild spring chinook salmon use the North Fork John Day River, Oriental Creek, lower Big Creek, and lower Hidaway Creek for spawning and rearing habitat.

As Table 1.2 indicates, the greatest amount of stream length that burned with high fire severity occurred along Winom Creek and upper North Fork Cable Creek, followed by South Fork Cable, Texas Bar, and Oriental creeks (Tower Fire Ecosystem Analysis, 1997). The loss of riparian vegetation has decreased streambank stability and entrapment of eroded soil. The resulting increases in fine sediment could kill macro-invertebrates (which provide food for fish), reduce fish habitat capacity, and extreme levels could kill fry before they emerge. Loss of riparian vegetation also removed hiding cover and food sources for fish and probably increased water temperatures (due to reduced shade). As a result, the Tower Fire Ecosystem Analysis identified Texas Bar Creek, upper North Fork Cable Creek, and a couple tributaries of Hidaway Creek as being at extremely high risk of further habitat degradation. This was underscored by a high water flow in 1997 which scoured the upper headwaters of North Fork Cable and Hidaway creeks to bedrock, and another in 1998 which scoured Oriental Creek and added fill from road crossings to the sediment load.

In addition to effects of the fire on fish populations, past management activities within the area contributed to degraded stream conditions. Many published studies have shown a relationship between high road densities and sediment production; such high densities occur in the Lower Cable, Lower North Fork Cable, Texas Bar, North Fork John Day/Otter, North Fork John Day/Turner, North Fork John Day/Oriental and Lower Hidaway subwatersheds. At some creek crossings, culverts prevent fish passage, which has decreased the amount of accessible habitat. In addition, livestock grazing in Round Meadow has reduced streambank stability.

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Table 1.2: Stream lengths that burned with moderate and high severities.

Stream Name	Miles Burned with Moderate Severity	Miles Burned with High Severity
Lower North Fork Cable Creek	6.6	0
Upper North Fork Cable Creek	10.5	12.9
South Fork Cable Creek	17.9	7.1
Texas Bar Creek	12.1	5.5
North Fork John Day River & minor tribs. - Otter	3	0
North Fork John Day River & minor tribs. - Camp, Sulphur	16.7	1
Oriental Creek	13	4.2
Winom Creek	4	14.4
Big Creek	5.1	0.6
Upper Hidaway	6.1	0.1

Because of all these conditions, there is a need for:

- Restoration of deficient riparian vegetation along portions of the South and North forks of Cable Creek, Winom Creek, and Hidaway Creek¹ to provide shading (for maintenance of cool water temperatures, streambank stability, and future large, in-stream wood
- A reduction of road densities in the Texas Bar, Oriental, North Fork John Day/Otter, and North Fork John Day/Camp subwatersheds to lessen sediment production and restore subsurface water flow
- Removal of barriers to fish passage associated with culverts on Texas Bar, Winom, and South Fork Cable creeks
- Restoration of vegetation and improvement of streambank stability where South Fork Cable Creek in Round Meadow is downcut
- An increase in the amount of large instream wood in Big Creek, North Fork Cable Creek, and Hidaway Creek

The North Fork John Day District proposes to implement the following actions in response to these needs:

- ✦ Plant riparian shrubs, hardwoods, and conifers along intensely burned portions of the South and North forks of Cable Creek, Winom Creek, and Hidaway Creek
- ✦ Obliterate Forest roads 5500-136; 5507-266, 5507-274, 5507-276, 5507-282, 5507-283, 5507-284, 5507-285, and 5507-400 by loosening soil compaction, restoring the original contour as much as possible using heavy equipment, and seeding with native grasses. These are closed, no longer needed, and traverse highly erodible soils

¹ Burned portions of Texas Bar and Oriental creeks have already been planted with shrubs and hardwoods.

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- ✦ Remove four culverts on Texas Bar Creek (where Forest roads 55 and 5506 cross) and one culvert on a tributary to North Fork Cable Creek (on Forest Road 5448 near the 550 junction) to improve access to fish habitat
- ✦ Construct step weirs downslope of the two culverts where Forest Road 52 crosses Winom Creek and South Fork Cable Creek
- ✦ Construct a permanent fence around the eroding portion of stream (approximately one mile) within Round Meadow
- ✦ Increase large instream wood in 0.4 miles of Big Creek, 3 miles of North Fork Cable Creek, and 3 miles of Hidaway Creek by felling dead trees adjacent to these channel segments with a chainsaw or by pushing trees (together with their root wads) over with machinery where access and soil conditions permit

Forests

While fire is a natural component of the ecosystem, the extent and severity of the Tower Fire was estimated to be well beyond what would have occurred historically, particularly in the areas where low and moderate severity fires normally occur (Tower Fire Ecosystem Analysis 1997). Historically, lightning-ignited fires within much of the analysis area occurred frequently and at low intensities, which maintained low stand density structures (Agee 1993, 1994, Heyerdahl 1996). However, by the time the Tower Fire occurred, 90 years of fire suppression had resulted in a shift in species composition and stand densities. For example, low elevation and south aspect forests were historically sparsely populated ponderosa pine stands. Fire suppression converted many of these forests into dense, multi-layered stands of fir species.² The overstocked, multi-layered stands burned hotter during the Tower Fire with more damage than would have occurred under historic fuel conditions, particularly at lower elevations. The resulting large number of dead trees will greatly increase future fuel loads as they fall to the ground (in approximately 20 years based on observations of past, local fires). Fuels that are three inches in diameter or larger do not contribute to the rate of fire spread, but they do increase fire intensity and would make suppression of future fires more difficult³. Increased wildfire intensities would likely destroy any reforestation that occurs and further decrease tree seed sources. The District plans to return fire to its historic role in the ecosystem through application of controlled fire (either natural or ignited by trained personnel). This is particularly important within the North Fork John Day Wilderness, where other forms of forest management are not permitted. However, if fuel loads increase and tree regeneration forms a continuous cover with branches close to the ground as predicted, application of controlled fire would be nearly impossible.

Although much of the fire area experienced high levels of tree mortality, approximately 58 percent of the fire area burned with low severity that did little to reduce the high stocking levels or return species compositions to historic distributions. Overstocking has caused increased competition between trees for nutrients, water, and space, which is further compounded by an unnatural abundance of species that require lots of moisture. As a result, overstocked stands are highly stressed, which results in slower growth and increased susceptibility to insects and disease. There is a risk that the remnant, old ponderosa pine will weaken and die because of the crowded conditions, further depleting an already scarce stand type. The desired future conditions for forest species composition, structure, stocking, and big game thermal cover described in the Forest Plan will not be achieved in the near future. The Tower Fire Ecosystem Analysis emphasized:

“Perhaps the most important management strategy that could be adopted for the Tower analysis area is one that would attempt to restore dry forests (those occurring on the ponderosa pine and warm dry ecological settings) to a level which approximates their historical abundance”.

² According to the Tower Fire Ecosystem Analysis (1997), dry forests have declined 47 percent between 1937 and 1996.

³ The unstable nature of standing dead trees would also pose increased safety risks to firefighters working around them.

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In the northeast portion of the fire area, pockets of trees infected with *Armillaria* root rot appear to be experiencing increased mortality due to the added stress of the fire. There is a risk that stands that survived the fire could now be lost due to this disease (Scott and Schmidt 1996).

The fire extirpated 60 to 70 percent of the native white pine populations on the District (Tower Fire Ecosystem Analysis 1997). Burned stands comprised most of an isolated population of western white pine in the Blue Mountains (the majority of western white pine occurs north and west of the Blue Mountains). The stands that were lost served as a major source of reforestation seed for the District. Some of the burned trees showed signs of resistance to white pine blister rust, a fatal, exotic disease that has greatly reduced white pine throughout much of the United States. Most of the remaining white pine on the District are inaccessible or have high levels of blister rust.

In many areas where widespread mortality occurred, there are no seed sources to reforest the dead stands (Tower Fire Ecosystem Analysis 1997). As discussed in the Tower Fire Ecosystem Analysis, seeds of many local conifer tree species do not disperse far, so natural reforestation would take several hundred years in areas that are beyond the reach of existing seed sources. In other areas, lodgepole pine has densely reforested the stand. After a fire, lodgepole pine tends to out-compete other species by producing high volumes of seedlings and growing rapidly in its juvenile stage. While lodgepole pine is an important species in the ecosystem, the current distribution of this species will result in a lack of species diversity over large areas. As the seedlings mature, competition among the lodgepole pine often results in suppressed tree growth, creating single species stands that are overstocked, stunted, and homogenous in structure. Suppressed stands are highly stressed and susceptible to insect epidemics and large fires (due to horizontal and vertical fuel continuity).

Post-fire surveys since 1998 have indicated that grasses, ferns, and shrubs have become well established in a number of areas. While this is desirable in many ways (soil cover, wildlife habitat for some species), vigorous competition from established plants would reduce survival and early growth of planted tree seedlings because the existing vegetation has roots that are already well established and some species even exude chemicals that are toxic to trees. Success of reforestation where such conditions exist would be low to nonexistent (South Tower Forest Vegetation Analysis 1998).

Because of all these conditions, there is a need for:

-  Reducing fuel loads to desired levels (8-12 tons/acre) to decrease the intensity of future wildfires and facilitate use of prescribed fire
-  Interrupting fuel continuity between the North Fork John Day Wilderness and the rest of the area to allow for future options in allowing prescribed natural fires
-  Maintaining the vigor and health of remaining live forests within the area by reducing stocking levels, moving forest species compositions toward historic mixes (particularly within warm dry/ponderosa pine ecological settings), and promoting *Armillaria*-resistant species where this disease is known to occur
-  Restoration of forested conditions in areas of heavy or complete tree mortality more rapidly than would occur under natural conditions in order to achieve Forest Plan objectives for soil, water, plant diversity, wildlife, recreation, etc.
-  Restoration of unique white pine stands where conditions are appropriate

The North Fork John Day District proposes to implement the following actions in response to these needs:

- ✦ Salvage harvest standing dead and down trees from approximately 3,028 acres using tractor, harvester/forwarder, cable, and helicopter logging systems. This would include construction (then decommissioning) of 4.0 miles of temporary road and reopening (grading and drainage improvement) of 1.2 miles of road that exist on the ground but are not maintained as part of the transportation system.

