



United States
Department of
Agriculture



Forest
Service

September 2003

Toolbox Fire Recovery Project

Draft Environmental Impact Statement

Summary





File Code: 1950

Date: September 12, 2003

Dear Reader

I am asking for your thoughts and comments on the enclosed Draft Environmental Impact Statement (DEIS) for the Toolbox Fire Recovery Project. Shortly after the large Toolbox Complex fire of July 2002 we began analyzing the damage caused by the fire and what future actions might be needed for the lands under our stewardship. This DEIS documents our analysis. It evaluates in detail six alternative ways to:

- Maintain enough of the snags and down wood created by the fire to provide effective habitat for dependent species such as woodpeckers
- Reduce future surface fuel loading in order to moderate subsequent fire behavior and effects
- Restore riparian areas damaged by the Toolbox Fire complex.
- Reduce insect infestations by removing fire-killed trees that create breeding habitat for beetles.
- Develop a long-term sustainable forest that can be maintained with prescribed fire.
- Salvage timber for merchantable value.

After evaluating each alternative in light of its effectiveness in addressing the above needs and its predicted environmental impacts, **I have concluded that Alternative G is the alternative preferred by the Forest Service.** Alternative G would provide enough snags and down wood to sustain populations of dependent species within the project area. Alternative G does the most to reduce future surface fuel loading, through a combination of mechanical small-fuels reduction, prescribed burning, and salvage harvest of larger fuels (dead trees that would eventually fall to the forest floor).

Alternative G would decommission or close some lower-use roads to reduce sediment delivery into stream channels. Alternative G would also help restore riparian areas by adding large wood to streams to provide pools for fish; cutting young conifers that are encroaching into aspen meadows; and planting some deciduous species such as willows, where needed. The road closures and decommissionings would also benefit big game by reducing traffic-associated disturbance.

Alternative G favors the quickest development of sustainable forests. By reducing fuel loads over the most acreage it increases our chances of controlling wildfires before they become unnaturally large and severe. It also allows us more opportunity to use prescribed burning to mimic the low-intensity fires that historically kept ponderosa pine forests relatively open and park-like, without much brush and understory. This in turn increases the likelihood that the existing green trees will survive and grow into the open, fire-resistant stands of large, old trees common in the project area before the advent of regular fire suppression.

The level of salvage harvest proposed in Alternative G would do the most to capture some of the merchantable value represented by the fire-killed trees, as well as remove breeding habitat for beetles.

On balance, I believe Alternative G offers the best mix of actions to address the stated purpose and need while keeping predicted adverse environmental effects within acceptable limits. **However, this is a draft and does not represent my final decision.** I am interested to know what you think about this analysis and these alternatives, including any suggestions for how the preferred alternative might be improved.

Public workshops to learn more about this project and to provide comments on the project will take place in early fall, during the comment period. Information about the workshops will be sent to those on this mailing list as well as published in local newspapers. If it's not convenient for you to attend a workshop, your written or oral comments are also welcome. The abstract on the following page provides more detail on how and where to provide comments. I will decide which alternative to select and what modifications, if any, should be adopted, only after I have carefully considered the public comments you and others provide during the 45-day comment period that begins with the mailing of this DEIS.

Sincerely,

KAREN SHIMAMOTO
Forest Supervisor

Enclosure



TOOLBOX FIRE RECOVERY PROJECT

Draft Environmental Impact Statement

United States Department of Agriculture – Forest Service
Pacific Northwest Region - Fremont-Winema National Forests

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Date Comments Must Be Received: November 17, 2003

Abstract:

This Draft Environmental Impact Statement (DEIS) describes the effects of implementing six alternatives for the recovery of National Forest System lands that burned in the Toolbox Complex Fires of 2002 on the Fremont-Winema National Forests in south central Oregon. The fires burned approximately 49,500 acres of National Forest on the Silver Lake Ranger District, 8,000 acres of Bureau of Land Management land, and 27,500 acres of private land. The preferred alternative (Alternative G) would implement specific combinations of actions to promote the development of future sustainable late and old structural forest on approximately 13,100 acres. This combination of actions includes salvage removal of fire and insect killed trees with follow-up fuels reduction, site preparation and planting. Considered separately, Alternative G would implement salvage harvest on approximately 14,420 acres, fuel treatments on about 20,500 acres and conifer planting on about 20,700 acres. Snag retention, both in blocks of identified optimal snag and down wood habitat, and within harvest units are an integral part of the design of all alternatives. Additional projects in Alternative G include placement of large woody debris (9.6 miles of stream) and deciduous planting for riparian improvement (7 acres), aspen enhancement (690 acres), road reconstruction (re-surfacing of 10.9 miles), road decommissioning (72 miles) and closure (10 miles) and precommercial thinning of existing plantations (2,200 acres). A site-specific Forest Plan amendment pertaining to mule deer habitat in portions of the project area is proposed.

In the remaining action alternatives, salvage harvest is proposed on between approximately 6,370 and 14,440 acres, with varying amounts of the other project elements listed above.

Reviewers should provide the Forest Service with their comments during the review period of the draft environmental impact statement. This will enable the Forest Service to analyze and respond to the comments at one time and to use information acquired in the preparation of the final environmental impact statement, thus avoiding undue delay in the decision-making process. Reviewers have an obligation to structure their participation in the National Environmental Policy Act process so that it is meaningful and alerts the agency to the reviewers' position and contentions. Vermont Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 519, 553 (1978). Environmental objections that could have been raised at the draft stage may be waived if not raised until after completion of the final environmental impact statement. City of Angoon v. Hodel (9th Circuit, 1986) and Wisconsin Heritages, Inc. v. Harris, 490 F. Supp. 1334, 1338 (E.D. Wis. 1980). Comments on the draft environmental impact statement should be specific and should address the adequacy of the statement and the merits of the alternatives discussed (40 CFR 1503.3).

TOOLBOX FIRE RECOVERY PROJECT

DRAFT ENVIRONMENTAL IMPACT STATEMENT - SUMMARY

Introduction

This document is a summary of the Toolbox Fire Recovery Project Draft Environmental Impact Statement (DEIS). The DEIS considers the effects of various alternative to promote the recovery of the Toolbox Fire Complex area that was burned by wildfire in July and August 2002.

For further information (including a copy of the full DEIS), contact:

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Send comments to:

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Silver Lake Ranger District
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Send e-mail comments to: comments-pacificnorthwest-fremont-silverlake@fs.fed.us

The full DEIS is also available at: <http://www.fs.fed.us/r6/winema/management/analyses/toolbox/index.shtml>

Background

Historically, frequent, low intensity wildland fire was a natural phenomenon in eastern Oregon ecosystems. Suppression of these fires became the norm beginning with European settlement of the West and the establishment of National Forests. Nearly a century of effective fire suppression has been a primary factor in the development of much denser forests than occurred historically. Two years of below-normal precipitation and weather patterns favorable for fire, contributed to extensive wildland fires in the western United States in 2002. During the summer of 2002, eastern Oregon and the Fremont-Winema National Forests were among areas experiencing high intensity stand replacing fires. On July 12, 2002 a lightning storm ignited 67 fires on the Fremont-Winema National Forests. Two of these fires, the **Toolbox Fire** and the **Silver Fire** became the primary fires within the Toolbox Complex (see map on next page). Results included:

- Approximately 85,000 acres burned; including about 49,500 acres of National Forest land, 8,000 acres of Bureau of Land Management land, and 27,500 acres of private land.
- □ 10 homes were threatened and eight to ten residents were either evacuated or prepared to evacuate.
- □ Two historical buildings burned – the Fremont Point Cabin and a historical mining cabin.

In the fall of 2002 the Forest Service and the Burned Area Emergency Rehabilitation team (BAER) accomplished emergency recovery work, focusing on stabilizing soils and preventing erosion in areas most severely burned.

The Project Area

The Toolbox Fire Recovery Project area totals approximately 47,200 acres of Fremont National Forest lands within: T 29 S, R 13-16 E, T 30 S, R 13-16 E, and T 31 S, R 13-15 E, Willamette Meridian. The project area is defined as National Forest System lands, within the Toolbox Complex, within:

