

Record of Decision (ROD)

Toolbox Fire Recovery Project

USDA Forest Service
Silver Lake Ranger District, Fremont-Winema National Forest
Lake County, Oregon

T 29 S, R 13-16 E; T 30 S, R 13-16 E; and T 31 S, R 13-15 E, Willamette Meridian

Background

Prior to about 1900, a pattern of frequent low intensity disturbance from fire was present in the Toolbox Fire Recovery Project area, as well as throughout much of the interior West (Everett, 1993, Agee 1993, Miller 2002). This pattern was a primary factor in maintaining a relatively stable or sustainable forest condition, particularly in ponderosa pine forests. Sustainability 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, contribute to the occurrence of extreme, uncharacteristic, large scale stand replacement wildfires.

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. These fires covered approximately 85,000 acres, including about 49,500 acres of National Forest System lands, 8,000 acres of Bureau of Land Management land, and 27,500 acres of private land. The project area totals approximately 47,200 acres of Fremont National Forest System lands burned by the Toolbox Complex, within:

Silver Creek Watershed –
(Includes the following subwatersheds)

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

Silver Lake Watershed –
(Includes the following subwatersheds)

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

The National Forest System lands that comprise the project area lie within the following legal descriptions:

T 29 S, R 13 E – Sections 26, 27, 34-36

T 29 S, R 14 E – Sections 17-21, 30-33

T 29 S, R 15 E – Sections 12-13, 22, 24-29, 31-36

T 29 S, R 16 E – Sections 18-20, 29-35

T 30 S, R 13 E – Sections 1-3, 8-17, 20-28, 34-35

T 30 S, R 14 E – Sections 4-9, 11-14, 19, 23-26, 30-31, 34-35

T 30 S, R 15 E – Sections 1-5, 7-12, 17-22, 25-35

T 30 S, R 16 E – Sections 2-3, 6, 8-11, 15, 17, 20-22, 28-33

T 31 S, R 13 E – Sections 1-3, 10-14

T 31 S, R 14 E – Sections 1-2, 5-6, 11-13

T 31 S, R 15 E – Sections 1-2, 4-11, 14-18, 21

T 31 S, R 16 E – Sections 5, 8, 17, 20-21, 28

Future conditions within the Toolbox Fire Complex, in the absence of some form of active management, would be likely to perpetuate an unstable or non-sustainable scenario. Since tree densities were very high before the 2002 fires and these fires killed many trees, 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 contribute to 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, periodic low-intensity fires thinned these areas when the regeneration was young and kept tree densities low. Now however, after this stand replacing surface and crown fire, the fuel loadings that will be created when the standing dead trees fall over would have the practical effect of eliminating from consideration the use of prescribed fire. Prescribed fire is 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, if they are left in place.
- In addition, if untreated, these future fuel conditions would be well above not only historical conditions but also above surface fuel loadings just prior to the 2002 fires. In the event of a fire start over the next several decades, such conditions would contribute to another round of high intensity fire outside of the historical pattern of low intensity, “stand-tending” fires. The potential for soil damage is higher with heavy fuels comprised of both large down trees and concentrations of smaller trees close to the ground, than the 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 Fremont-Winema National Forest has developed project proposals, analyzed in an EIS, to support the purposes of this project. **The purposes of this project are to:**

- As quickly as feasible, create sustainable forest, stream, and riparian habitats within the project area that meet the desired conditions established by the Fremont National Forest Land and Resource Management Plan (LRMP).
- Provide the highest production of commercial timber and jobs consistent with the first purpose above.
- Retain the most snag and down wood habitat consistent with the first purpose above.
- Retain the most mule deer habitat effectiveness consistent with the first purpose above.
- Retain the most roaded access consistent with the first purpose above.

It is expected that the projects will be implemented between 2004 and 2011. The underlying needs for action derive from the differences between current resource conditions and desired, sustainable, resource conditions as discussed in the LRMP (“Forest Plan”), as amended. The proposed action is designed to move current resource conditions closer to the desired conditions. **There are six underlying needs for the project:**

- *The need for wildlife habitat within the project area, including snags and down wood, and live forest.* The LRMP directs retention of certain levels of these habitat components. The objective of this direction is to ensure sale activities are designed to retain or develop habitat to provide for the needs of snag and down wood dependent species, old growth dependent species, threatened, endangered and sensitive (TES) species, and mule deer.

A component of the need for wildlife habitat is the need for fewer roads within the project area. The LRMP provides direction to reduce overall road densities to 2.5 miles of road per square mile of land. While roads provide desired access for many purposes, such as recreation, fuelwood gathering, and timber harvest, they can increase human disturbance of wildlife such as big game. Current overall road density on Forest Service lands within the project area is 3.68 road miles per square mile of land.