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- ✦ Construct a 6.25 mile long, 300-foot wide shaded fuel break⁴ using manual and mechanical methods along the ridge bounding but outside the northern edge of the North Fork John Day Wilderness
- ✦ Commercially thin 843 acres of live stands that were lightly burned by the fire, using tractor, harvester/forwarder, cable, and helicopter logging systems. This would include construction (then decommissioning) of 0.5 miles of temporary road and reopening (grading and drainage improvement) of 0.6 miles of road that exist on the ground but are not maintained as part of the transportation system.
- ✦ Non-commercially thin overstocked stands on 180 acres (these are trees 1-7 inches in diameter)
- ✦ Sanitize harvest 271 acres of green, diseased and dead trees within pockets of *Armillaria* root rot and replant with resistant species
- ✦ Plant 10,285 acres with coniferous tree seedlings, including 200 acres of white pine
- ✦ Spot apply herbicide in tree planting areas (including areas planted in 1998 and 1999⁵) to improve seedling survival and growth

Wildlife Habitat

Due to the fire, the burned area is now a predominantly homogenous landscape of early successional stage forest with isolated microhabitats of green tree patches and scattered individual live trees (Tower Fire Ecosystem Analysis 1997).

Deer and elk migrate through the burned area from the north and west in the spring. These animals should benefit from the large increase in forage, but the extensive loss in tree cover will make deer and elk more susceptible to human disturbance and associated stress. Dead trees provide some level of protection as hiding cover, but are not as effective as live vegetation and do nothing to moderate thermal extremes.

A large amount of old growth habitat burned in the Tower Fire. A number of stands designated in the Forest Plan as C1-Dedicated Old Growth burned, with approximately 13,000 acres experiencing moderate to heavy mortality. Very little old growth habitat remains within the fire area, so associated species such as the American marten and pileated woodpecker are not expected to inhabit the immediate area for many decades.

A number of riparian areas occur within the fire perimeter and appear to be recovering. However, a potential exists that ungulate use could slow the rate of recovery of riparian wildlife habitat.

Snag densities will be high for the next few years; however, snags are quickly falling, especially in areas exposed to prevailing winds. The majority of existing snags are estimated to be less than 16 inches in diameter and studies have shown snags of this size are expected to fall within the next decade after the fire (USDA 1998, Tower Fire Ecosystem Analysis 1997). Larger snags should remain standing 10 or more years depending on their size (Tower Fire Ecosystem Analysis 1997), but these will also be deficient in the long-term. Primary cavity excavators expected to use snags in the burned area include black-backed, northern three-toed, hairy, and Lewis' woodpeckers, northern flickers, and to a lesser degree downy and white-headed woodpeckers.

Because of all these conditions, there is a need for:

⁴ A shaded fuel break retains tree cover. Trees are thinned so that crowns do not touch and standing dead or downed fuels (beyond what is needed to meet Forest Plan standards) are removed.

⁵ Areas planted in 1997 do not need treatment because these trees were planted before competition became a problem.

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-  Acceleration of forest cover development in areas of heavy or complete tree mortality to provide a variety of future habitats for wildlife (big game cover, future snags, etc.)
-  Enhancement of big game forage along the northern and western boundary of the fire (where spring migration originates) to reduce grazing pressure on riparian plantings and severely burned sites
-  Designation of new stands as substitutes for C1-Dedicated Old Growth destroyed in the fire to provide for species that require mature/old forest habitat
-  Protection of wetlands associated with two springs, three ponds, and Long, Donut, Pearson, and Round meadows to protect important habitats
-  Increasing snag longevity to delay future shortages of this type of wildlife habitat

The North Fork John Day District proposes to implement the following actions in response to these needs:

- ✦ Plant 10,285 acres with coniferous tree seedlings
- ✦ Designate new areas (at least 1,300 acres) as C1-Dedicated Old Growth
- ✦ Construct permanent fence around 45 acres of Round Meadow to exclude livestock
- ✦ Construct permanent fence around two acres within Donut Meadow to exclude livestock
- ✦ Repair a half mile of the existing fence in Pearson Meadow and extend it to include four additional acres to exclude livestock
- ✦ Install a temporary electric fence around nine acres within Long Meadow to exclude livestock
- ✦ Permanently fence 1 acre around a spring at T.6S., R.33E., Section 35 and three acres around a spring at T.6S., R.33E., Section 34 to exclude livestock
- ✦ Permanently fence and repair three ponds within T.6S., R.33E., sections 27 and 35 to exclude livestock
- ✦ Remove one-third to three-quarters of the crown of scattered large, dead, standing trees to reduce wind resistance using the most economical and safe method (chainsaw, explosives, or mechanical means)
- ✦ Aerially seed 1,100 acres along Pearson Ridge, 500 acres on the ridge south of Cable Creek, 700 acres on the ridge north of Hidaway Creek, and scattered small areas up to 500 acres total with grasses and shrubs
- ✦ Aerially fertilize 1,500 acres along the north and west edges of the fire perimeter which experienced low fire severity
- ✦ Prescribe burn 900 acres near the North Fork John Day River to stimulate herbaceous vegetation and improve forage quality

Recreation

The Tower Fire not only affected the natural resources in the area, it also impacted humans who use the area for various recreational and subsistence purposes and the communities supported by business from

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such users (i.e. Ukiah, Dale, and Granite). The area affected by the fire remains popular for hunting, OHV riding, and camping. A field inventory conducted in 2000 indicates that 20 dispersed campsites could contribute to increased erosion and sediment due to the fire's reduction in vegetation and ground cover. At Pearson Guard Station, the fire burned the outhouse and a portion of the fence, damaged the water system, and removed vegetation surrounding a high-use dispersed campsite. Where the Blue Mountain Scenic Byway bisects a large area that burned with high severity, the visual character of the landscape has changed, providing excellent interpretation opportunities but also removing any visual buffering for management activities proposed in previous sections (primarily harvest). Trees along many roads and within the Pearson Recreational Residence tract, the Winom-Frazier OHV Complex, and Winom Campground have died because of the fire and now pose hazards to recreationists and travelers. In addition, the 1998 flood in Oriental Creek buried some of the campsites and facilities at Oriental Campground.

A number of developed trails crisscross the landscape connecting the Winom and Frazier portions of the OHV complex and providing access to the South Fork-Tower Roadless Area and non-motorized access to the North Fork John Day Wilderness. While Burned Area Emergency Rehabilitation projects addressed the immediate stability concerns related to trails, other longer-term effects on trails are now appearing: lost definition and visibility of road crossings on the Round Meadows and Cut Across OHV trails, increased drainage concerns on the River Trail, and increased safety concerns on the Roundaway OHV Trail. The Roundaway Trail poses a particular problem. The existing trail crosses above the landslide along Hidaway Creek (which occurred after the fire removed protective vegetation from an existing clearcut). Motorcycle use does not appear to pose a problem with the instability because it requires a narrow trailbed (12-16 inches). However, the loss of vegetation adjacent to the trail is allowing 4-wheelers (which require a 50-inch width to maneuver safely) to access the trail, heedless of posted signs recommending against 4-wheeler use. This is likely occurring because the Roundaway Trail provides the sole trail connection from Frazier Campground to both the Winom and Wallowa-Whitman National Forest trail systems. As a result, much of the soil outside the trail tread through this steep section has been disturbed and there have been a number of minor accidents (unconfirmed) reported by the public. Four-wheelers are currently being directed to use Forest Road 5226 (which is a narrow, busy road) to access the Frazier portion of the complex. A safe connection for 4-wheelers does not exist between Frazier Campground and both the Winom and Wallowa-Whitman National Forest trail systems.

Because of all these conditions, there is a need for:

-  Improvement of 20 dispersed campsites to increase safety and reduce impacts to adjacent soil and vegetation
-  Repair of the damage at Pearson Meadow Guard Station and Oriental Campground to increase usability of these facilities and reduce sediment
-  Interpretation of the Tower Fire and associated restoration activities along the Blue Mountain Scenic Byway to enhance travelers understanding of the view
-  Protection of visual quality along the Blue Mountain Scenic Byway
-  A reduction in public safety hazards related to dead trees surrounding the Pearson Recreational Residence Tract, the Winom OHV Complex, the Winom Campground, and along Forest roads 5507, 5510, 5226, and 5226-090
-  Increased safety at road crossings on the Round Meadows and Cut Across OHV trails
-  Improved drainage on the River Trail to reduce trailbed damage and sediment
-  Providing safe access for 4-wheelers to the entire OHV Complex, while containing soil disturbance to areas with low potential for producing erosion

The North Fork John Day District proposes to implement the following actions in response to these needs:

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- ✦ Improve 20 dispersed campsites within the burned area by removing hazard trees and large charred logs, installing boulders to define site boundaries, and leveling and surfacing sites with gravel
- ✦ Reconstruct the Pearson Guard Station outhouse and water system and harden the existing dispersed campsite to reduce erosion
- ✦ Remove debris, recontour sites, and place gravel to rehabilitate two campsites and the trailhead at Oriental Campground, and replace the existing toilet with a seamless vault toilet
- ✦ Install interpretive sign along the Blue Mountain Scenic Byway (Forest Road 52) to provide information regarding wildfire and post-fire management
- ✦ Harvest dead trees from 346 acres along the Blue Mountain Scenic Byway in a way that protects scenic integrity
- ✦ Remove hazardous trees that by their position or lean could fall and reach a road, trail, or recreation site. Hazard reduction would occur on 663 acres, including the Winom Creek OHV area (South Winom and North Winom trailheads, trail crossings, dispersed campsites, and the Winom Campground) and the Pearson Recreational Residence tract (Forest roads 5200-528, 5200-529, 5200-530, and 5200-340). Hazard trees would also be removed along Forest roads 5507, 5510, 5226, and 5226-090. The portion of Forest Road 5226 proposed for hazard reduction (2 miles) lies outside the burn, however this section would serve as a haul route to remove the hazard trees within the burn. Hazard trees that occur within PACFISH Riparian Habitat Conservation Areas would be felled and left on site.
- ✦ Fence, sign, and harden trailbeds where the Round Meadows and Cut Across OHV trails cross roads
- ✦ Install drainage structures and harden or raise the tread of up to ½ mile of the River Trail to alleviate excess wetness of the trailbed
- ✦ Plant approximately 10 acres of trees and shrubs on a landslide along Hidaway Creek
- ✦ Construct a 6 ½-mile-long trail on gentler terrain west of the Roundaway Trail and reroute 4-wheeler traffic to provide safe access for 4-wheelers and maintain slope stability on the Roundaway Trail (motorcycles, which are not causing stability problems, would continue to use the current trail)

Summary of Proposed Actions

There were 47 proposed actions identified in the preceding sections. They are compiled here to provide the reader with a comprehensive view of activities proposed within the Tower Fire Area (see Map 4 in the separate map packet).