Silver Creek Watershed –

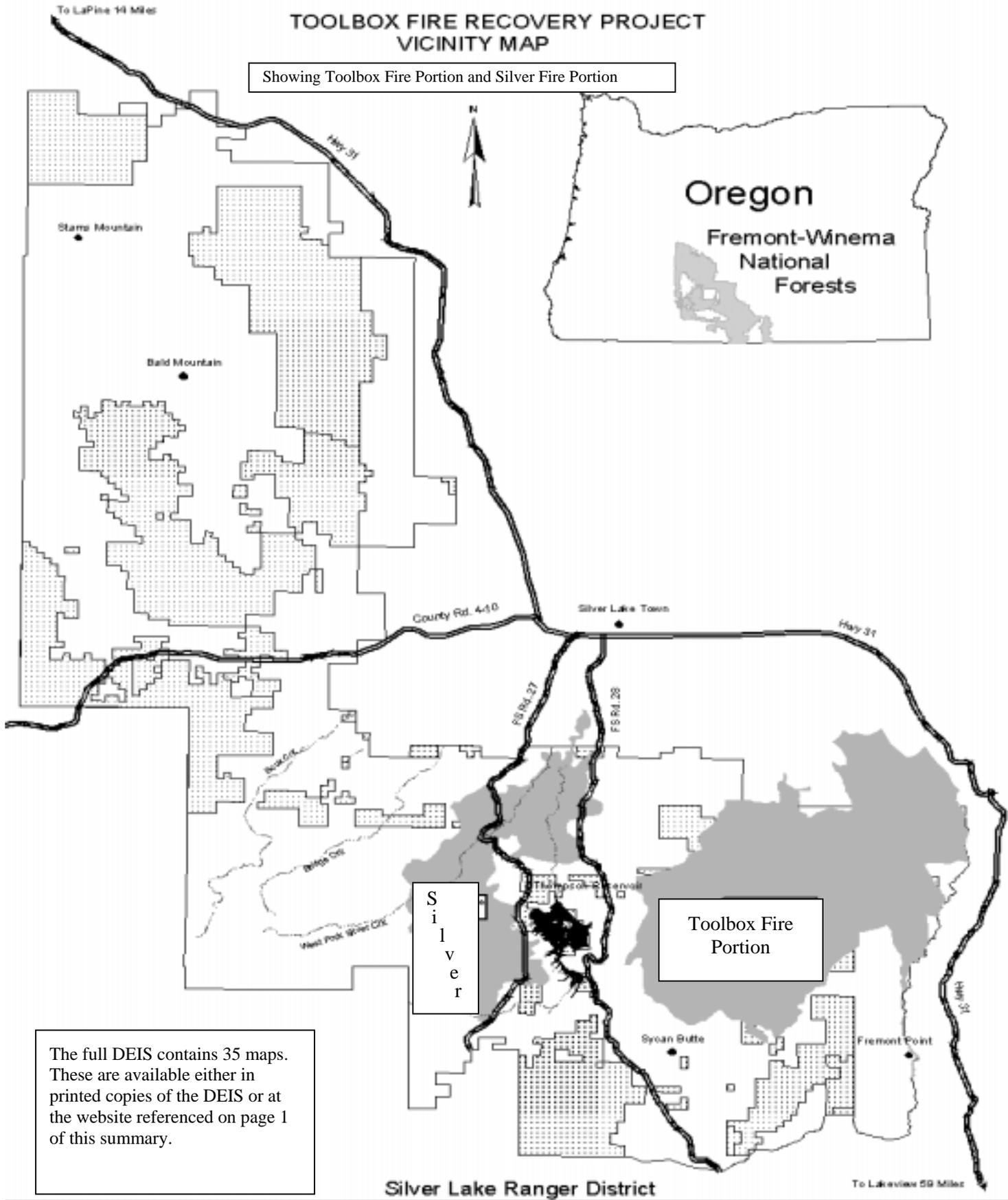
(The following subwatersheds)

- □ Middle Silver Creek
- □ West Fork Silver Creek
- □ Upper Silver Creek
- □ Thompson Reservoir
- □ Benny Creek

Silver Lake Watershed –

(The following subwatersheds)

- □ Upper Duncan Creek
- □ East Duncan Creek
- □ Lower Duncan Creek



The full DEIS contains 35 maps. These are available either in printed copies of the DEIS or at the website referenced on page 1 of this summary.

The project area is bounded on the east by the north-south trending fault block feature known as Winter Rim. An unburned strip varying between 3 and 7 miles wide occupies a north-south corridor between the Silver Fire (the western portion of the project area) and the Toolbox Fire (the eastern portion of the project area). Within this unburned corridor are locally familiar landmarks such as Thompson Reservoir, East Bay Campground, and Hager Mountain.

The terrain within the project area is almost universally of gentle slope. About 86 percent of the area has slopes under 15 percent. Only about 3 percent of the area has slopes over 30 percent. Silver Creek and West Fork Silver Creek, both perennial streams in the Silver Fire portion, flow through canyons that are up to 450 feet deep with localized side slopes of up to 70 percent. Other perennial streams in the Silver Fire portion include: Guyer Creek and North Fork Silver Creek. There are no perennial streams in the Toolbox Fire portion. Elevations in the project area range from approximately 4,450 feet to 7,200 feet (top of Winter Ridge).

Purpose of and Need for Action

The Fremont-Winema National Forest has developed project proposals, analyzed in a Draft Environmental Impact Statement (DEIS) with an overall objective of promoting recovery of the Toolbox Fire Complex area. It is expected that the projects would be implemented between 2004 and 2009. The need for the proposed action derives from the differences between current or expected resource conditions and desired resource conditions. Desired conditions are based on Forest Plan direction and management objectives. There are six components to the purpose and need for the project:

1. Maintain sufficient amounts of snag and down wood created by the fire to provide effective habitat for dependent species, while promoting recovery of live forest habitat that was lost as a result of the fire.
2. Reduce future surface fuel loading in order to influence subsequent fire behavior and effects. Reduce the risk of adverse effects on vegetation and soils that can result from long residence heat caused by heavy down fuels.
3. Restore riparian areas damaged by the Toolbox Fire Complex.
4. Reduce insect infestation by removing breeding habitat for bark beetles (recent fire killed or beetle killed trees).
5. Develop a long-term sustainable forest that is maintainable by re-introduction of fire.
6. Salvage timber for merchantable value.

Prior to about 1900, a pattern of frequent low intensity disturbance from fire was a primary factor in maintaining a relatively stable or sustainable forest condition, throughout much of the interior West (Everett, 1993, Agee 1993, Miller 2002). Sustainability, used in this document, refers to the ability of forested systems to withstand or resist rapid and widespread structural change due to fire, insects, and disease. The interruption of this pattern, primarily by fire suppression, has led to a succession of conditions that, rather than contributing to forest sustainability, allow the occurrence of extreme events, such as intense, large scale stand replacement fires.

An initial non-sustainable condition that resulted from the interruption of natural fire processes was green forest densities that exceeded historical densities by a significant factor. A good example of this is the commonly occurring forested areas that have 200 – 600 or more trees per acre, made up of tree size classes ranging from 0-1” diameter breast height (dbh) up to 36” (and greater) dbh. Historically, such a forest, in the ponderosa pine type, was more likely composed primarily of single-storied stands containing 10 to 35 large trees above an open grassy/forb/shrub area.

Green ponderosa pine forests with high densities, containing trees of all age classes, present a ladder-like structure which in certain burning conditions allows fire to move from the ground to the tree crowns. When a fire start does occur in a typical ponderosa pine forest with high overall stand density and the presence of ladder fuels, it can result in fire behavior that is unlike historical fire behavior. Rather than a low intensity ground fire, that provides needed stand maintenance, a much hotter, stand replacing surface and crown fire can occur. That is what happened in July 2002 in many portions of the Toolbox Fire Complex. Over one-half of the forested acres within the fire perimeter had greater than 50 percent of the trees killed, including many thousands of trees that were at least 200 years old. These older trees had likely experienced an estimated 5 to 12 “cycles” of low intensity, stand-tending fire, either directly beneath them or in their near vicinity, during the first half of their lives. Yet the fire of July 2002 was of a nature that such trees were killed on an individual and on a landscape basis.

The future conditions that would result from the Toolbox Fire Complex, in the absence of some form of active management, are expected to be a further continuation of an unstable or non-sustainable scenario. As a direct result of the higher than historical pre-2002 fire tree densities, and of the high level of mortality that occurred, the current amount of

standing dead trees is well above historic norms. The future condition that would unfold over several decades, in the absence of active management, includes several elements that would be a continuation of non-historical, non-sustainable conditions:

- Due to extensive areas of tree mortality, the amount of area without a ponderosa pine seed source is greater than would have occurred historically.
- Where a seed source is present and natural regeneration does occur, it would often be overabundant. Historically, low intensity fire would reduce this regeneration and the overabundance would be ameliorated. However, following a stand replacing surface and crown fire, the fuel loadings that would be created when the standing dead trees fall over have the effect of eliminating, from practical consideration, the use of prescribed fire. Prescribed fire is considered an important, cost-effective tool in moving young ponderosa pine stands toward sustainable older stands. Areas of heavy fuel loading, either from large down fuels or concentrations of smaller fuels, present unacceptable risks in terms of control of prescribed fire.
- In addition, these same future fuel conditions would, in the event of a fire start over the next several decades, contribute to another round of fire that is outside of the historical pattern of low intensity stand-tending fires. In an environment of heavy fuels close to the ground, the potential for soil damage would be higher than the minimal amount of damage that occurred during the 2002 fires, where the primary excess fuel loading was in the form of dense stands of standing green trees.

The movement toward sustainable conditions is the focal point of the word “recovery” as it is used in the name of this project – the “Toolbox Fire Recovery Project.”

The Proposed Action

A proposed action is an alternative developed early in the planning process to accomplish stated purposes, needs, and goals based on the best information available at the time. It is the first alternative offered and is used to identify issues and develop other alternatives for further study. The findings of the two watershed assessments prepared during the past seven years and a 2002 post-fire inventory were used to develop the Toolbox Fire Recovery Project original proposed action, as well the alternatives. Each proposed action for recovery is based on Fremont National Forest Land and Resource Management Plan (as amended) objectives, desired conditions, and standards and guidelines.

The original proposed action, distributed in November 2002 included the following proposals and connected actions:

- Commercial salvage on approximately 21,500 acres in the Silver Creek, Silver Lake and Summer Lake Watersheds including some areas salvaged within Riparian Habitat Conservation Areas (RHCAs), under specific protective guidelines. Within commercial salvage units in ponderosa pine stands, mixed conifer stands and lodgepole pine stands, trees with less than 20 percent bright green crown would be considered eligible for salvage harvest, with no diameter limits, if not otherwise reserved for retention for habitat or other resource reasons.
- Snag retention, using guidelines based on the most recent credible science.
- Precommercial thinning on approximately 2,500 acres of existing plantations.
- Reforestation (Planting) of tree seedlings, following site preparation, on approximately 28,500 acres, at between 150 and 400 trees per acre.
- Fuels treatments and reductions, including removing marketable timber through salvage harvest, burning in place (including use of prescribed fire), piling and burning, yarding tops to landings to be burned, or lopping and scattering to speed decay.
- Approximately 3,200 acres of prescribed fire outside of salvage units.
- Road Management, including approximately 35 miles of road decommissioning to promote watershed recovery.
- Temporary road development, including the re-opening and use of approximately 14 miles of existing unclassified road and construction of approximately 12 miles of new temporary road.