- *The need for lower surface fuel loadings within the project area.* The LRMP establishes the objective of creating a healthy forest condition, including protection from the damage caused by uncharacteristic wildfire. With lower fuel loads, future fire behavior would be more similar to the low-intensity wildfires that previously characterized fire patterns in the low-elevation forests in this area. Lower fuel loads would reduce the risk of adverse effects to vegetation and soils that can result from long-residence heat caused when heavy down fuels burn. Lower fuel loads would also allow expanded use of prescribed fire, which is a relatively economic way to maintain healthy forest conditions and develop open park-like stands.
- *The need for high-quality fish and riparian habitat within the project area.* The LRMP establishes an objective of managing all waterbodies (Management Area 15) to maintain or improve water quality, fish habitat, recreation opportunities, and riparian habitat for dependent wildlife species. The Toolbox Fire complex burned twenty-eight linear miles of riparian areas along perennial fish-bearing streams or their intermittent tributaries.

A component of the need for high-quality fish and riparian habitat is the need for fewer roads within the project area. While roads provide desired access for many purposes, such as recreation, fuelwood gathering, and timber harvest, they can also interrupt groundwater flows and introduce unhealthy amounts of sediments into streams.

Aspen and willow trees provide important components of riparian habitat. In some parts of the project area, aspen has quickly regenerated since the 2002 fires and will need interim protection from browsing by livestock or big game until it grows larger. Before the fires, some parts of the riparian habitat within the project area had already lost many of their deciduous trees because of conifer encroachment and competition. The 2002 fires removed much of the conifer encroachment, and the opportunity exists to re-establish the deciduous component on these sites through planting.

- *The need for endemic, rather than epidemic, populations of bark beetles within the project area.* The LRMP establishes the objective of creating a healthy forest condition, including protection from the damage caused by insects. Trees killed by the 2002 fire, as well as those weakened by the fires and presently dying, provide breeding habitat for bark beetles and allow them to proliferate.
- *The need for forest stands with structural conditions closer to the Historic Range of Variability (HRV) within the project area.* The LRMP, as amended, provides direction to move forest stands toward these conditions, including the development of large diameter, open canopy structure and open park-like stands. For eastside low-elevation forests, such conditions offer the best likelihood of sustainability over the long term. Developing a forest with structural conditions closer to HRV requires fuel loads low enough to safely re-introduce fire as a periodic disturbance agent. The 2002 fires created forest conditions inside the project area that are very different from the HRV. Compared to the HRV for the area, there are now many more standing dead trees (of all sizes) and far fewer live large, old trees. Also, the project area will contain much higher fuel loads than were present historically as the dead trees begin to fall.
- *The need for commercial timber production within the project area.* The LRMP directs or authorizes the production of timber, including salvage timber, from many of the management allocations within the project area, within standards and guidelines established to meet a variety of other resource objectives. There is currently a short-term opportunity to capture value from the trees killed in the fire and a long-term opportunity to develop a sustainable forest that will yield future commercial volume in accordance with management direction. In some parts of the project area there is a need for some road reconstruction and some temporary roads so the dead trees can be removed safely and economically.

The environmental impact statement documents the analysis of five action alternatives to meet these needs.

Decision

Based upon my review of all alternatives, I have decided to implement Alternative G, with modifications. Alternative G places an emphasis on using active management to achieve post-fire recovery, particularly in response to the purpose and need to develop forest stands with structural conditions closer to HRV, while providing some commercial timber production. It focuses on fuels reduction and long-term fire suppression effectiveness (a direct contributor to promoting forest stands with structural conditions closer to HRV). The reasons for my decision are presented in the section titled “Reasons for the Decision,” which begins on page 15.

The actions listed below are authorized with the selection of Alternative G (Modified); see details following (all quantities are approximate):

- Commercial Salvage – 10,214 acres (an estimated 36.0 mmbf)
 - Temporary Roads (connected action to Commercial Salvage) – 21.5 miles
 - Road Reconstruction (connected action to Commercial Salvage) – 4.0 miles
- Road Management
 - Left open – 129.1 miles
 - Decommissioned – 69.0 miles
 - Closed – 72.9 miles
- Reforestation (Planting) – 20,071 acres
- Precommercial Thinning – 2,214 acres
- Fuels Treatments and Reductions
 - Within Commercial Salvage Units – 8,488 acres
 - Outside of Commercial Salvage Units – 7,374 acres
- Prescribed Fire – 2,362 acres
- Riparian Protection and Restoration Projects:
 - Aspen Enhancement – 690 acres
 - Placement of Large Woody Debris (LWD) – in approximately 9.6 miles of perennial fish bearing stream
 - Deciduous Planting – 7 Acres
 - Road 2917413 Drainage Improvement – installation of a cross drain culvert

With this decision, modifications have been made to Alternative G (as it was described in the FEIS) pertaining to the amount of commercial salvage in Riparian Habitat Conservation Areas (RHCAs), temporary roads, road closure and decommissioning, fuels treatments/reductions and prescribed fire. These modifications are displayed, by activity, in the “Details of Authorized Actions” section within highlighted boxes:

(Example... **Modification from Alternative G:** ...)