Road Treatments

1. Repair 13.1 miles of roads that are closed to public access, but still needed for administrative use (Forest roads 5445, 5500-070 and -080, 5506-100, and 5507-270). This could involve culvert removal and installation of water bars or drainage dips. (Item #2 is included in these 13.1 miles.)
2. Construct cross-drains and water bars on of Forest Road 5445 behind the gated closure to improve drainage.
3. Repair 47.1 miles of roads open to the public (Forest roads 5200-440, 5212, 5448, 5500-070, 5506, 5506-130, 5507, 5507-300 and -305, and 5510). This could involve culvert removal; insloping or outsloping; reduction in fill height; hardening/armoring of ditch lines, cuts, fills, and

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the road surface; and installation of energy dissipaters on cross drains. (Items #4 through #9 are included in these 47.1 miles).

4. Reconstruct Forest Road 5448 from the 550 junction to Three Culverts Camp. On the closed portion of this road, the three culverts near Three Culverts Camp would be replaced with an OHV bridge.
5. Replace the culvert where Forest Road 5506 crosses Sheep Creek.
6. Construct a hardened dip (low water ford) as a short-term crossing where Forest Road 5506 intersects Oriental Creek. After the stream channel has stabilized, construct a riprap structure and culvert designed to facilitate fish passage. Structural design would allow the new crossing to be overtopped during high flow periods.
7. Repair washouts and culverts on Road 5507 from milepost 10.2 to the junction with Road 5507100 (River Trail) to the west, but do not repair the crossing of Oriental Creek at this time (the channel is still very unstable in this location). Road 5507 would remain closed to through traffic (until such time as the Oriental Creek crossing can be repaired), with barricades and turnarounds at the junctions of Road 5507100 and Road 5507130.
8. Reconstruct portions of Forest Road 5510, making it the primary access through Oriental Basin. Inslope, outslope, or crown portions of an 0.8 mile section on the east end; line ditches on Forest Road 5510 with 4 to 6-inch rocks; replace undersized culverts with larger culverts, rocked drivable dips, or low water fords; reduce fill heights over culverts at stream crossings; stabilize slide-prone cuts and fills where feasible; and widen five curves to provide for passage of larger vehicles. This last activity would occur on outside curves along ridges, not on inside curves where the road crosses streams. When Forest Road 5507 is reopened at some future date, maintenance standards for Forest Road 5510 would be reevaluated.
9. Replace the plugged culvert at milepost 10.2 on Forest Road 5507 with a larger culvert.

Road Obliteration

10. Obliterate approximately 6.4 miles of closed system roads (Forest roads 5500-136; 5507-266, -274, -276, -282, -283, -284, -285, and -400) to rehabilitate areas with highly erodible soils. An obliterated road is one that has had those elements removed so that it no longer functions as a road. Activities could include any of the following: ripping of the roadbed with a tractor/subsoiler to reduce soil compaction, seeding to stabilize soils, construction of water bars within the roadbed to reduce erosion, and/or recontouring of slopes using machinery to mimic the original landform.

Fish Habitat Improvements

11. Remove barriers to fish passage at four culverts where Forest roads 55 and 5506 cross Texas Bar Creek and one culvert on Forest Road 5448 near the 550 junction.
12. Construct several step weirs downslope of the Forest Road 52 crossing of South Fork Cable Creek and repair weirs below Forest Road 52 on Winom Creek to improve fish passage.
13. Construct a permanent fence around approximately one mile of degraded, downcut creek in Round Meadow to exclude livestock in order to improve streambank stability and restore vegetation for shade production.
14. Place large wood and wood complexes in streams that are currently deficient according to PACFISH standards to restore channel complexity and provide fish habitat for the immediate future in areas impacted by the fire and cumulative past management practices. This would occur along 0.4 miles of Big Creek below Forest Road 52, 3 miles of North Fork Cable Creek, and 3 miles of Hidaway Creek. If site conditions (slope steepness, soil type, soil moisture, etc.) allow, trees would be pushed over intact using machinery in order to retain the root wad, which acts as an anchor and adds to fish habitat complexity. Where machinery would cause unacceptable soil disturbance or compaction, trees would be felled into the stream with a chainsaw. Only trees that would not likely fall into the stream would be felled; trees that are leaning toward the stream would be left to fall on their own.

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15. Plant shrubs, hardwoods, and conifers on 1,309 acres along the South and North forks of Cable Creek, Winom Creek, and Hidaway Creek to trap sediment, stabilize streambanks, provide future instream wood, and restore shade. This would include 18-inch scalps and Vexar tubing to discourage browse.

Soil Treatments

16. Seed a highly erodible slope (approximately 30 acres) with pinegrass and/or Prairie Junegrass. Both grass species are readily available within the subwatershed.
17. Transplant rooted cuttings of bearberry and common snowberry to a highly erodible cutbank along Forest Road 5510 (approximately 10 acres). Materials are available adjacent to the project site.
18. Plant approximately 10 acres of conifers and hardwoods on a landslide along Hidaway Creek. Scalping would not be necessary, however, Vexar tubes would be used to protect seedlings from browse.
19. Plant approximately ½ acre of conifers and hardwoods where deposition has occurred below the Texas Bar landslide.
20. Subsoil (using a tractor with subsoiling equipment) approximately 25 acres of existing landings, major skid trails, and temporary roads associated with past ground-based timber harvest. Areas to be treated would be suitable for subsoiling, with adequate soil depth and a low coarse fragment content, and operationally feasible (creation of an erosion hazard would not occur).

Big Game Forage Enhancement

21. Seed 1,100 acres along Pearson Ridge, 500 acres on the ridge south of Cable Creek, and 700 acres on the ridge north of Hidaway Creek with grasses and shrubs. Seed additional, small, scattered patches from 10 to 50 acres in size as needed (totaling an additional 500 acres). Seeding would be confined to upland sites. Areas that burned with high severity, Riparian Habitat Conservation Areas, and dry aspect slopes would not be seeded. The seeding mixture would consist of certified weed-free, native seed and/or non-persistent annuals and would not exceed 20 pounds per acre. Application would be accomplished aurally, with some areas seeded by hand.
22. Broadcast fertilize 1,500 acres which experienced low fire severity along the north and west edges of the fire perimeter (where spring elk migration would begin). The fertilizer mix would consist of 27-12-0 plus 12 percent pelletized sulfur, which would be applied aurally at 100 pounds per acre. No fertilizer would be applied in or adjacent to Riparian Habitat Conservation Areas.
23. Prescribe burn 900 acres near the North Fork John Day River with low intensity fire, resulting in a "mosaic" pattern of burned and unburned areas. Approximately 70 percent of the needle litter and 40-70 percent of the dead/rank grass would be removed. The prescribed fire would damage less than 5% of the living or dead trees within the treated area.

Other Wildlife Habitat Enhancements

24. Designate new stands as C1-Dedicated Old Growth to replace the approximately 1,300 acres of C1 killed by the fire.
25. Construct permanent three strand barbed wire fence around 45 acres of Round Meadow (in addition to the fence around the degraded portion of creek) to exclude livestock.
26. Construct permanent three strand barbed wire fence around 2 acres within Donut Meadow to exclude livestock.
27. Extend the existing fence in Pearson Meadow to include four additional acres and repair ½ mile of the existing fence to exclude dispersed camping and livestock.
28. Install a temporary electric fence around nine acres within Long Meadow to exclude livestock.

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29. Fence two springs (T.6S., R.33E., Section 35 - 1 acre, and Section 34 – 3 acres) to exclude livestock.
30. Fence and repair three ponds (T.6S., R.33E., sections 27 and 35) to exclude livestock.
31. Remove $\frac{1}{3}$ to $\frac{3}{4}$ of the crown of scattered large, standing snags to reduce wind resistance. This would occur in 13 locations totaling 1,910 acres. The tops would be removed using the most economical and safe method, which may include chainsaw, explosive, or mechanical methods.

Recreation Site Rehabilitation

32. Seed slopes adjacent to recreational trails that traverse steep, moderate to intensely burned areas with native grasses and forbs.
33. Install signs at Round Meadows Trailhead, Three Culverts Camp, and Winom Campground encouraging users to protect fragile burned areas.
34. Rehabilitate 20 dispersed campsites within the burned area using one or more of the following activities: removal of hazard trees and large charred logs, site leveling and surfacing with gravel, and definition of site boundaries with boulders. Site improvements would appear as natural as possible to preserve the rustic nature of these features.
35. Install one interpretive sign along the Blue Mountain Scenic Byway (Forest Road 52) to provide information regarding the fire and restoration activities.
36. Reconstruct the Pearson Guard Station outhouse and water system, and surface the existing dispersed campsite with gravel.
37. Improve trail road-crossings and trailheads on the Round Meadows and Cut Across OHV trails by fencing, installing warning signs, and placing gravel or grass paver blocks to harden approaches to the crossings.
38. Install drainage structures, and harden or raise the tread on approximately $\frac{1}{2}$ mile of the River Trail.
39. Rehabilitate two campsites and the trailheads damaged during the 1998 flood, and replace one vault toilet at Oriental Campground. Rehabilitation would involve removal of debris, recontouring of the sites, and surfacing with gravel.

Construction of Roundaway 4-wheeler Trail

40. Construct a 6.5-mile long trail in order to relocate 4-wheeler traffic to gentler terrain west of the existing Roundaway Trail and install a barrier on the existing trail that would exclude 4-wheelers but allow continued use by motorcyclists. Of the total length, 4.5 miles of construction would occur on existing closed roadbeds, 0.75 miles would occur on gentle ridgelines or scab areas, and 1.25 miles would occur along old fire lines and logging skid trails. A tread would not be constructed and 81% of the new route would only involve removal of trees, shrubs, and other obstacles within the trailbed limits. The trail portion located on old fire lines and skid trails would require some outsloping and waterbarring of the trailbed to improve drainage and provide erosion control. Two OHV bridges would be installed - a 30-foot bridge over Hidaway Creek and a 25-foot bridge over Neeves Creek. One OHV cattle guard would be installed at an electric fence enclosure along Hidaway Creek and another one at a fence south of Forest Road 5448. Following construction, the original trail would be closed to 4-wheelers, but would remain open as a challenging motorcycle trail.