The original proposed action was not fully developed and analyzed in the DEIS. Instead a modified proposed action (Alternative C) that is consistent with the original proposed action in its response to Purpose and Need was fully developed and analyzed. It was determined, once field reconnaissance had been completed and initial effects analysis began, that there was a need to spatially adjust the commercial salvage proposals contained in the original proposed action, typically by reducing their size, in order to provide specific resource protections or to achieve compliance with Forest Plan Standards

and Guidelines. Additional minor adjustments were made in response to a desire to reduce the complexity of the analysis by focusing on those subwatersheds where more than a minimal amount of fire occurred in 2002. Alternative C in this analysis represents a *modified* proposed action that resulted from these initial adjustments. Eventually in response to issues generated during public scoping, several more alternatives were fully developed and analyzed.

Forest Plan Management Areas and Forest Plan Direction

Since the project area lies entirely within the boundaries of the Fremont National Forest, the relevant general management direction is found in the Fremont Land and Resource Management Plan (LRMP or “Forest Plan”), as amended. The primary amendments to the LRMP are: Regional Forester’s Eastside Forest Plans Amendments #1 (1994) and #2 (1995), which provide direction for retention and promotion of Late/Old structural (LOS) forest characteristics and the Inland Native Fish Strategy (INFISH, 1995), which provides interim direction to protect habitat and populations of resident native fish. The Forest Plan specifies Forest-wide and Management Area goals, objectives, and standards that define desired conditions and provide for land uses and resource outputs. It contains Forest-Wide Standards and Guidelines (S&G’s). In addition, S&G’s for specific areas (termed “Management Areas” or MAs) are stipulated in the LRMP. A more complete description of Management Areas and associated Standards and Guidelines is included in the DEIS and in the LRMP. The following summary presents a discussion of most Management Areas, leaving out those that cover only minor acreage within the project.

MA 1: Mule Deer Winter Range (approximately 5 percent of the project area)

The Forest Plan states, “Food, cover, and human disturbance will be managed on mule deer winter range to provide the habitat needed to meet the Oregon Department of Fish and Wildlife and Klamath Tribes herd management objectives” (LRMP, 132). Emphasis is on improving forage and thermal cover, and, where site capabilities allow, maintaining 40 to 50 percent thermal cover and at least 80 percent of potential habitat effectiveness for mule deer. Forest Plan guidelines state that habitat improvement (in mule deer winter range) can include prescribed burning and mechanical ground and vegetative disturbance after evaluation of effects on habitat and nontarget species (Fremont National Forest LRMP, 132).

MA 2: Threatened and Endangered Species Habitat (approximately 4 percent of the project area)

This includes both peregrine falcon habitat and bald eagle management areas (BEMAs). BEMAs are managed to provide an abundance of mature/over mature trees for nesting/roosting platforms, a minimum disturbance from people, and an abundance of food. Peregrine falcon habitat areas are to be managed to retain their natural character and a high degree of solitude and an adequate food base. Timber harvest that is consistent with those objectives is allowed.

MA 5: Timber and Range Production (approximately 74 percent of the project area)

These acres are allocated for commercial production of sawtimber and forage for domestic livestock and must meet LRMP Standards and Guidelines for all resources. The LRMP initially established an objective in MA 5 of creating a healthy forest condition characterized by a variety of age classes, through control of stocking levels, species mix, and protection from insects, disease, and other damage.

The Regional Forester’s Eastside Forest Plans Amendments #1 and #2 modified the objectives for MA 5. While MA 5 is still to be managed for the commercial production of sawtimber and forage for domestic livestock, the amendments have shifted the focus toward retaining and promoting Late/Old structural (LOS) characteristics, including direction to *move forest stands toward structural conditions that are within the Historic Range of Variability (HRV)*. Historic Range of Variability refers to structural forest conditions that are based on pre-settlement conditions. Moving forest stands toward the Historic Range of Variability is desirable because such conditions provide the most sustainability in long term.

The following direction from the Regional Forester’s amendments specifically applies:

- No net loss of LOS components
- Outside of LOS the intent is to maintain and/or enhance LOS components by adhering to the following standards:
 - Maintain all live trees greater than or equal to 21” dbh (diameter breast high).
 - Manipulate vegetative structure that does not meet late and old structural (LOS) conditions in a manner that moves it toward these conditions as appropriate to meet HRV (Historical Range of Variability).
 - Maintain open park-like stand conditions where this condition occurred historically. Manipulate vegetation in a manner to encourage the development and maintenance of large diameter, open canopy structure.

- Maintain connectivity and reduce fragmentation of LOS stands, by maintaining or enhancing the current level of connectivity between LOS stands and old growth habitats.

The Wildlife Standards of Regional Forester’s amendments contain direction for all sale activities, including salvage, for the maintenance of snags and down logs. These standards and guidelines for snags and downed wood are designed to provide the amount of snags and downed wood required for 100 percent of potential population levels of primary cavity excavators, to be determined using the best available science on species requirement. For the Toolbox Fire Recovery project analysis, recent science, represented by “DecAid” (or the “Decayed Wood Advisor for Managing Snags, Partially Dead Trees, and Down Wood for Biodiversity in Washington and Oregon” (Mellen, 2002), is used to examine effects on snag and down wood-dependent species.

MA 15: Fish and Wildlife Habitat/Water Quality (approximately 13 percent of the project area)

The aquatic and riparian zones of all drainages and water bodies, and their immediately adjacent uplands will be managed to meet the objectives of (MA 15). MA 15 will be managed to maintain or improve water quality, fish habitat, recreation opportunities, and riparian habitat for dependent wildlife species. The Forest Plan amendment for the Inland Native Fish Strategy (INFISH, 1995) amended the standards and guidelines by creating Riparian Habitat Conservation Areas (RHCAs). Riparian dependent resources receive primary emphasis in all RHCAs. INFISH Standards and Guidelines for Timber Management (TM-1) prohibits timber harvest within RHCAs, except as follows:

- Where catastrophic events such as fire, flooding, volcanic, wind, or insect damage result in degraded riparian conditions, allow salvage and fuelwood cutting in RHCAs only where present and future large woody debris needs are met and where cutting would not retard or prevent attainment of other Riparian Management Objectives and where adverse effects can be avoided to inland native fish.

MA 15 within the project area includes approximately 1,378 acres of Category 1 (perennial-fish bearing streams); 4,595 acres of Category 3 (ponds, lakes, reservoirs, and wetlands greater than 1 acre) and 382 acres of Category 4 (intermittent streams). All fish bearing streams are within the Silver Fire portion. There are no Category 2 RHCAs in the project area.

Standard RHCA widths are as follows:

(Category 1 RHCA) Perennial Fish Bearing Streams

- The area on either side of the stream extending from edges of active stream channel to the top of the inner gorge, or the outer edges of the 100-year floodplain, or the outer edges of riparian vegetation, or to a distance equal to the height of two site-potential trees, or 300 feet slope distance (600 feet, including both sides of the stream channel), which ever is greatest.

(Category 3 RHCA) Ponds, lakes, reservoirs, and wetlands greater than 1 acre

- The body of water or wetland and the area to the outer edges of the riparian vegetation, or to the extent of the seasonally saturated soil intermittent stream channel or wetland and the area to the outer edges of the riparian vegetation or to a distance equal to the height of one site potential tree, or 150 feet slope distance from the edge of the wetland, which ever is greatest.

(Category 4 RHCA) Intermittent streams and wetlands less than 1 acre

- The intermittent stream channel and the area to the top of the inner gorge
- The intermittent stream channel or wetland and the area to the outer edges of the riparian vegetation.
- The area to the edge of the channel, wetland to a distance equal to the height of one-half site potential tree, or 50 feet slope distance, which ever is greatest.

Current and Desired Conditions/Proposed Actions in Relation to Purpose & Need

Maintain Snag and Down Wood Habitat/Recover Live Forest Habitat

Snag and Down Wood Habitat - Many wildlife species rely on snags and down logs for nesting, roosting, denning, and feeding. The Toolbox and Silver Fires created optimal habitat for black-backed woodpeckers in areas of high pre-fire canopy closure made up of dense stands of smaller trees. The fires also created optimal habitat for Lewis’ woodpeckers in

areas with abundant large ponderosa pine. Post-fire field inventories identified approximately 2,689 acres that would provide optimal blocks of habitat for snag and down wood nesters.

Snag retention in the proposals is designed to provide the amount of snags and downed wood required for 100 percent of potential population levels of primary cavity excavators. In the long term (10 to 30 years), snags are expected to fall and cavity-nesting habitat would not be available. Retention of snags for snag and down wood dependent species would be achieved through several strategies: 1.) Retention of specifically identified areas of habitat being prescribed as “no-salvage” areas; 2.) Retention prescriptions within proposed salvage units. No-salvage areas have been selected from within the approximately 2,689 acres that were identified as optimal blocks of habitat for snag and down wood nesters. Specific acreage retained, within identified optimal blocks of habitat, varies between alternatives. Within commercial salvage units, for all alternatives, three different criteria would be used for snag retention. These are based first on mortality level (areas of less than 50 percent mortality vs. areas of greater than 50 percent mortality) and then for areas less than 50 percent mortality, further divided by elevation and ecoclass.

Mule Deer - Approximately 89 percent of the winter range within the fire perimeter on National Forest and BLM lands lost the majority of the shrub component. Bitterbrush is not expected to become re-established on the winter/transition range, at a height that provides effective forage in winter conditions, for 20 or more years. Emphasis in MA 1 is on improving forage and thermal cover for mule deer.

The project area lies within mule deer winter, transition, and summer ranges. Due to the severity of the fire, the area has been reduced to a condition of little cover, but grass and forb forage response is expected to greatly increase. Currently, plantations, riparian areas, and dense stands that burned with light intensity continue to provide hiding, thermal, and fawning cover. In several subwatersheds current levels of big game cover are well below standards and guidelines in all ranges. One factor that decreases mule deer habitat quality, through a decrease in security, is the presence of open roads. For this reason, the LRMP calls for a 2.5 mile per square mile open road density, in summer and transition range, and a 1.0 mile per square mile open road density within winter range. Current open road densities exceed these levels.

The conifer planting contained in the proposed action would contribute to the overall vegetative make-up of future cover areas in winter range. The fuels reduction strategy in MA 1 is designed to promote the long-term maintenance of cover by decreasing the likelihood that future fires in the area would result in large area losses of cover. The proposed action specifically omitted any activity that might, even in the short term, negatively impact mule deer winter range, such as the use of pretreatment and/or prescribed burning in winter range. In areas of transition and summer range, which are primarily MA 5, conifer planting would contribute to the overall vegetative make-up of future cover areas. Road management proposals to close or decommission roads would bring road densities down to (or in some locations, at a minimum, toward) levels directed by the LRMP. This would improve the quality of mule deer habitat.

Threatened, Endangered and Sensitive (TES) Species - Three Bald Eagle Management Areas (BEMAs) were affected to some degree by the Toolbox and Silver Fires. The Silver Creek and the Thompson Reservoir eagle nests are located approximately 1.5 miles from the project area boundary, and the Dead Indian Rim eagle nest is located within the project area boundary. The Silver Creek and Thompson Reservoir BEMAs were mostly unaffected by the fires and the nest stands did not burn. The majority of the Dead Indian Rim BEMA burned in a mosaic pattern. The historical and most recent nest tree was severely burned by the fire. In both bald eagle and peregrine falcon habitat, the LRMP directs that timber management be used as a tool to enhance and perpetuate habitat requirements. Though there are no peregrine falcon nests located within the project area, portions of a Peregrine Falcon Management Area and a Peregrine Falcon Consideration Area are within the burned area. The majority of both areas burned at high intensities during July 2002.

All actions are designed to maintain existing habitat and enhance and perpetuate future habitat through fuels reduction and reforestation. Actions that would take place under the project proposal will all be designed to eliminate any direct effects to nesting activity or effects on, primarily through the use of timing restrictions. The overall project activity has a primary emphasis on the long-term recovery of sustainable LOS conditions. Road management proposals to close or decommission roads within MA 2 would result in reduced road densities in both bald eagle and peregrine falcon habitat. This is in keeping with Forest Plan direction for MA 2, and would improve the quality of these habitats.

Old Growth Dependent Species - Approximately 2 percent of the project area is within Management Areas 3/14 (Old-Growth Dependent Species Habitat). Within the Toolbox and Silver Fires, sixteen Management Area 3 and 14 old growth stands were affected to some degree by the fire, totaling 1,191 acres. When events such as wildfire have affected a designated old growth stand to the point that it is no longer considered suitable habitat, the Forest Plan directs that a new old-growth stand should be delineated to replace the original habitat. Each individual old growth stand was assessed on the

ground to determine if the stand remains functional habitat for the species for which it is designated. If it was determined during post-fire surveys that the stand remains functional, no harvest was planned within the old growth area. If determined that the stand is non-functional, a new old growth stand was identified.

Other Habitat Maintenance or Recovery – It is expected that aspen will respond favorably from the fires, regardless of post-fire management strategy. However, the proposal for aspen enhancement, through either falling dead trees or fencing, should protect aspen and help maintain the habitat created by natural responses to the fire. Proposed deciduous planting and large woody debris placement would benefit riparian and aquatic habitat.

Reduce Future Surface Fuel Loading to influence Subsequent Fire Behavior and Effects

In general, fire-killed trees occur across the landscape over tens of thousands of acres that burned during the 2002 fire, including large areas where more than 50 percent of the trees were killed. Mortality mapping, based on September 2002 conditions, on forested National Forest System lands, within the Toolbox Fire Recovery Project area, indicates the following:

- 0-25% of the trees killed (low mortality) – 6,463 acres
- 26-50% of the trees killed (moderate mortality) – 9,292 acres
- 51-85% of the trees killed (high mortality) – 5, 215 acres
- 86-100% of the trees killed (very high mortality) – 12,216 acres

After the 2002 fires, with almost all of the trees killed during the fire still standing, calculated fuel loads, based on information gathered following the 2002 fires, show the existing woody surface fuel loads on some sites approaching 10 tons per acre. Projected fuel loads (once the standing dead trees fall) could reach up to 100 tons per acres in some areas of high and very high mortality (Hall, 2003). In a report specific to the expected vegetative responses in the Toolbox Fire Complex, Fred Hall indicates that fuel loadings are expected to reach their maximum in about 10 to 15 years. In contrast to light or fine fuels, heavy large fuels accumulations have a long “burnout time”, meaning they continue burning for long periods. Should fire occur in this heavy fuel, all live trees would be killed and the soil surface sterilized to a degree that it would inhibit regeneration (Hall 2003, 8).

Pre-suppression era fire history was characterized by a pattern of frequent low intensity disturbance from fire. Historically, these short return intervals resulted in relatively low fuel loads and significantly less ladder fuels. This pattern was a primary contributor to a sustainable condition. The objective in burned areas is to reduce fuels so that they more closely mimic historic dead and down woody fuel loads. If lower and mid-elevation ecosystems are to experience a disturbance regime similar to that to which they are adapted, the fuels must first be reduced to keep fire effects within an historic range. The proposals for this project include three elements designed to assist in fuels reduction: removal of standing dead trees, follow-up treatments of the slash generated by such removal, and the application of prescribed fire.

The overall objective is to reduce fuels to the point that they would no longer contribute to fire behavior that makes future successful suppression using typically available forces, unlikely. Fires that are not controllable using typically available forces, if they occur during a period of multiple fire starts, contribute significantly to the likelihood that a large, intense wildfire would occur. Such fires result in stand replacement. If they occur on an environment with heavy fuel loadings, close to the ground, they have the potential to result in severe effects on soil.

Prescribed fire has been included in the proposals as an additional means of reducing fuels. In general, prescribed fire is proposed outside of salvage units in areas that experienced low mortality during the 2002 wildfires and areas that could effectively be “blocked up” in at least 100 acre parcels. The application of prescribed fire would break up the continuity of the fuels in the overall project area and would maintain the area treated in a fuels condition that would result in lower flame lengths and/or lower rates of spread. This would increase the likelihood that suppression operations could prevent the occurrence of a large high intensity fire leading to widespread stand replacement. A good example of this effect is the “CB Underburn” (3,500 acres treated by prescribed fire in 1996), which is within the perimeter of the Silver Fire (July 2002). The CB project achieved the stated fuels management objectives to “alter the live and dead fuel components within the burn area to reduce the potential of a high intensity, stand replacing wildfire and re-introduce fire to a fire dependant ecosystem”. During July 2002 in the CB area, the wildland fire dropped from the tree crowns onto the ground due a general absence of ladder fuels and an absence of heavy down fuels. The CB project area is one of the few significant areas within the July 2002 wildfire that had previously received two introductions of prescribed fire over the past 15 years (first in the late 1980s and then again in 1996).

Restore Damaged Riparian Areas

The Toolbox Fire complex significantly impacted four fish bearing streams: Silver Creek, West Fork Silver Creek, North Fork Silver Creek, and Guyer Creek. In addition, non-fish bearing, intermittent streams were also impacted within the fire boundary and include Strawberry Creek, Indian Creek, Benny Creek, Hawk Creek, Graham Creek, Duncan Creek, East Duncan Creek, McCall Creek, and Willow Creek.

Very high vegetative mortality was documented along 7.4 miles of fish bearing streams, moderate and high mortality along 9.8 miles, and low mortality along 5.7 miles. The loss of vegetative ground cover and soil organics can lead to increased surface erosion via various avenues (splash, rill/sheet, frost heaving, etc.). Although high intensity fires, such as the Toolbox Complex can be detrimental to a watershed, the overall impacts of lower intensity fires, such as occurred historically, are generally positive including a short-term reduction of surface fuel loads. If the fires are of a low enough intensity that substantial overstory mortality hasn't occurred, these reductions in surface fuel loading can have a persistent beneficial effect.

The Inland Native Fish Strategy (INFISH) (USDA 1995) amended the Forest Plan to establish the creation of riparian habitat conservation areas (RHCA) with the objectives and desired conditions that include:

- Meeting state water quality standards by applying soil and water conservation practices.
- Protecting riparian areas to prevent adverse effects on stream channel stability and fish habitat.
- Reducing sediment from existing open roads.
- Adding woody debris to certain severely burned stream segments to improve fish hiding cover and increase habitat complexity.
- Planting appropriate tree species in certain burned riparian areas to improve aquatic and riparian habitat.

Currently the open road density within the project area on National Forest lands is 3.68 miles of road per square mile of land base. A Roads Analysis process (completed in 2002-2003) was used to make recommendations regarding each road. Recommendations ranged from leaving the road open at its current maintenance level, increasing the maintenance level, closing the road, or decommissioning the road. In this document, road closure refers to a simple form of closure such as blocking the entrance of a road with an earth berm. Decommissioning refers to activity that results in the stabilization and restoration of unneeded roads to a more natural state. Decommissioning is a form of road closure that treats the roadbed itself through breaking up the compacted surface, encouraging re-vegetation and/or re-contouring the road prism. Road decommissioning, particularly in close proximity to streams, would promote improved riparian conditions.