Hazard Tree Removal

41. Remove trees that by their condition or lean may fall and reach a road, trail, or recreation site on 741 acres. This includes the Winom Creek OHV area (South Winom and North Winom trailheads, trail crossings, dispersed campsites, and the Winom Campground) and the Pearson Recreational Residence tract (Forest roads 5200-528, 5200-529, 5200-530, and 5200-340). Trees would also be removed along Forest roads 5507, 5510, 5226, and 5226-090. Hazard trees that occur within Riparian Habitat Conservation Areas would be felled and left on site.

Fuel Reduction and Wood Fiber Salvage

42. Salvage harvest approximately 16-17 MMbf of standing dead and down trees from 3,028 acres. Salvage another 271 acres (1.5 MMbf) of diseased green and dead trees using seedtree and shelterwood harvest prescriptions to remove susceptible species in active *Armillaria* root rot areas.

Logging systems would include tractor on 1,850 acres, harvester/forwarder on 1,874 acres, and helicopter on 1,159 acres. All of the harvest associated with *Armillaria* root rot would use tractor logging systems; skid trails and other areas that experience soil compaction would be subsoiled to mitigate the effect of compaction on the disease (Schmitt and Scott 1996). No new permanent roads would be constructed. No live trees 21 inches diameter at breast height or greater would be removed as per interim direction in Forest Plan Amendment #11. PACFISH standards and guidelines for management of Riparian Habitat Conservation Areas would be followed to protect riparian habitats and streams. Additional harvest related guidelines identified in the mitigation section toward the end of Chapter 2 would also be implemented to mitigate conditions associated with soil productivity requirements, riparian areas, and snag requirements.

Activities that would occur concurrently or in association with harvest include: 4.0 miles of new temporary road construction and 1.2 miles of reopening roads that exist on the ground but are not maintained as part of the transportation system (for access to harvest landings); prescribed burning of harvest debris at landings; planting of early and mid seral species conifers appropriate to the site; application of herbicides as needed to control competing vegetation; trapping of gophers and Vexar tubing as needed; post-harvest subsoiling, waterbarring, and erosion control seeding of temporary roads, skid trails, and landings; and blocking of temporary roads to normal vehicle travel upon completion of harvest activities.

43. Create a 6.25-mile long, 300-foot wide shaded fuel break within the South Fork-Tower Roadless Area along the ridge bounding (but outside) the northern edge of the North Fork John Day Wilderness⁶. This would not serve as a stand-alone suppression feature; rather it would provide a starting point for future prescribed fire treatments. Surface fuels would be reduced to a range of 5 to 8 tons per acre by a combination of hand and/or machine piling (where accessible by existing roads) followed by pile burning. All dead trees less than 24 inches diameter at breast height would be felled. Live trees would only be felled where necessary to eliminate contact between tree crowns. Trees in the understory that create a fuel ladder into the overstory would also be cut. Depending on tree size, spacing between trees would be a minimum of 20 feet, however, some level of tree cover would be maintained throughout the fuelbreak. The fuel break would need to be maintained into the future through non-commercial thinning or underburning of green trees, pruning of lower live branches to remove ladder fuels, and piling of surface fuels as they accumulate above the desired threshold.

Tree Stocking Reduction

44. Commercially thin 843 acres of green (live) stands that were lightly burned by the fire. About 2.1 MMbf of wood products would result from this activity. Commercial thinning would consist of harvest of primarily live ponderosa pine and Douglas fir, with incidental amounts of other conifer species, ranging in diameter from 7-21 inches.

Tractor (651 acres) and helicopter (192 acres) logging systems would be used depending on the site-specific conditions of each unit. No new permanent roads would be constructed. No live trees 21 inches in diameter at breast height or greater would be removed and harvest would not occur within Riparian Habitat Conservation Areas. Stands would remain fully stocked, so no reforestation would be necessary. See the mitigation section in Chapter 2 for further discussion of these measures.

⁶ The location of the shaded fuel break contains primarily sub-alpine fir and lodgepole pine plant associations and was moderately to intensely burned. As a result, there are few (if any) live trees remaining and these species for the most part do not achieve large diameters.

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Activities that would occur concurrently or in association with commercial thinning include: 0.5 miles of new temporary road construction and 0.6 miles of reopening roads that exist on the ground but are not maintained as part of the transportation system (for access to harvest landings); prescribed burning or mechanical treatment of thinning debris; subsoiling, waterbarring, and erosion control seeding of temporary roads, skid trails, and landings; and blocking of temporary roads to normal vehicle travel upon completion of harvest activities.

45. Manually thin (using chainsaws) 180 acres of trees ranging 1-7 inches in diameter. Trees of this size are too small to be merchantable and would be left on site after being cut. Slash would primarily be lopped and scattered, although burning could occur in stands that are more open.

Reforestation

46. Plant 3,299 acres of proposed salvage and root rot units and 6,786 acres within the South Fork-Tower Roadless Area with coniferous tree seedlings. Plant another 200 acres with white pine. Approximately 222 trees would be planted per acre. Species to be planted on warmer, dryer sites include ponderosa pine, western larch, and Douglas-fir. On cooler, moister sites, planted species would include western larch, Douglas-fir, Engelmann spruce, and grand fir. Planting would involve manually scraping vegetation and surface roots from an 18-inch square area for each seedling, then planting the seedling in the center of the cleared area. Animal damage control (Vexar tubing and gopher trapping) would occur in association with tree planting as needed.
47. Spot apply herbicides approved under the Regional Competing and Unwanted Vegetation ROD and its Mediated Agreement on 11,029 acres (which includes areas planted in 1999 and 2000), to reduce competition from established grasses, shrubs, and ferns. This would be the maximum area that could be treated; however, the need for such treatment would be determined through a pre-planting survey and not all the areas shown would actually require treatment.

Application would be designed so that 70 percent or more of the planted seedlings survive at least three growing seasons and would comply with the Regional Competing and Unwanted Vegetation FEIS, Record of Decision, and Mediated Agreement. Where herbicides are indicated, one of three herbicides would be used based on the expected type of competing vegetation. Glyphosate (using a formulation that has Agridex as the surfactant) would be used if grasses and sedges, bracken fern, or thistles exceed the 30 percent canopy coverage threshold. Triclopyr (Pathfinder II formulation) would be used if snowbrush ceanothus were over the threshold, while Hexazinone (Pronone 25G formulation) would be used if grasses and sedges together with ceanothus exceed the threshold. Hexazinone is taken up through the roots and would be applied in either spring or fall; the other two chemicals are taken up primarily by foliage or bark and are typically applied in summer or fall (McDonald and Fiddler 1993).

Herbicides would be applied by hand outside the 18-inch cleared area in a band up to 1.5 feet wide (see Figure 2.1). The seedling and scalped area would be covered during application to protect them from contact with the herbicide. With an average of 222 planted seedlings per acre, herbicides would be applied to only 14 percent of the treated reforestation unit -- 86 percent of the unit would not receive herbicide. No herbicide application would occur within PACFISH Riparian Habitat Conservation Areas. In areas that do not exceed the competing vegetation threshold as determined by the pre-plant survey, only the 18-inch scalp would be used to prepare the planting site.

Management Direction

This Environmental Impact Statement (EIS) process and documentation has been done according to direction contained in the *National Forest Management Act*, the *National Environmental Policy Act*, the *Council on Environmental Quality (CEQ) regulations*, *Clean Water Act*, *Clean Air Act*, and the *Endangered Species Act*. This EIS is tiered to the *Umatilla National Forest Land and Resource Management Plan FEIS, Record of Decision* (June 11, 1990), and the accompanying *Land and Resource Management Plan* (Forest Plan). This includes the clarifying direction of Plan Amendment #10 "The

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Interim Strategies for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California” (PACFISH), dated February 24, 1995, which is intended to arrest and reverse the decline in anadromous fish habitat in the Pacific Northwest Region until a more in-depth analysis is completed. It also includes Plan Amendment #11 “*Continuation of Interim Management Direction Establishing Riparian, Ecosystem, and Wildlife Standards for Timber Sales,*” dated June 12, 1995, which is intended to maintain options for old growth-related and other species until a more in-depth analysis is completed. It is also tiered to the *Managing Competing and Unwanted Vegetation FEIS*, its *Mediated Agreement*, and *Record of Decision* (December 8, 1988). This EIS incorporates by reference the *Environmental Assessment (EA) for the Management of Noxious Weeds* and its *Decision Notice* (May 24, 1995), the *Camas Restoration EA* and its *Decision Notice* (May 8, 1996), the *Camas Off-Highway Vehicle Trail Complex EA* and its *Decision Notice* (July 25, 1995), the *Tower Fire Ecosystem Analysis* (January 31, 1997), the *Camas Ecosystem Analysis* (April, 1995), and other sources of information, documents, published studies, and books referred to in this document and its analysis file.

The Forest Plan divided the Umatilla National Forest into management areas, each with a specialized management strategy that emphasizes particular resources and values. A management area’s Desired Future Condition describes how the Forest should look to provide the associated resources and values; Standards and Guidelines provide the guiding direction for achieving the Desired Future Condition. The analysis area includes the management areas listed below (also see Figure 1.2). The management area’s goal and primary description of the Desired Future Condition are included in italics, while activities proposed within that allocation and other pertinent information occur in regular type. For further description of the Desired Future Condition and Standards and Guidelines, please refer to Chapter 4 of the Forest Plan.

A3 - Viewshed 1 (Forest Plan p. 4-90 to 104) 2,591 acres: manage the area seen from a primary travel route, use area, or water body, where forest visitors have a major concern for the scenic qualities (sensitivity level 1) as a natural appearing landscape. Viewsheds will be managed primarily to meet the visual objectives of retention and partial retention. An attractive, natural appearing landscape will be created or maintained.

Activities proposed in this allocation include: road repair, road obliteration⁷, planting of riparian vegetation, removal of barriers to fish passage, subsoiling, enhancement of snag longevity, enhancement of wildlife forage through underburning, fencing of meadows, rehabilitation of dispersed campsites, improvement of trail/road crossings on Cutacross and Round Meadow, installation of educational signs, non-commercial and commercial thinning, salvage of dead or diseased trees, planting of conifer trees with herbicide control of competing vegetation, and creation of a shaded fuel break.