The original proposed action, relying on the recommendations the Silver Lake Community Watershed Council's 2002 "Silver Lake Watershed Analysis" include proposals for approximately 35 miles of road decommissioning. However, as acknowledged in that original proposal, the Watershed Analysis only provided coverage to *portions* of the project area. For that reason, the original proposals indicated that there would be "a re-examination of pre-fire recommendations following road condition surveys within the fire, potentially leading to additional road management proposals". That re-examination was the Roads Analysis process of 2002-2003. The overall outcome of the Roads Analysis process was a recommendation that approximately 70 miles of roads within the project area be decommissioned as a means of lessening their impacts on watershed function and wildlife habitat; and closing approximately 75 miles of road. About 125 miles of road would remain open.

Proposed salvage, post-salvage fuels reduction, and conifer planting are in response to the need to reduce the intensity of future fire in the riparian zones, while promoting the recovery of healthy forest conditions that would contribute to long-term attainment of Riparian Management Objectives. Other project activities such as placement of large woody debris and riparian area deciduous plantings are in direct response to the immediate need to attain Riparian Management Objectives.

The original proposed action also included projects to implement contour felling (using dead trees) on approximately 1,150 acres of steeper slopes to protect water quality and to replace the culvert where Forest Road 27 crosses West Fork Silver Creek to improve fish passage. However, it was determined during the fall 2002 reconnaissance that the erosion control measures taken during BAER implementation had effectively minimized the potential for erosion in all areas where it was likely to occur and therefore the proposed contour felling was not necessary. For this reason it was not included in any of the fully analyzed action alternatives. The culvert replacement proposal was deferred to future consideration due to other higher priority fish passage improvement needs elsewhere on the Fremont-Winema National Forests.

Reduce Insect Infestation by Removing Breeding Habitat for Bark Beetles

Bark beetle outbreaks, while episodic, are the single most significant cause of mortality in the pine type of this area. Bark beetles are a primary cause of mortality, and alone are capable of causing widespread mortality. While beetles prefer low-vigor trees, and stands of low vigor facilitate population increases, as population levels increase they can successfully colonize and kill vigorous trees. Bark beetle activity, primarily mountain pine beetle, had been increasing in the project boundary for several years before the 2002 fires. The fire burned with variable intensity and left many “reservoirs” of beetle habitat. There now are fewer green trees, so beetle attacks may be more concentrated on the residual green trees. This in turn can produce more mortality in the trees that managed to survive the fire itself. Additional mortality from residual effects of the fire is expected to occur in ponderosa pine stand types in the next few years, and in the white fir component of mixed conifer stands within the next five years. The potential for bark beetle attacks on fire-weakened trees is another factor expected to influence tree mortality in the next several years.

The LRMP directs that Integrated Pest Management (IPM) strategies will be used to manage insect infestations within the constraints of law and regulation and to meet Forest management objectives. IPM strategies include manual, mechanical, biological, chemical, prescribed fire, and regulatory means. The most effective means of reducing the potential for impacts from insect infestation is to implement commercial and pre-commercial thinning in remaining green stands. Another strategy is to remove trees that have recently died as a means of removing centers of potential breeding activity.

The proposed action does not include green stand treatments (other than 2,500 acres of existing plantation thinning); however, the application of the standard of salvaging trees with trees with less than 20 percent bright green crown should accomplish removal of some bark beetles. Since the mortality is still occurring (one year after the fire) and is expected to continue, the proposed salvage and fuels treatment activity would remove some of the newly available habitat that is being created by the progression of tree mortality.

Develop a Long-Term Sustainable Forest Maintainable by re-introduction of fire

The 2002 fire occurred within a forested condition that was characterized by a high tree density and a multi-storied structure that was outside of HRV. This condition was a primary contributing factor to the stand replacing fire behavior that occurred in portions of the Toolbox Complex. Low density, open park-like stands were historically maintained by frequent (8 to 20 years) low-intensity fires. These fires occasionally killed a large tree, but more importantly killed most of the young tree reproduction, burned down branches and trees, and burned off the tops of brush and grasses.

Success in the long-term development of a sustainable forest depends on reforestation, on facilitating the eventual return of fire to areas that were historically fire-dependent, and on maintaining stand conditions and fuels conditions that do not contribute to future fires with large-scale stand replacement mortality. Conditions following the 2002 fires, in which thousands of large and old trees were killed, represent a departure from the historical condition. Mortality at the scale represented by the project area is outside of the range of adaptability of ponderosa pine to naturally reforest, in any time frame less than several hundred years. Without planting, very little ponderosa pine establishment would occur in areas that lack enough seed trees and development of a sustainable stand of LOS could take up to several hundred years. The other important component of developing a long-term sustainable forest is the application of, or natural occurrence of, low intensity stand-tending fire. This requires maintaining stand conditions and fuels conditions that do not contribute to stand replacement fire. In this regard, prescribed fire is an important tool that would be expected to be used in the relatively near future within areas that are reforested, and could be used immediately in areas that burned lightly enough that reforestation is not needed. Expected fuel loading, in the absence of a comprehensive fuels reduction program, would eliminate the option for a prudent application of prescribed fire for many decades to come.

In the original proposed action, as described earlier in this chapter, actions to reduce fuels through salvage activity and site preparation were designed for approximately 50 percent of the project area. By altering the existing and projected fuel loads within the project area, the intensity of future fires in the area would be significantly reduced, thereby improving the sustainability of remaining live stands. By using whole tree yarding and yarding with tops-attached-to (to the “highest” or “last” log), the salvage operation itself (removal of merchantable dead trees) is the initial step of fuels reduction. Fuels treatment in addition to whole tree yarding and leaving tops attached would be used within most salvage units to further reduce fuels created by the fire and by salvage activity. Additionally, outside of harvest units, approximately 3,200 acres would be treated with prescribed fire.

The precommercial thinning in the original proposed action (2,500 acres of existing plantations) would be a step, consistent with LRMP direction, in moving these young stands toward structural conditions that are within the Historic Range of

Variability (HRV). Future steps, such as the application of prescribed fire, would need to be taken in order to continue movement to sustainable conditions.

Salvage Timber for Merchantable Value

Authority to address situations involving salvage of insect-infested, dead, damaged, or down timber and to remove associated trees for stand improvement is found in the National Forest Management Act of 1976, sec. 14(h) (16 U.S.C. 472a(h)). Forest Service Manual (FSM) 2435.04i directs that it is the responsibility of the District Ranger to identify timber stand areas having threatened or actual tree mortality and initiate actions to aggressively address potential salvage situations.

The Fremont National Forest Land and Resource Management Plan (LRMP) (1989), includes Forest-wide management goals to:

- Provide sawtimber and other wood products (including firewood for personal or commercial use) to help sustain a viable local economy.
- Strive for economically efficient management.

Actions taken as part of the salvage harvest must comply with all aspects of the Fremont National Forest Land and Resource Management Plan (1989, as amended), including protection of wildlife habitat and consideration of existing resource characteristics.

The original proposed action included salvage harvest of approximately 21,500 acres in the Silver Creek, Silver Lake, and Summer Lake Watersheds. Most of the proposed timber salvage units would be harvested using ground-based logging systems. Access for salvage would include the use of classified, temporary, and unclassified roads. Connected actions in association with salvage include road reconstruction, treatment of slash, water barring, and erosion control measures such as scattering of slash on skid trails. Salvaged trees would supply raw materials to local or regional industry and ultimately wood products used by the public. The economic impact of potential timber sales would benefit local woods workers as well as local retail and service businesses. That greatest impact would, however, be limited to the period during which logging operations are active. That period is expected to be one year, although some work may go on for up to five years.

Scoping and Public Involvement

Under the terms of the 1999 “Memorandum of Agreement between The Klamath Tribes and the U.S. Forest Service” (U.S. Forest Service and Klamath Tribes 1999), the Toolbox Fire Recovery Project was initially introduced to Klamath Tribal representatives at the August 2002 “pre-SOPA meeting” in Chiloquin, Oregon (SOPA is the acronym for “Schedule of Proposed Actions”). Following the introduction of the project, the Klamath Tribes assigned representatives for the project to work with the interdisciplinary team (IDT) during alternative development. Cultural resource inventory crews, jointly composed of personnel from the Klamath Tribes and the Fremont-Winema National Forests, performed field reconnaissance during the fall of 2002, as well as during the summer of 2003. Concurrent with internal Forest Service review of a draft version of the DEIS, complete copies of that draft were provided for Klamath Tribal review. Specific concerns that were raised through the sum of all consultation with The Klamath Tribes pertained to road management considerations within former Klamath Reservation lands, cultural resource protection, and mule deer habitat (particularly winter and transition range).

Once a specific set of management activities was formulated into a proposed action, public scoping was initiated with a “Notice of Intent to prepare an Environmental Impact Statement” in the Federal Register on November 1, 2002. News releases were published in area newspapers in November and December 2002. The proposed action was mailed to the public and other agencies for comment on November 12, 2002. A total of 214 individuals or organizations received scoping packets. All press releases, as well as the Toolbox Fire Recovery Project proposed action and the SOPA, were placed on the Fremont-Winema National Forests public website at:

<http://www.fs.fed.us/r6/winema/management/analyses/toolbox/index.shtml>

Open Houses held in Christmas Valley and La Pine, Oregon on May 12 and 13, 2003, were used to introduce the alternatives to the public and provide participants with the opportunity to ask questions and submit comments.

As a result of the overall scoping process, written comments, letters, electronic mail responses or phone calls were received from 15 individuals, agencies, businesses, and organizations.