A6 - Developed Recreation (Forest Plan p. 4-117 to 120) 85 acres: provide recreation opportunities that are dependent on the development of structural facilities for user conveniences where interaction between users and evidence of others is prevalent. Readily accessible, appropriately designed recreation facilities shall provide for concentrated use by people seeking a variety and convenience of developed recreation opportunities and experiences...

Within the Tower analysis area, this allocation applies to the Pearson Recreational Residence Tract, which was established with seven homes in 1956. Three homes burned in the Tower Fire, only one of which is being rebuilt (by choice of the owners). Activities proposed in this allocation include: fencing of meadows, rehabilitation of Pearson Guard Station, hazard tree removal around Pearson recreational residence tract, and planting of conifer trees with herbicide control of competing vegetation.

A7 - Wild & Scenic River (Forest Plan p. 4-121 to 127) 933 acres: manage classified wild and scenic river segments to appropriate standards as wild, scenic, or recreational river areas, as defined by the Wild and Scenic Rivers Act, Public Law 90-542, October 2, 1968, and expanded by the Omnibus Oregon Wild and Scenic Rivers Act of 1988, Public Law 100-557...

⁷ Road obliteration means that a road is reformed to the original contour and the natural downslope movement of water is restored.

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The portion of the North Fork John Day River within the project area is classified as “Scenic”. Activities proposed in this allocation include: road repair, non-commercial and commercial thinning, removal of barriers to fish passage, enhancement of wildlife forage through underburning, rehabilitation of dispersed campsites, and rehabilitation of flood damage at Oriental Campground.

A9 - Special Interest Area (Forest Plan p. 4-131 to 133) 88 acres: manage, preserve, and interpret areas of significant cultural, historical, geological, botanical, or other special characteristics for educational, scientific and public enjoyment purposes. The special attributes for which the areas are recognized shall provide a variety of unique recreation opportunities for public use and enjoyment. The areas and features will remain in a substantially undisturbed condition.

No activities are proposed within this allocation. Within the Tower analysis area, this allocation applies to the Big Creek Meadow Viewpoint.

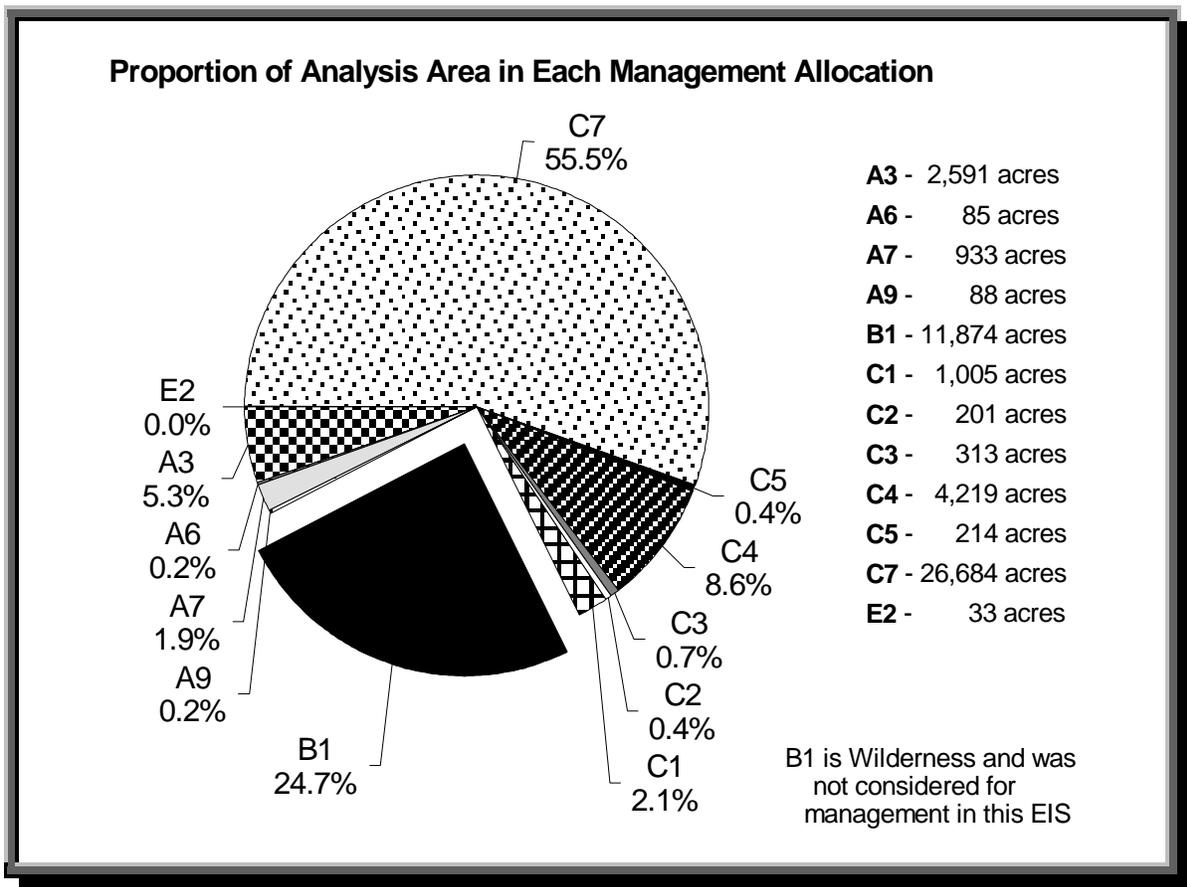


Figure 1.2: Distribution of management areas across the Tower Fire area.

B1 - Wilderness (Forest Plan p. 4-138 to 143) 11,874 acres: manage to preserve, protect, and improve the resources and values of the forest wildernesses, as directed by the Wilderness Act of 1964. ...will appear to be affected primarily by the forces of nature, with the imprint of human activities substantially unnoticeable. Natural processes, including fires, will continue to be the primary forces affecting the condition of wildernesses. The surrounding area will be managed so as not to adversely affect the wilderness resource...

This allocation denotes the North Fork John Day Wilderness. No management activities are proposed in this EIS.

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C1 - Dedicated Old Growth (Forest Plan p. 4-144 to 146) 1,005 acres: provide and protect sufficient suitable habitat for wildlife species dependent upon mature and/or overmature forest stands, and promote a diversity of vegetative conditions for such species. Old growth areas will be characterized by stands of naturally appearing overmature trees...

Five dedicated old growth areas occur partly or wholly within the Tower Fire area (#0991, #1001, #1021, #1043, and #1053). The fire burned 94 percent of these stands, of which 47 percent burned with moderate and high severities killing most trees. Field reconnaissance of stands that burned with a low severity has also revealed that a large portion experienced delayed mortality from the fire. As per Forest Plan requirements, this EIS proposes a non-significant Forest Plan amendment to designate replacement stands outside the fire as C1-Dedicated Old Growth (see Map 1). The existing C1 areas would revert to the adjacent management allocation (C7- Special Fish Emphasis) once the new designations have been made. Activities proposed in existing C1 areas⁸ include: planting of riparian vegetation, rehabilitation of dispersed campsites, planting of conifer trees with herbicide control of competing vegetation, and the creation of a shaded fuelbreak.

C2 - Managed Old Growth (Forest Plan p. 4-147 to 150) 201 acres: provide and protect sufficient suitable habitat for wildlife species dependent upon mature and overmature lodgepole pine forest stands, and promote a diversity of vegetative conditions for such species. In managed old growth stands, activities will often be evident and directed towards development and maintenance of old growth lodgepole forest attributes...

Within the Tower Fire, there are three stands of C2 managed old growth (#2177, #2198, and #2208). The majority of these stands experienced low fire severity. The only activity proposed in this allocation is the creation of a shaded fuelbreak.

C3 - Big Game Winter Range (Forest Plan p. 4-151 to 154) 313 acres: manage big game winter range to provide high levels of potential habitat effectiveness and high quality forage for big game species. Big game winter ranges will appear primarily as a mosaic of managed forests, brush patches, and large grasslands...Management activities may be locally apparent...Most roads and trails will be closed to vehicle traffic during the winter and there will be minimum human disturbance to big game during this period...

Activities proposed in this allocation include road repair and removal of barriers to fish passage.

C4 - Wildlife Habitat (Forest Plan p. 4-158 to 162) 4,219 acres: manage forest lands to provide high levels of potential habitat effectiveness for big game and other wildlife species with emphasis on size and distribution of habitat components (forage and cover areas for elk, and snags and dead and down materials for all cavity users). Unique wildlife habitats and key use areas will be retained and protected. The Forest will be a mosaic of even-aged and uneven-aged stands dispersed in a manner to create a pattern of forage, and marginal and satisfactory cover for big game. Management activities including timber harvest, prescribed fire, tree planting, and thinning will be readily apparent...

Activities proposed in this allocation include: road repair; road obliteration; subsoiling; planting of riparian vegetation; enhancement of snag longevity; landslide stabilization planting; fencing of meadows, ponds and springs; commercial thinning; and planting of conifer trees with herbicide control of competing vegetation.

C5 - Riparian (Forest Plan p. 4-163 to 166) 214 acres: maintain or enhance water quality, and produce a high level of potential habitat capability for all species of fish and wildlife within the designated riparian habitat areas while providing for a high level of habitat effectiveness for big game. A near natural setting will predominate adjacent to the stream, with a wide variety of plant communities of various species, sizes, and age classes...

No activities are proposed within this allocation.

⁸ These activities would be compatible with the adjacent management allocation as well.

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C7 - Special Fish Management Area (Forest Plan p. 4-167 to 170) 26,684 acres: maintain and enhance water quality and produce high levels of anadromous fish habitat on an area-wide basis. In riparian areas, a natural to near natural setting and vegetation development will predominate, with a variety of plant communities, sizes, and age classes...In upland areas of the watershed, the Forests will appear as a mosaic of even-aged and uneven-aged stands with highly dispersed created openings of 1 to 40 acres in size...Emphasis placed on careful timber harvest and road construction and maintenance will be reflected in the high quality water being produced...As a result of management, anadromous fish recovery and long-term fish population goals will be met.

Activities proposed in this allocation include: road repair; road obliteration; subsoiling; stabilization of landslides and highly erodible slopes; planting of riparian vegetation; fencing of meadows, ponds and springs; enhancement of wildlife forage through seeding, fertilization, and underburning; enhancement of snag longevity; rehabilitation of dispersed campsites; construction of the Roundaway 4-wheeler trail; rehabilitation of the River Trail; installation of interpretive signs; hazard tree removal; non-commercial and commercial thinning; salvage of fire-killed or diseased trees; planting of conifer trees with herbicide control of competing vegetation; and creation of a shaded fuel break.

E2 - Timber and Big Game (Forest Plan p. 4-182 to 186) 33 acres: manage forest lands to emphasize production of wood fiber (timber), encourage forage production, and maintain a moderate level of big game and other wildlife habitat...Forests will contain a mosaic of even-aged and uneven-aged stands dispersed in a manner creating patterns of tree cover for big game and openings providing forage.

No activities are proposed within this allocation.

Proposed Non-significant Forest Plan Amendments

A minor, non-significant Forest Plan amendment is discussed above under the C1 – Dedicated Old Growth section. In addition, the Big Tower Environmental Assessment had proposed a minor, non-significant Forest Plan amendment to assign management area allocations to lands that were acquired by the Umatilla National Forest in 1988 through a land exchange with Louisiana Pacific Corporation. Since the Big Tower decision was overturned by the Ninth Circuit Court, the non-significant Forest Plan amendment was negated as well. Management area allocations for these lands were reconsidered during analysis for the Tower Fire Recovery Projects EIS. The interdisciplinary team's analysis is discussed in Chapter 4 under the Forest Plan Consistency section.

Decisions to be Made

This Environmental Impact Statement documents results of the environmental analysis conducted for the proposed action and its alternatives. The Umatilla Forest Supervisor will determine which alternative best implements the Forest Plan at this time. Specific determinations to be made are:

- ✦ Whether restoration activities are needed and, if so, which ones and where?
- ✦ Whether harvest and associated activities should occur and, if so, where, how much, and using which logging systems?
- ✦ Which mitigation measures are necessary?
- ✦ What monitoring should be conducted?
- ✦ Should the minor, non-significant Forest Plan amendments for C1 replacement and assignment of management allocations to past land acquisitions be approved?

Scoping Process

Scoping is used to identify major issues and determine the extent of environmental analysis needed for an informed decision on a proposed action. The North Fork John Day Ranger District sought information,

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comments, and assistance from federal, state, and local agencies, local Tribes, and from other groups and individuals interested in or affected by the proposed actions. The Notice of Intent to prepare an environmental impact statement was published in the Federal Register on January 12, 1999. On February 19, 1999, a scoping letter and maps (explaining the need for an EIS and delineating proposed projects) were mailed to 159 groups and individuals who had previously shown interest in District projects. This project was also included in every quarterly issue of the Umatilla National Forest Schedule of Proposed Activities (SOPA) since the 1999 Winter issue and was displayed on the Forest's website. Ten letters were received in response to scoping specific to the EIS, while numerous phone calls and letters were received in response to scoping of the previous proposed projects within the fire (Big Tower EA, South Tower EA, Cable EA Tower Salvage EA, and Hairy Hazard Tree Removal CE). In all, correspondence was received from the Confederated Tribes of the Warm Springs Reservation of Oregon, Confederated Tribes of the Umatilla Indian Reservation, Oregon Department of Fish and Wildlife, various local government agencies, several environmental organizations, timber companies, and the public.

On February 12, 1999, District Wildlife Biologist Holly Harris, Forest Wildlife Biologist Charlie Gobar, South Zone Hydrologist Rick van der Zweep, Forest Hydrologist Caty Clifton, Co-team leaders Tim Davis and Janel Lacey met with Kevin Blakely from the Oregon Department of Fish and Wildlife. The group reviewed the proposed actions specifically with regard to big game. Kevin pointed out potential locations for seeding and fertilizing for forage enhancement based on his knowledge of big game movement through the area. He also expressed concern over some of the proposed road treatments, particularly the density of open roads within Oriental Basin, and expressed concern over the additional disturbance of big game that could result from the proposed construction of the Roundaway 4-wheeler trail.

The second week in February, District fish biologists Christine Hirsch and Dave Crabtree met with Oregon Department of Fish and Wildlife fish biologist Mike Gray at the Oregon American Fisheries Society convention. They discussed the 47 proposed projects and Mike followed up their meeting with written comments on February 25, 1999.

On April 8, 1999, District Ranger Craig Smith-Dixon, the co-team leaders, and a Forest public affairs specialist met with Michael Farrow of the Confederated Tribes of the Umatilla Indian Reservation. The group specifically discussed the salvage of fire-killed timber and protection of the water and fisheries resources. Michael stated that the Tribes are particularly concerned with construction of temporary roads because soils in the area are light and erodible. He commented that he believed short-term increases in sediment from restoration projects would be acceptable as long as the result was beneficial to fish. He also expressed support for the shaded fuel break and promoted use of harvester/forwarder logging systems to minimize damage to soils. On December 8, 1999, Craig Smith-Dixon, Janel Lacey, Vince Novotny (District Silviculturist), Dave Crabtree, Rick van der Zweep, and Joani Bosworth (Forest public affairs) visited the Tower Fire area with Michael Farrow, Naomi Stacy, and Rick George of the Confederated Tribes of the Umatilla Indian Reservation. In particular, the group visited the Texas Bar Creek area to view proposed fish passage improvement, riparian planting, road obliteration, one of the landslides, commercial thinning, reforestation and the need for control of competing vegetation, and salvage.

The Draft Environmental Impact Statement was mailed on December 17, 1999 to 244 individuals, organizations, and agencies. The 45-day review period began on December 30, 1999, when the Notice of Availability was published in the Federal Register. The review period ran through February 16, 2000, and written responses were received from 18 individuals, government agencies, and groups. Substantive comments quoted from the letters are displayed in Appendix E along with corresponding Forest Service's responses. Several of the substantive comments resulted in changes to the EIS, which are discussed in chapters 2 and 4. Several letters were received after the end of the review period. Upon review, they did not reveal any new information or issues that had not already been represented by the letters received during the comment period.

On October 5, 2000, Janel Lacey, Noel Livingston (District Fire Management Officer), and Vince Novotny toured the Cable Creek portion of the Tower Fire area with Asante' Riverwind of Blue Mountains Biodiversity Project to further discuss concerns raised in his comments on the DEIS. The group discussed the long-term fuels situation and how to respond to it now that harvest is no longer possible (due to wood decay). The group also discussed what should be done in the *Armillaria* root rot pockets,

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and the proposed commercial thinning. Mr. Riverwind expressed strong opposition to harvest of *Armillaria* pockets and commercial thinning due to the soil, water, and vegetation conditions which resulted from the fire.

Key Issues

The interdisciplinary team reviewed comments received in response to scoping, as well as those received during development of past projects within the fire area (Big Tower EA, South Tower EA, Cable EA Tower Salvage EA, and Hairy Hazard Tree Removal CE). Using these comments and the concerns identified in the Tower Fire Ecosystem Analysis, the interdisciplinary team identified issues related to the proposed actions. Key issues are defined as resource or other values that drive the development of an alternative, may be adversely affected by the proposed action, or “unresolved conflicts regarding alternative uses of available resources” [NEPA sec. 102(2)(E)]. Key issues provide the focus for analysis.

Key Issue 1: Removal of Trees & Reforestation

Some members of the public believe the best way to restore the burned area is to salvage dead and badly injured trees then plant appropriate species where natural regeneration is not expected to be successful in the near future. They are concerned that leaving a high volume of weakened and dead trees would greatly increase the risk of an insect epidemic and contribute excessive fuel loads (which would intensify the devastation of future wildfires). Some respondents commented that they are angered to see so many dead trees rot in the woods when they could provide a needed resource (otherwise provided by green trees) and local communities need the income and employment these trees would generate. Supporters of active recovery believe that overstocked or unhealthy stands of green trees should be treated at the same time as the dead stands to return the entire area to a sustainable condition as soon as possible. Combining treatments of green stands with salvage of dead timber would minimize the cost of management and reduce overall ground disturbance by lowering the number of management entries. They argue that harvest would help meet project objectives by providing some funding for reforestation and other restoration efforts. Proponents of active management think tree planting is the quickest way to reestablish the forest and forest managers believe planting is the best way to develop a sustainable species composition similar to historic distributions. Several respondents also advocate use of herbicides to control vegetative competition so that planted seedlings survive.

Other members of the public feel that passive management is best for the fire area. They are concerned that the burned area has already been stressed from the effects of the fire and that there is no need for intervention on the post-fire landscape. They are particularly concerned about the effects of harvest on soils exposed by the fire and question whether the increase in large dead woody material significantly increases future fire potential. They oppose the proposed harvest and thinning of green trees because so much forest was lost to the fire that all remaining green trees are needed to provide wildlife with cover, even if the stand is severely overstocked or unhealthy. They are also concerned that thinning reduces future soil nutrients and may lead to the drying of soils. In addition, they point out that harvest of trees infected with *Armillaria* root rot could damage the soil, which can intensify the virulence of this disease. They are anxious that tree planting could rely on trees that are not genetically adapted to the specific locale. Concern about tree planting is further escalated by the proposal to use herbicides to control competing vegetation. They are concerned about the affects the herbicide would have on humans and wildlife, possible reductions in biodiversity, effects on threatened or endangered fish, and reductions in vegetative cover as this relates to soil protection and prevention of noxious weed invasion. They believe that the optimum outcome for the fire area would be achieved by allowing natural disturbance processes to restore ecosystem integrity.

Measurements used to compare each alternative's response to this issue include:

- ✓ acres restored to healthy stand densities (see Powell 1999)
- ✓ qualitative trend toward the historic range of species composition

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- ✓ percent of the analysis area containing fuels levels that will allow introduction of prescribed fire into regenerated stands within 20 years
- ✓ number of board feet of wood fiber harvested
- ✓ percent of the fire area left to recover without intervention (no salvage, non-commercial thinning, or reforestation)
- ✓ predicted percent of seedling survival in planted areas
- ✓ predicted net acres treated with herbicide

Key Issue 2: Soil Erosion and Water Quality

Comments from some members of the public indicate a great concern regarding potential erosion rates and sediment production resulting from a number of the proposed actions. They contend that harvest, even though limited to upland sites, would further disturb soils already exposed by the effects of the Tower Fire and cause additional instability, which would further reduce watershed values. Several respondents believe the District should consider riparian buffers larger than the recommended PACFISH Riparian Habitat Conservation Areas since so much vegetation was lost. Many respondents commented that temporary roads, even if later obliterated, do not belong in an area already taxed by such a large fire. They point out that there is already a high density of roads in the Oriental Basin and proposed projects should not add to this density. In addition, they contend that some of the proposed roads to be repaired from the 1998 flood (again within Oriental Basin) should actually be closed due to unstable slopes. Restoration activities such as placement of large instream wood raised concerns due to the possible use of heavy equipment, which could increase soil disturbance and compaction (which decreases rooting potential and water infiltration). Furthermore, a number of people are concerned that the use of herbicides (particularly glyphosate) could contaminate local waters.