Identification of Issues

Issues are points of discussion, debate, or dispute about environmental effects that may occur as a result of the proposed action or an alternative. Issues provide focus and influence alternative development, including development of mitigation measures to address these *potential* environmental effects, particularly potential negative effects. **Key Issues** are those used to develop the alternatives and design activities to carry out the action alternatives. This involves the consideration of the issue and the identification of potential responses to the issue that would contribute toward meeting Purpose and Need. As a result of both public and internal scoping, five key issues were identified. **Analysis Issues** are generally less focused on the elements of Purpose and Need, than are the Key Issues. Due to their importance in providing the Responsible Official with complete information, these issues are addressed during the effects analysis and are used to compare alternatives. As a result of both public and internal scoping, seven analysis issues were identified. These include: Wildlife (other than wildlife species included under *Key Issues*), Cultural and Heritage Resources, Non-Motorized Recreation, Environmental Justice, Noxious Weeds, Unroaded Lands and Air Quality.

Key Issues

Changes in Motorized Access

Proposed road management activities (closure and decommissioning) would reduce public access for recreation and personal use fuelwood gathering. The proposed would also reduce opportunities for members of the Klamath Tribes to use motorized vehicles to hunt or gather Treaty Right resources within former Klamath Reservation boundaries, using motorized vehicles.

Economic Efficiency and Economic Opportunities

There were concerns expressed about the overall economic return of the proposals. Some commenters felt the cost effectiveness of the project would be reduced by including restoration proposals other than commercial salvage, and by including helicopter yarding for a portion of the commercial salvage. Taken as a whole, this group of concerns, some of which relate directly to timber sale economic viability and some of which do not, were examined by comparing the alternatives in terms of overall economic factors and for a subset of these factors (timber sale economics).

Effects on Soils, Watersheds, and Aquatic Habitat

The proposed salvage and connected actions, including temporary road construction, could potentially have adverse effects on watershed and riparian function and cumulatively contribute to adverse effects on soils.

Effects on Wildlife Habitat

Habitat for snag and down wood dependent species could be negatively impacted by commercial salvage operations through the removal snags. Fuels reduction that includes the use of prescribed fire could negatively impact mule deer habitat by reducing cover. The Toolbox Complex fires had a complex array of effects on wildlife habitats and now present a wide variety of opportunities to restore or enhance those habitats. Two primary habitats emerged as key issues: snag/down wood and mule deer.

Recovery using a limited-intervention approach vs. Recovery using a full range of active management practices, including commercial salvage

This issue embodies divergent public input on which overall approach to recovery best accomplishes actual recovery and restoration. Some commenters believe that recovery and restoration would be better achieved through an approach that did not commercial salvage. Others believed that criteria used for commercial salvage should be less restrictive than proposed.

Specific “**Issue Indicators**” were developed for each of the above issues. Tables presented near the end of this summary display comparisons between the alternatives in terms of the key issues, using these issue indicators. The tables are intended to provide a quick comparison between alternatives. Chapter 3 of the DEIS includes for details of the analysis process and further explanation about the information presented in these tables.

Acres, miles, other quantifiable amounts used in planning are based on the best available information. The analysis presented in the DEIS is based on consideration of the full extent of the acres, miles and other quantities depicted in the alternatives. Ongoing field verification during the summer of 2003, including additional use GPS, is expected to result in adjustments in acreages or possibly other elements, such as mitigations. It’s expected that the magnitude of these adjustments would be within 10% to 15% below (but not above, except for planting) the numbers reported in the DEIS.

Alternatives

The Key Issues led the agency to fully develop and analyze six alternatives. No alternative includes any proposed activity in an inventoried roadless area. No cover reducing activity, in mule deer winter range, is proposed with any alternative.

Alternative A – No Action. This alternative is required and serves as a baseline for comparison of the effects of all of the alternatives. Under Alternative A there would be no change in current management direction or in the level of ongoing management activities within the project area. Work previously planned within the project area would still occur.

Alternative B – Original Proposed Action (not fully developed and analyzed)

Alternative C – Modified Proposed Action. Alternative C, in following the same approach toward meeting the purpose and need as the original proposed action, places an emphasis on providing wood products while contributing to the long-term development of LOS. Alternative C includes adjustments made to the scale and location of proposed activities, primarily based on additional site-specific information derived from resource reconnaissance completed in the fall of 2002, following development of the original proposed action.

Alternative C.....At A Glance

Commercial Salvage (Total Acres of Harvest)	14,441 acres
(subset of the above)	
Commercial Salvage in Riparian Habitat Conservation Areas, other than in Roadside Hazard Corridor (Acres of Harvest)	416 acres
Snag Retention (Percent of Identified Optimal Habitat Retained) – Of 2,689 acres of identified optimal habitat for black-backed and Lewis’ woodpecker	86%
Precommercial Thinning (Acres)	2,214 acres
Reforestation (Total Planting Acres / Site Prep Acres)	20,906 acres / 5,301 acres
Fuels Treatments and Reductions (Acres of Fuels Reduction):	
• <input type="checkbox"/> In ground-based units, additional to yard-tops-attached or whole-tree-yard	10,244 acres
• <input type="checkbox"/> Additional reductions within ¼ mile of Private Land, outside of units	none
• <input type="checkbox"/> Prescribed Fire, outside of salvage units	3,572 acres
Road Management (Percent of Existing Road Miles):	
• <input type="checkbox"/> Left Open	48%
• <input type="checkbox"/> Decommissioned	25%
• <input type="checkbox"/> Closed	27%
Temporary Road Development (Miles: Re-open Existing / New Construction)	21.4 miles / 16.0 miles
Road Reconstruction (Miles of Re-surfacing)	10.9 miles
Does Alternative Propose the Following Soil and Riparian Protection and Restoration Projects? (Yes or No):	
• <input type="checkbox"/> Aspen Enhancement	Yes
• <input type="checkbox"/> Placement of Large Woody Debris	Yes
• <input type="checkbox"/> Deciduous Planting	Yes
• <input type="checkbox"/> Road 2917413 Drainage Improvement	Yes

Alternative D – Fully developed and analyzed. Alternative D approaches recovery through a substantially different mix of the “limited-intervention approach” vs. “active management approach”, than the other action alternatives. It includes the greatest amount of road decommissioning or closure of any of the action alternatives. It retains some commercial salvage, focused in roadside hazard treatment areas and areas where fuel loading is predicted to be very high within 15 years, if no action is taken. While addressing that element of purpose and need (salvage timber for merchantable value), it contains substantially lesser amounts of activity that could potentially contribute to short-term degradation of water quality or adverse cumulative watershed effects (logging, temporary road construction, fuels treatment, prescribed fire), than the other action alternatives.

Alternative D.....At A Glance

Commercial Salvage (Total Acres of Harvest)	6,367 acres
(subset of the above)	
Commercial Salvage in Riparian Habitat Conservation Areas, other than in Roadside Hazard Corridor (Acres of Harvest)	0 acres
Snag Retention (Percent of Identified Optimal Habitat Retained) – Of 2,689 acres of identified optimal habitat for black-backed and Lewis’ woodpecker	92%
Precommercial Thinning (Acres)	2,214 acres
Reforestation (Total Planting Acres / Site Prep Acres)	20,743 acres / 4,830 acres
Fuels Treatments and Reductions (Acres of Fuels Reduction):	
• <input type="checkbox"/> In ground-based units, additional to yard-tops-attached or whole-tree-yard	5,680 acres
• <input type="checkbox"/> Additional reductions within ¼ mile of Private Land, outside of units	none
• <input type="checkbox"/> Prescribed Fire, outside of salvage units	2,450 acres
Road Management (Percent of Existing Road Miles):	
• <input type="checkbox"/> Left Open	46%
• <input type="checkbox"/> Decommissioned	26%
• <input type="checkbox"/> Closed	28%
Temporary Road Development (Miles: Re-open Existing / New Construction)	5.7 miles / 0.0 miles
Road Reconstruction (Miles of Re-surfacing)	6.1 miles
Does Alternative Propose the Following Soil and Riparian Protection and Restoration Projects? (Yes or No):	
• <input type="checkbox"/> Aspen Enhancement	Yes
• <input type="checkbox"/> Placement of Large Woody Debris	Yes
• <input type="checkbox"/> Deciduous Planting	Yes
• <input type="checkbox"/> Road 2917413 Drainage Improvement	Yes

Alternative E – Fully developed and analyzed. Alternative E places an emphasis on economic efficiency in regard to commercial salvage.

Alternative E.....At A Glance

Commercial Salvage (Total Acres of Harvest)	11,490 acres
(subset of the above)	
Commercial Salvage in Riparian Habitat Conservation Areas, other than in Roadside Hazard Corridor (Acres of Harvest)	316 acres
Snag Retention (Percent of Identified Optimal Habitat Retained) – Of 2,689 acres of identified optimal habitat for black-backed and Lewis’ woodpecker	87%
Precommercial Thinning (Acres)	none
Reforestation (Total Planting Acres / Site Prep Acres)	20,753 acres / 5,330 acres
Fuels Treatments and Reductions (Acres of Fuels Reduction):	
• <input type="checkbox"/> In ground-based units, additional to yard-tops-attached or whole-tree-yard	6,723 acres
• <input type="checkbox"/> Additional reductions within ¼ mile of Private Land, outside of units	none
• <input type="checkbox"/> Prescribed Fire, outside of salvage units	none
Road Management (Percent of Existing Road Miles):	
• <input type="checkbox"/> Left Open	70%
• <input type="checkbox"/> Decommissioned	5%
• <input type="checkbox"/> Closed	25%
Temporary Road Development (Miles: Re-open Existing / New Construction)	15.8 miles / 13.3 miles
Road Reconstruction (Miles of Re-surfacing)	10.9 miles
Does Alternative Propose the Following Soil and Riparian Protection and Restoration Projects? (Yes or No):	
• <input type="checkbox"/> Aspen Enhancement	No
• <input type="checkbox"/> Placement of Large Woody Debris	Yes
• <input type="checkbox"/> Deciduous Planting	No
• <input type="checkbox"/> Road 2917413 Drainage Improvement	No

Alternative F – See “Alternatives Considered But Not Given Detailed Study” later in this Summary

Alternative G (Preferred) – Fully developed and analyzed. Alternative G is the Forest Service Preferred Alternative. A *Preferred Alternative* is the set of actions, which, the agency believes, would best fulfill its statutory mission and responsibilities, considering environmental, social, economic, and other factors disclosed in an environmental impact statement. Alternative G places an emphasis on using active management to achieve post-fire recovery, particularly in response to the purpose and need to develop a long-term sustainable forest that is maintainable by re-introduction of fire, while providing some recovery of merchantable timber. It focuses on fuels reduction and long-term fire suppression effectiveness.