Proponents of salvage and restoration activities argue that any sedimentation caused by logging activities would be negligible when compared with sediment increases resulting from the fire, and that the use of sensitive logging systems and mitigation would negate any harvest-related increases. They feel the benefits from reestablishing forest cover, improving roads, and other restoration projects outweigh the risks. They also argue that a very small portion of the fire would actually be harvested and this, coupled with implementation of measures such as Best Management Practices, would largely limit site disturbance.

Measurements used to compare the response of each alternative to this issue include:

- ✓ predicted project-related (short-term) and chronic (long-term) sediment yields
- ✓ change in total road densities

Key Issue 3: Changes in Fish & Aquatic Habitat

The analysis area lies within the traditional lands of the Confederated Tribes of the Umatilla and the Confederated Tribes of the Warm Springs in Oregon that were ceded to the U.S. Government in 1855. In their respective treaties, the Tribes retained certain rights including: the rights to fish, hunt, gather roots and berries, and pasture stock on unclaimed federal lands. The courts have determined that the right to have associated resources (habitat) protected from degradation is implied in these treaties. Both Tribes have clearly stated that they consider the John Day River an important Treaty Reserved Fishing Rights resource that must be protected. They point out that the fisheries resource is invaluable and critical to the pursuit of traditional life ways and that recovery projects must not result in any decreases in habitat quality.

Opponents of the proposed actions are particularly concerned with the potential for increased sediment and water temperatures related to salvage harvest. They feel that only projects that would reduce erosion and sedimentation from existing human-caused disturbances should be implemented. Other commenters fear that when added to sediment levels associated with the fire and other existing sources,

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restoration activities could cause irreparable damage to the salmon, steelhead, and bull trout populations in the North Fork John Day River system.

Supporters of salvage harvest argue that impacts to fish were caused by the fire, and that the use of sensitive logging systems and mitigation (Water Quality Best Management Practices, PACFISH standards and guidelines, riparian management objectives, etc.) would offset any harvest-related increases. They feel the risks involved with harvest are minimal and that restoration projects and road improvements associated with harvest would make up for any undesired effects. They also argue that the tree planting associated with harvest would speed the recovery of ground and forest cover, which would reduce sediment and improve slope stability. They point out that many factors are responsible for the decline of anadromous fish runs and that, unless downstream factors are corrected, runs will continue to decline regardless of what occurs upstream. Consequently, they believe that deferring salvage harvest activities would have no effect on the overall health of the fish populations.

Measurements used to compare the response of each alternative to this issue include:

- ✓ miles of stream treated to reduce water temperature in the long-term
- ✓ miles of currently blocked habitat reopened to fish access
- ✓ risk to fish from project-related and chronic sediment yields
- ✓ risk of water contamination from chemical use (spills, leaching, etc.)

Key Issue 4: 4-wheeler Access to Winom-Frazier Complex

The Winom-Frazier OHV Complex is very popular for motorcycle riders and 4-wheelers alike. While the North Fork John Day District received only six letters commenting on the proposed construction of the Roundaway 4-wheeler trail, the interdisciplinary team believes that the current trail's popularity and misuse warrant consideration as a key issue.

In 1990, the Forest Plan was signed which identified additional OHV opportunities as a need on the Forest. The North Fork John Day District's Motorized Access and Travel Management Plan was also approved that same year, laying the framework for a network of trails referred to as the Winom-Frazier OHV Complex. The Camas OHV Trail Complex EA was prepared in response to these plans. Objectives for the selected alternative in the OHV Complex EA emphasized a connection between Frazier Campground and the existing Winom and Wallowa-Whitman National Forest trail systems, and riding opportunities for all experience levels and OHV types. Since the Roundaway Trail is one of the most challenging in the complex for motorcyclists, the District believes it should be maintained to provide the variety of riding experiences described plan objectives. The trail cannot be widened to allow safe 4-wheeler use because the loss of vegetation coupled with the amount of excavation required for a safe 4-wheeler trailbed would likely increase slope instability, as well as remove some of the challenge this trail provides for motorcyclists. While 4-wheeler users currently have access to the entire complex by using Forest Road 5226, this route is not considered safe, as the road is narrow, winding, and busy. The proposed new route would provide safe, easy access for 4-wheelers, while limiting soil disturbance by constructing the new trail primarily on existing roadbeds and by alleviating 4-wheeler use above the Hidaway landslide.

Opponents of the proposed construction of a 4-wheeler trail are concerned that the new location extends into an area not currently affected by motorized trails. They argue that this would increase disturbance of big game animals and other wildlife that are already stressed as a result of the adjacent fire (the new trail would mostly occur outside the burned area). They also believe that OHVs cause a great deal of disturbance to soils and vegetation. Others point out that OHV use is disruptive and in conflict with other recreational uses of the area.

Measurements used to compare the response of each alternative to this issue include:

- ✓ qualitative analysis of safety for 4-wheeler users

Tracking Issues

Issues that were not considered key, but which relate to existing regulations or which help to better understand the consequences of proposed activities, were considered as issues to be tracked throughout the document. These tracking issues are generally of high interest or concern to the public, or are necessary to understand the full extent of the alternatives. Tracking issues provide additional information for the analysis but do not drive the formulation of alternatives.

Recreation

The analysis area is a popular place to pick mushrooms, use trails, and hunt big game and all open roads within the analysis area receive moderate to heavy use during the seasons for these activities (spring and fall). These activities also heavily utilize approximately 200 dispersed campsites within the fire area. An existing OHV trail--the Roundaway Trail--has been destabilized by loss of vegetation and ground cover resulting from the Tower Fire, while the Cut Across and Round Meadows OHV trails have experienced reduced visibility at road crossings. The fire has already changed the condition and amount of recreation within the analysis area; logging traffic and road decommissioning⁹ could cause additional changes, while road improvements, hardening of dispersed campsites, and relocation of 4-wheeler use associated with the Roundaway trail could increase access and safety.

Roadless Area

The Tower Fire encompasses the 17,000-acre South Fork-Tower Roadless Area (which abuts the northern edge of the North Fork John Day Wilderness). This area was inventoried for study as a potential wilderness during the RARE II process and was allocated to non-wilderness use by the RARE II decision in January 1979. The Forest Plan allocated that the area be developed consistent with the principal management allocations of C7, C1, and A3.

In February 1999, the Forest Service announced an 18-month moratorium on new road construction in unroaded areas on most National Forests. During the suspension, the Forest Service is developing a long-term road policy for the national Forest Transportation System. This suspension prohibits new road construction projects (including temporary road construction) and road reconstruction projects within defined areas such as the South Fork-Tower Roadless Area. Trail construction and reconstruction, as well as other activities, are not effected by the rule; only road construction and reconstruction are prohibited.

The Tower Fire burned 16,305 acres of the roadless area at varying severities. As a result, a number of restoration activities have been proposed within the roadless area. These include over 4,000 acres of reforestation including planting of white pine, stabilization planting of the landslide along Hidaway Creek, most of the riparian planting, the fencing of Round Meadow, and creation of a shaded fuel break. These activities would not result in road construction. Some respondents are concerned about the impact of the shaded fuel break on the character of the roadless area. They have also questioned whether the proposed wide spacing of trees would encourage OHV use within the Wilderness.

Wild and Scenic River

The Oregon Omnibus Wild and Scenic Rivers Act of 1988 placed the North Fork John Day River into the National Wild and Scenic Rivers system, to be managed according to the Wild and Scenic Rivers Act of 1968. This law required the Forest Service to develop a management plan, which was completed in June of 1993. Sections of the river were designated as "Wild", "Scenic" or "Recreational", depending on the permitted level of development. The river segment within the burned area is designated "Scenic", which

⁹ Road decommissioning closes an open road and stabilizes the roadbed (pull culverts, add crossdrains, etc.) to eliminate potential for storm damage and the need for maintenance.

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means that this section is free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible by roads in places. Another segment downriver of the fire is designated "Recreational", which means that it is readily accessible by road or railroad, that it may have some development along its shorelines, and that it may have undergone some impoundment or diversion in the past. Some members of the public are concerned that activities proposed under this document could affect the development and character of this Wild and Scenic corridor.

Wildlife Habitat

The Tower Fire has changed wildlife habitat structure within the analysis area dramatically. The fire converted forested habitats to a very early seral stage that will be dominated by grasses and forbs for several years. Understory communities of grasses and shrubs are regenerating and developing across most of the south portion of the burn. Ponderosa pine and mixed conifer communities along the northern, southern, and western boundary comprise the largest blocks of unburned or lightly burned forested habitat within the analysis area.

Much of the analysis area does not provide big game cover as defined by the Forest Plan. Deer and elk will be more vulnerable in the short-term until cover provided by shrubs and young trees grow to a sufficient density and height. Some respondents have expressed concerns that the boles of dead trees at least provide some benefit in reducing hunting vulnerability and that harvest would remove this hiding cover, further stressing resident big game herds. Others point out that most of these dead trees will fall within the next decade anyway.

The fire created a large number of dead standing trees (snags) at various densities throughout the analysis area. These provide habitat for primary cavity excavators, such as woodpeckers and nuthatches, which use snags for nesting, roosting, and foraging. The cavities created by these species are in turn used by other wildlife. Dead standing tree densities will be high with a variety of size classes in the short-term (10 years post-fire). However, all snags across the analysis area are expected to fall due to wind exposure and the increasing amount of rot occurring at the base of trees. In the long-term, snags will be deficient for many decades, particularly in the large size classes. Some respondents are concerned that salvage will prematurely decrease the large snag component and result in a decrease in cavity dependent species. Others disagree, stating that harvest and subsequent reforestation is necessary to produce future large snags more quickly. They point out that appropriate levels of snags would be maintained within harvested areas while the majority of the analysis area would remain unharvested, providing more than enough snags for the near future.