Alternative G.....At A Glance

Commercial Salvage (Total Acres of Harvest)	14,419 acres
(subset of the above)	
Commercial Salvage in Riparian Habitat Conservation Areas, other than in Roadside Hazard Corridor (Acres of Harvest)	394 acres
Snag Retention (Percent of Identified Optimal Habitat Retained) – Of 2,689 acres of identified optimal habitat for black-backed and Lewis’ woodpecker	71%
Precommercial Thinning (Acres)	2,214 acres
Reforestation (Total Planting Acres / Site Prep Acres)	20,728 acres / 3,580 acres
Fuels Treatments and Reductions (Acres of Fuels Reduction):	
• <input type="checkbox"/> In ground-based units, additional to yard-tops-attached or whole-tree-yard	11,354 acres
• <input type="checkbox"/> Additional reductions within ¼ mile of Private Land, outside of units	5,596
• <input type="checkbox"/> Prescribed Fire, outside of salvage units	3,572 acres
Road Management (Percent of Existing Road Miles):	
• <input type="checkbox"/> Left Open	70%
• <input type="checkbox"/> Decommissioned	26%
• <input type="checkbox"/> Closed	4%
Temporary Road Development (Miles: Re-open Existing / New Construction)	21.4 miles / 16.0 miles
Road Reconstruction (Miles of Re-surfacing)	10.9 miles
Does Alternative Propose the Following Soil and Riparian Protection and Restoration Projects? (Yes or No):	
• <input type="checkbox"/> Aspen Enhancement	Yes
• <input type="checkbox"/> Placement of Large Woody Debris	Yes
• <input type="checkbox"/> Deciduous Planting	Yes
• <input type="checkbox"/> Road 2917413 Drainage Improvement	Yes

Alternative H – Fully developed and analyzed. Alternative H focuses on wildlife habitats and on contributing to the long-term development of LOS while providing some recovery of merchantable timber.

Alternative H.....At A Glance

Commercial Salvage (Total Acres of Harvest)	13,031 acres
(subset of the above) Commercial Salvage in Riparian Habitat Conservation Areas, other than in Roadside Hazard Corridor (Acres of Harvest)	0 acres
Snag Retention (Percent of Identified Optimal Habitat Retained) – Of 2,689 acres of identified optimal habitat for black-backed and Lewis’ woodpecker	92%
Precommercial Thinning (Acres)	2,214 acres
Reforestation (Total Planting Acres / Site Prep Acres)	20,721 acres / 4,695 acres
Fuels Treatments and Reductions (Acres of Fuels Reduction): <ul style="list-style-type: none"> • <input type="checkbox"/> In ground-based units, additional to yard-tops-attached or whole-tree-yard • <input type="checkbox"/> Additional reductions within ¼ mile of Private Land, outside of units • <input type="checkbox"/> Prescribed Fire, outside of salvage units 	9,070 acres none 2,450 acres
Road Management (Percent of Existing Road Miles): <ul style="list-style-type: none"> • <input type="checkbox"/> Left Open • <input type="checkbox"/> Decommissioned • <input type="checkbox"/> Closed 	47% 26% 27%
Temporary Road Development (Miles: Re-open Existing / New Construction)	19.7 miles / 14.9 miles
Road Reconstruction (Miles of Re-surfacing)	10.9 miles
Does Alternative Propose the Following Soil and Riparian Protection and Restoration Projects? (Yes or No): <ul style="list-style-type: none"> • <input type="checkbox"/> Aspen Enhancement • <input type="checkbox"/> Placement of Large Woody Debris • <input type="checkbox"/> Deciduous Planting • <input type="checkbox"/> Road 2917413 Drainage Improvement 	Yes Yes Yes Yes

Forest Plan Amendment (Alternatives C and G)

Following the July 2002 fires, mule deer cover and habitat effectiveness in the project area is currently below Forest Plan standards and guidelines. Proposed prescribed burning in these alternatives is expected to result in reduction of cover for mule deer in transition and summer ranges, in some areas (some subwatersheds). The purpose of the prescribed burning is to promote the long-term development and maintenance of LOS forest conditions in some areas where the July 2002 fires did not result in stand replacement fire.

Since mule deer cover and habitat effectiveness is currently below standards and guidelines, and the prescribed burning would further lower mule deer cover, this alternative would require a site-specific amendment to the Forest Plan (1989).

Specifically, Forest Plan Standards for **mule deer cover** would be amended to the levels identified in this alternative, within the project area, for:

- Summer range in the East Duncan, Lower Duncan and Upper Duncan Creek subwatersheds
- Transition range in the East Duncan Creek subwatershed

Forest Plan Standards for mule deer habitat effectiveness would be amended, within this project area, for:

- Summer range in the Lower Duncan Creek subwatershed

Mitigation and Resource Protection Measures

Mitigation and Resource Protection Measures that apply to all action alternatives are detailed in the DEIS (Chapter 2, pages 44-56). They include protective measures pertaining to Wildlife, Recreation, Aquatics and Soils, Sensitive Plants and Noxious Weeds, Range, Scenery, Cultural Resources and Air Quality. In addition, Appendix C of the DEIS contains Mitigation Details, Timber Best Management Practices, Road Best Management Practices and the Fremont National Forest Soil Productivity Guidelines.

Monitoring

A monitoring plan is provided in Appendix D of the DEIS. This monitoring is incorporated as an integral feature of Alternatives C, D, E, G, and H.

Alternatives Considered But Not Fully Analyzed

During initial public scoping and initial alternative development, several suggested alternatives were considered for detailed study. The following section briefly describes these alternative concepts and the reasons they are not given detailed study.

Alternative B (Proposed Action) – previously discussed

Alternative F (Restoration-only/Passive Approach) - A no-commercial logging alternative emphasizing a passive approach to restoration based on “Beschta Report” recommendations was suggested in a scoping response. During alternative development, Alternative F was the working title given to such an alternative. Its conceptual parameters included none, or a very limited amount of salvage (salvage only hazardous trees adjacent to main Forest roads), small diameter fuels treatment only in areas where subsequent fuel loadings would present the very highest risk of subsequent high intensity wildfire, prescribed fire limited to areas where no pre-treatment would be required, planting of ponderosa pine seedlings limited to those areas where the minimal amount of salvage triggered the requirement to reforest, no plantation thinning, and a full array of road decommissioning and other soil and water protection and restoration projects. This alternative was considered, but not developed as a complete entity because it would not meet purpose and need in regard to reducing future surface fuel loading, developing a long term sustainable forest that is maintainable by re-introduction of fire, or recovery of merchantable value. A more complete discussion is included in Chapter 2 of the DEIS.

Comparison of Alternatives

This section presents tables that summarize and compare the alternatives by activities considered and effects in regard to key issues. For more detail, refer to Chapters 2 and 3 of the DEIS.

Table S.1 Comparisons of Activities and Key Issue-Related Effects

KEY ISSUE and Indicators		Alt.	Alt.	Alt.	Alt.	Alt.	Alt.
<i>Changes in Motorized Access</i>		A	C	D	E	G	H
Access and Road Management (Project Area, as a whole)	Leave Open (Miles)	271.0	129.1	123.9	188.9	188.9	126.5
	Close and Decommission (Miles)	0	141.9	147.1	82.0	82.0	144.5
	Open Rd. Density (Miles/Sq. Mi.)	3.7	1.8	1.7	2.6	2.6	1.7
Access and Road Mgmt. (Former Klamath Reservation)	Leave Open (Miles)	12.4	12.4	7.4	9.7	9.7	9.7
	Close and Decommission (Miles)	0	0	5.0	2.7	2.7	2.7
	Open Rd. Density (Miles/Sq. Mi. }	3.8	3.8	2.3	3.0	3.0	3.0
<i>Economic Efficiency and Opportunity</i>		A	C	D	E	G	H
Commercial Salvage	Total Volume Million Board-Foot (MMBF) / Acres	0	73.3	33.7	66.1	73.2	63.8
		0	14,441	6,367	11,490	14,419	13,031
Logging Systems	Ground-Based (% of Volume)	N/A	94.4%	90.5%	95.9%	94.7%	100%
	Helicopter (% of Volume)	N/A	5.6%	9.5%	4.1%	5.3%	0%
Temporary Road	Re-open Unclassified Rds (Miles)	0	21.4	5.7	5.8	21.4	19.7
	New Development	0	16.0	0.0	13.3	16.0	14.9
Net Timber Value	\$ per mbf	N/A	82.25	91.09	95.95	85.40	85.81
	Total (million \$)	0	6.2	3.1	6.3	6.2	5.5
Job Support	Direct Jobs	0	550	253	495	549	479
	Total Jobs, incl Indirect	0	825	379	744	824	718
Present Net Value	Current Projects @ 4% Disc. Rate (million \$)	0	- 5.2	- 7.7	- 3.3	- 6.1	- 5.3
<i>Effects on Soils, Watersheds and Aquatic Habitat</i>		A	C	D	E	G	H
Effect on Functionality of Uplands (Restore – R; Maintain –M; Degrade – D)		R/M/D	R/M/D	R/M/D	R/M/D	R/M/D	R/M/D
<div style="border: 1px solid black; padding: 5px; width: fit-content;"> The numbers to the right represent the number of subwatersheds within the analysis area (from amongst the eight subwatersheds), that would be Restored; Maintained; or Degraded, in relation to the listed parameter, by the given Alternative – listed in that order: R/M/D </div>	Roads	0/2/6	6/2/0	6/2/0	0/8/0	0/8/0	6/2/0
	Canopy	0/8/0	0/8/0	0/8/0	0/8/0	0/8/0	0/8/0
	Soil	0/8/0	0/8/0	0/8/0	0/8/0	0/8/0	0/8/0