Stands that formerly provided old growth habitat burned at varying fire severities. Some respondents believe that since these stands no longer function as old growth habitat, they should be harvested to recover economic value of the wood fiber and provide jobs in local communities. Others state that even dead these stands provide habitat not available elsewhere, that they will provide the framework for the next generation of old growth as a new forest grows up beneath the large dead snags, and therefore it should not be harvested. While thinning green stands will create healthier, faster growing trees for future old growth habitat, some respondents oppose it because so much forest was lost in the fire that all remaining green trees should be left to provide wildlife cover.

Riparian habitats (meadows, springs, streamside zones, etc.) burned at varying severities. While most of the severely burned riparian habitats are recovering well, some areas have few grasses and shrubs and little or no re-sprouting of hardwoods. These riparian areas are particularly important to wildlife and need restoration and protection.

Management Indicator Species

The National Forest Management Act requires the Forest Service to maintain the viability of wildlife populations. As a result, the Forest Plan selected management indicator species to represent the welfare of a larger group of wildlife species presumed to share the same habitat requirements. Rocky Mountain elk were selected to represent general forest habitat and winter ranges. Pileated woodpecker characterize dead/down tree habitat in mature and old growth mixed conifer stands, while northern three-toed woodpecker represent dead/down tree habitat in mature and old growth lodgepole pine stands. Pine

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marten were identified for mature and old growth stands at high elevations and the primary cavity excavator guild was identified for snag and down tree habitat. Steelhead and rainbow trout were selected to represent stream and riparian habitats.

Proposed, Endangered, Threatened, and Sensitive Species

Botanical surveys have covered the entire analysis area, and a population of *Botrychium minganense* (identified by the Pacific Northwest Regional Forester as “Sensitive”) was found. The population consists of four plants and is noteworthy because it occurs at 3,800 feet in elevation—1,200 feet below the lowest elevation characteristic of sensitive *Botrychium* species in this physiographic province. This population could potentially be affected by the proposed underburn to enhance big game forage and one of the commercial thinning units. In addition, suitable habitat exists for *Carex interior* and *Carex crawfordii*, which were added to the Regional Forester’s list after botanical surveys had been completed.

Several “Sensitive”, “Threatened”, or “Endangered” fish and wildlife species or their habitats could be affected by proposed management activities. The Canada lynx, bald eagle, bull trout, and mid-Columbia steelhead are listed as “Threatened” under the Endangered Species Act and the gray wolf is listed as “Endangered”. Mid-Columbia spring Chinook, Columbia spotted frog, and interior redband trout are on the Regional Forester’s “Sensitive” species list.

Interior redband trout, mid-Columbia steelhead, northern bald eagle, and Columbia spotted frog have been documented within the analysis area and mid-Columbia spring Chinook occur downstream. Though their presence is not documented in analysis area, some potential habitat components exist for the bull trout, California wolverine, Canada lynx, and gray wolf.

Economics/Social

Many communities in Morrow, Umatilla, Union, and Grant counties are closely tied to this area through both work activities and recreation. Three economic uses of the area--recreation, timber harvesting, and domestic livestock grazing--were primarily affected by the Tower Fire. Quigley et. al. (1996) found that Grant County, which encompasses most of the analysis area, has a low level of economic diversity, a high dependence on federal timber and forage, and a low resiliency for change. Reliance on National Forest and Bureau of Land Management timber and forage is moderate to high in several counties surrounding the analysis area. The receipts from timber sales and grazing are important to local residents and contribute to the local economy in several different ways.

By law, 25 percent of the gross receipts collected by the Forest Service from the use of National Forest System lands and resources (timber sales, grazing permits, and other deposits) are returned to the counties as a source of funds for schools and roads. Payments to counties comprise an important element of local budgets and are based on the amount of National Forest System land within the county. The counties are concerned that the Tower Fire could reduce their revenues. Immediately following the fire, livestock numbers were reduced by 38 percent for a minimum of two grazing seasons with continuation of the reduction dependent on recovery of the vegetation. Timber that would have provided future revenues is quickly deteriorating in value and usefulness, due to the massive mortality caused by the fire. If timber is not recovered soon, potential receipts from this area’s timber will be lost for 50 years or more.

Timber sales, grazing, and recreation also contribute to the local economy in other ways. Salaries and wages are generated by workers directly involved in these industries. Indirect economic effects are generated by businesses that supply materials, equipment, and support services to these trades. Induced economic effects result from personal spending by the business owners, employees, families, and related industries. In addition to impacts on timber and grazing, recreation revenues may also decrease as use shifts to greener, more appealing areas.

Many in the area who would benefit either directly or indirectly from the sale of salvage timber feel that it is important to maximize receipts from the salvage effort. They point out the positive effects to the local economy and that the Forest Service collections are an important consideration for accomplishing restoration projects. Without these dollars, declines in Forest Service budgets may be too great to cover any restoration costs. Others think that economics should not be a consideration in determining which

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restoration activities are appropriate. They feel that resource concerns should be given primary consideration and that recovery of economic value of trees must not be a driving force behind restoration efforts. Still another group points out that all the costs and revenues associated with the Tower Fire recovery efforts, including non-market values, should be considered to display an accurate account of the value of proposed activities to society.

Noxious Weeds

Exposure of mineral soil caused by the Tower Fire has created ideal conditions for the spread of noxious weeds. Precautions would be needed if ground-disturbing activities would occur near presently infested locations. Noxious weeds are easily spread by vehicular traffic, establish easily where mineral soil is exposed, and certain species are favored by burning.

Fire Management/Air Quality

The importance of maintaining ecosystem processes and function is recognized as a key component of forest health (Oliver and Larson, 1990). Disturbance is a vital ecosystem process, especially in the dynamic forest ecosystems east of the Cascade crest (Everett et al, 1995). The disturbance cycle sets the stage for successional processes, selecting for species tolerant or resilient to the particular disturbance type and intensity. Fire is certainly the most dominant form of disturbance in western coniferous forests, but it has a complex relationship with other disturbance vectors such as insect and pathogen attacks, drought effects, and windthrow. Each type of disturbance tends to influence the probability, duration, or effects of the others to some extent.

Each plant association group has its own particular fire regime. The plant communities typical to each series have evolved in the presence of this recurring disturbance, coming to depend upon the frequency and intensity of fire to help regulate the amount of debris that can accumulate. Though the risk of fire starts would remain constant, the scale of stand replacement fires could be controlled by reducing fuel levels and continuity, controlling stocking, favoring fire resistant tree species, and reducing the potential for crown fires. The proposed fuel break would disrupt the continuity of fuels and possibly allow for easier suppression in future fire events. Reductions in fuel build-up and breaks in continuity could be accomplished within the analysis area by salvage harvest of the fire-killed trees followed by reintroduction of fire and/or thinning or pruning of regrowth. The Clean Air Act dictates consideration of the effects of prescribed burning on air quality and the surrounding communities. Particulate emissions, timing, and duration of prescribed burning are items of importance.

Accessibility and Maintenance of the Transportation System

The District Motorized Access and Travel Management Plan (1990) identified the desired open or closed status for each road on the District. The Tower Fire and subsequent flood in 1998 exacerbated or changed conditions on many roads within the analysis area. Drainage structures on a number of roads have been less effective since the fire, in many cases filling with mobilized sediment. Several stream crossings on Forest Road 5506 and 5507 were destroyed in the flood, cutting off access and in one case (Forest Road 5506 crossing of Oriental Creek) resulting in motorists creating their own crossing. Forest Road 5510 is currently providing the only through access for Oriental Basin, which receives a high amount of use. This road is single lane with poor visibility and a number of slope instability concerns. In some cases, the roads that are experiencing these problems also provide the only quick access into remote areas for administrative work or fire suppression and escape routes. Along many roads, a number of burned trees are now precarious and pose a hazard for motorists using those roads. All of these conditions increase the cost of road maintenance and increase safety risks. The District is concerned that a safe transportation system is available to provide needed access and handle the volume of use while reducing maintenance costs.

Cultural Resources

The National Historic Preservation Act and Executive Order 11593 require that areas be inventoried before any ground disturbing activity occurs. All high probability terrain outside the roadless and Wilderness areas has been inventoried for heritage resources. This resulted in the documentation of

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numerous historic and prehistoric properties. Ground disturbing activities related to salvage harvesting and some restoration projects could have the potential to affect the integrity of these cultural properties, which could require avoidance or mitigation.

Issues Outside the Scope of This Analysis

Concerns that were not considered key or tracking issues will not be analyzed in depth to narrow the scope of this analysis (40 CFR 1501.7(a)(3)). These issues were determined to be outside the scope of the proposed project because they are resolved through higher direction or were not relevant to this proposal.

Discontinue Grazing

The Tower Fire burned most of the Pearson pasture and half of the Texas pasture on the Texas Bar Allotment, while half of the Tower pasture on the Hidaway Allotment burned (most of which experienced low severity). Even before the fire, the Tower Pasture was being rested, however, the other two pastures were actively grazed until the fire. The Burned Area Emergency Rehabilitation range report recommended that these pastures be rested from grazing until vegetative resources are fully recovered, with a minimum period of two years. In fall of 1998, a separate interdisciplinary team assessed conditions within the burned areas of these pastures to determine whether vegetation was recovered enough to allow livestock grazing. They concluded that vegetation had recovered sufficiently to reintroduce cattle grazing, but this was delayed due to the Big Tower court order (which restricts all ground disturbing activities until an EIS is completed).

Numerous letters from the public have commented that grazing should be discontinued across the analysis area, at least until vegetation is fully recovered. While grazing will be considered as part of the cumulative effects analysis, changes in the allotment management plans do not fit the purpose and need of this project and are, therefore, beyond the scope of analysis. Such a decision is better made through an environmental analysis of the Allotment Management Plan.

Discontinue OHV Use

A number of letters were received during scoping that were opposed to the proposed construction of the Roundaway 4-Wheeler Trail and further recommended that OHV use be totally eliminated from the analysis area. The District Motorized Access and Travel Management Environmental Assessment (signed 6/5/90), Forest Plan (signed 6/11/90), and the Camas Off-Highway Vehicle Trail Complex Environmental Assessment (signed 7/25/95) considered the issues involving OHV use and various alternatives for location and level of use, including no use. The decisions made in response to those analyses determined that OHV use would be allowed in the area and that a complex of trails would be developed to support such use for a variety of experience levels (including the Roundaway Trail). Therefore, the issue whether to allow OHV use has already been decided and is beyond the scope of the Tower Fire Recovery Projects EIS.