Table S.1 Comparisons of Activities and Key Issue-Related Effects (continued)

KEY ISSUE and Indicators	Alt. A	Alt. C	Alt. D	Alt. E	Alt. G	Alt. H
<i>Effects on Soils, Watersheds and Aquatic Habitat (continued)</i>						
Effect on Functionality of <u>Riparian Vegetation</u> and <u>Bank Stability</u> (Restore – R; Maintain –M; Degrade – D)	R/M/D	R/M/D	R/M/D	R/M/D	R/M/D	R/M/D
The numbers to the right represent the number of subwatersheds within the analysis area (from amongst the 8 subwatersheds), that would be Restored ; Maintained ; or Degraded , by the given Alternative – listed in that order: R/M/D	0/8/0	0/8/0	0/8/0	0/8/0	0/8/0	0/8/0
Effect on Functionality of <u>Channel Conditions</u> (Restore – R; Maintain –M; Degrade – D)	R/M/D	R/M/D	R/M/D	R/M/D	R/M/D	R/M/D
The numbers represent the number of subwatersheds within the area (from amongst the 8 subwatersheds) that would be Restored ; Maintained ; or Degraded , in relation to the parameter.						
Pool Freq.	0/8/0	0/8/0	0/8/0	0/8/0	0/8/0	0/8/0
Large Wood	0/7/0	3/4/0	3/4/0	0/7/0	3/4/0	3/4/0
Temperature	0/4/0	0/4/0	0/4/0	0/4/0	0/4/0	0/4/0
Fine Sediment	0/1/0	0/1/0	0/1/0	0/1/0	0/1/0	0/1/0
Fish Passage	0/4/0	0/4/0	0/4/0	0/4/0	0/4/0	0/4/0
<i>Note: Temp., Fine Sediment & Passage are Unavailable for some Subwatersheds; particularly those w/o Perennial Streams</i>						
Soil Fertility (Restoration of “Gap” Architecture – Acres on which actions would reduce “Lignifications”; See Chapter 3)	0	14,441	6,367	11,490	14,419	13,031
Sediment Risk Long-Term Reduction from Enhancement Projects (Tons/Year)	0	0.7	0.7	0.6	0.6	0.7
Reductions in Drainage Density (and therefore reductions in risk of sediment delivery) (Mi/Sq. Mi)	0	0.77	0.80	0.44	0.44	0.78
Amount of Sediment* produced (short-term) in 4 units with “slight” potential for sediment transport (Tons/Acre)	0	0.05	0.05	0.05	0.05	0.05
(Tons/Year)	0	39.1	1.5	39.1	39.1	37.1

*Sediment level is for “Checkpoint 3” – skid trail use in year of harvest (see DEIS Chapter 3, Soils section). Under consideration are the four units in the project area with identified sediment transport potential (Toolbox Units 130, 131, 133 & 133). At the next “checkpoint” following harvest (full live ground cover) sediment would drop to 0 tons/acre and 0 tons/year.

Note: the BAER Report found that background erosion rates were .01-.05 tons/ac and post-fire rates were .06-.09 tons/ac.

Table S.1 Comparisons of Activities and Key Issue-Related Effects (continued)

KEY ISSUE and Indicators		Alt. A	Alt. C	Alt. D	Alt. E	Alt. G	Alt. H	
<i>Effects on Soils, Watersheds and Aquatic Habitat (continued)</i>								
Compaction	Would Proposed Activities Produce Detrimental Soil Conditions in Excess of Regional Standards (20%)?	No	No	No	No	No	No	
Soil and Riparian Protection and Restoration Projects	LWD Placement (Miles)	0	9.6	9.6	9.6	9.6	9.6	
	Aspen Enhancement (Acres)	0	690	690	0	690	690	
	Deciduous Planting (Acres)	0	7	7	0	7	7	
	Improve Rd 2917413 Drainage?	No	Yes	Yes	No	Yes	Yes	
Aquatic Habitat	Attainment of INFISH Riparian Management Objectives – Yes or No?	Yes	Yes	Yes	Yes	Yes	Yes	
<i>Effects on Wildlife Habitat</i>		A	C	D	E	G	H	
Snag & Down Wood Habitat Retained	Optimal Black-backed WP (Ac)	1789	1620	1712	1651	1218	1699	
	Optimal Lewis' WP (Acres) <i>(See DEIS Ch. 3 for discussion of other aspects of retention strategy)</i>	900	683	770	697	684	785	
Mule Deer Habitat Effectiveness	Winter Range (H.E. %)	10.6	12.2	12.2	12.0	12.0	12.2	
	Transition Range (H.E. %)	6.3	8.0	8.0	7.3	7.3	8.0	
	Summer Range (H.E. %)	34.0	40.3	41.5	38.6	38.6	40.3	
<i>Recovery of Sustainable LOS</i>		A	C	D	E	G	H	
Fuel Treatment & Fire Behavior	Additional fuels treatment (in units, post-harvest); or in ¼ mile buffer area (Acres)		0	10244	5680	6723	16950	9070
	Resistance to Control in Areas of Treatment (see above row)	Rate of Spread (Chains/Hr)	2 to 6*	1 to 3				
		Flame Length (Ft)	2.8-5.8*	1.5 - 1.8	1.5 - 1.8	1.5 - 1.8	1.5 - 1.8	1.5 - 1.8
	* Fuel Model 12. A fire start would likely be beyond the capabilities of initial attack with typically available forces. If the start occurred during a significant “lightning bust”, it’s possible that a large, intense stand replacement wildfire would result. Alternative A would not affect the chances for a fire start to occur, but the un-manipulated fuel succession that would result would produce persistently elevated fuel loadings, characterized as Fuel Model 12 (in many areas). These fuels conditions would pose a threat to the development and sustainability of LOS conditions.							
	Rx Fire Outside Harvest Units - (Acres) Prescribed fire would break up the continuity of the fuels and move the areas treated into a more fire resistant condition		0	3572	2450	0	3572	2450
Development of LOS - Acres with combinations of treatment (fuels reduction-site prep-planting) that would most likely result in future sustainable LOS stands		0	12894	8095	9388	13144	11417	

Scope of the Project, Analysis and Decision Framework

The scope of the project and the decision to be made are limited to: Commercial salvage; snag retention; precommercial thinning; reforestation; fuels treatments and reductions, including prescribed fire; road management; watershed, riparian and wildlife habitat improvement activities; and mitigation and monitoring within areas burned by the fires of 2002. The project is limited to National Forest System lands within the project area. Connected actions to be included in the decision include: temporary road development and classified road reconstruction.

The analysis of effects in the DEIS includes cumulative effects of other activities (past, present, and reasonably foreseeable future). These include a variety of past events and management activities, including the fires of 2002, past timber harvesting, and road construction. The past events and activities are reflected in the descriptions of the affected environment in Chapter 3 of the DEIS, and summarized in DEIS Appendix A. Relevant and applicable past, present, and reasonably foreseeable activities on private, state, and other federal lands are also considered in the analysis of cumulative effects. The analysis assumes that the majority of fire-killed timber on private lands has been or will be salvage harvested.

The range of alternatives considered in this analysis is based on key issues and is influenced by public and other agency comments. Given the issues raised in comments, the number of potential combinations and permutations of alternative strategies, activities, prescriptions, and locations of activities present a potential for several possible alternatives. The alternatives considered in this analysis represent a reasonable range of approaches to burned area recovery that are responsive to the stated purpose and need.

The actions proposed in the document are not intended to serve as a general management plan for the area. The proposed actions do not represent a comprehensive access management plan that includes actions outside the project area. The access restrictions considered in this analysis result from the proposed roadwork to improve watershed conditions in specific drainages or are needed to comply with the Forest Plan standard for habitat effectiveness in identified areas.

If the Responsible Official selects an action alternative as a result of the analysis, implementation of the activities specifically identified will begin as soon as possible and without further NEPA documentation. The Responsible Official could also modify a selected alternative to address issues at the time of decision.

The Responsible Official for this proposal is the Forest Supervisor of the Fremont-Winema National Forests. Based on the analysis in the Final EIS, the Responsible Official will make the following decisions and document them in a Record of Decision:

- The extent, if any, of commercial salvage, fuel reduction, reforestation, watershed, riparian and wildlife habitat improvement activities, access management, and classified road reconstruction to be implemented. And, if implemented, where and how these activities would be conducted.
- Resource protection measures, including mitigation.
- Appropriate monitoring requirements to evaluate project implementation.
- Whether a site-specific Forest Plan amendment is required for implementation, the nature of the amendment, and whether the amendment would be a significant change to the Forest Plan. Alternatives C (modified proposed action) and Alternative G would require a site-specific Forest Plan amendment for mule deer cover, outside of winter range, within portions of the project area.

The decision regarding which combination of actions to implement will be determined by comparing how each factor of the project purpose and need is met by each of the alternatives and the manner in which each alternative responds to the key issues raised and public comments received during the analysis. The alternative, which, in the determination of the Responsible Official, provides the best mix of prospective results in regard to purpose and need, the issues and public comments, will be selected for implementation.

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