Modifications, as used in this ROD, often refer to “dropped” activities. Modifications of Alternative G differ from “deferred” activities. The authorized acreages reported above do not include deferred areas. Relatively small acreages of the following activities, that were analyzed as components of Alternative G and remain a part of Alternative G (Modified), are deferred from implementation, pending final completion of cultural resource surveys: Reforestation with Site Preparation (about 170 acres), Fuels Treatments outside of Commercial Salvage Units (about 382 acres) and Prescribed Fire (about 750 acres). Deferred areas will be authorized under a separate decision document(s). For further discussion of activities that remain components of Alternative G (Modified), but that are deferred and not authorized with this decision, see a later heading in this ROD “Portions of Alternative G (Modified) that are Deferred from Authorization”.

Details of Authorized Actions

Commercial Salvage

Refer to FEIS Maps 19 and 20. Alternative G (Modified) includes salvage harvest of approximately 10,214 acres within a total of 268 harvest units. The Toolbox Fire portion includes 156 harvest units and the Silver Fire portion includes 112 harvest units. Total harvest volume is estimated to be 36.0 mmbf (million board feet). Of the 268 salvage units in Alternative G, 265 units, totaling approximately 9,994 acres, with an estimated timber volume of 35.2 mmbf, will use ground-based logging systems. Three salvage units in Alternative G, totaling approximately 220 acres, with an estimated timber volume of 0.8 mmbf, are helicopter units. Information on a unit-by-unit basis is provided in FEIS Appendix B.

Modification from Alternative G: Parts of six harvest units, totaling 16 acres, have been dropped from Alternative G with this decision. This includes all 16 acres of harvest that were proposed in Category 1 (perennial fish bearing stream) Riparian Habitat Conservation Areas (RHCAs)*. Specifically:

- Unit 179 – reduced from 15 acres to 11 acres
- Unit 217 – reduced from 38 acres to 37 acres
- Unit 220 – reduced from 7 acres to 4 acres
- Unit 236 – reduced from 15 acres to 11 acres
- Unit 245 – reduced from 68 acres to 65 acres
- Unit 261 – reduced from 79 acres to 78 acres

*RHCAs are zones adjacent to riparian features that have specific management objectives aimed at maintaining or improving water quality and aquatic habitat. Category 1 RHCAs are typically 300-foot wide zones extending from the edges of the active stream channel on each side of a perennial fish-bearing stream. Category 3 RHCAs are typically 150 foot wide zones that extend from the edge of a wetland that is greater than 1 acre in size. Category 4 RHCAs are typically 50-foot wide zones that extend from the edges of the channel on each side of an intermittent non-fish bearing stream or wetland smaller than 1 acre in size.

Within commercial salvage units, ponderosa pine, lodgepole pine, or white fir trees with less than 20 percent bright green crown (as opposed to dull or fading) will be considered eligible for salvage harvest, with no diameter limits, if not reserved for retention for habitat or other resource reasons. In addition to the above criteria, in mixed conifer stands, white fir trees less than 21” diameter breast height (dbh) will be considered eligible for salvage harvest if bole char is visible for 30 percent or greater of the circumference of the bole or root collar. White fir trees have a much thinner bark than ponderosa pine and are highly susceptible to cambium death from heat damage. Existing merchantable down wood within commercial salvage units may be removed to the extent that a minimum of 80 lineal feet per acre remains.

Approximately 80 percent of the sawtimber volume will be ponderosa pine, 10 percent will be white fir, and 10 percent will be lodgepole pine. Volume estimates are based on the best available information. For this analysis, the main body of information is mortality mapping from September 2002 aerial photos, supplemented with on-the-ground reconnaissance through the fall of 2003. Volume estimates and harvest projections are based on the expectation that some additional mortality, from both the direct effects of fire and the effects of insects, would occur up until the actual time of harvest. Actual volume will be determined by applying the above “salvage eligibility” criteria to the areas designated for salvage harvest at the actual time of implementation.

All operations will occur within a framework defined by specific mitigation measure developed for this project (see FEIS Chapter 2, pages 2-48 to 2-61), Road Best Management Practices (BMPs), Timber Best Management Practices, and the Fremont National Forest Soil Productivity Guide (USDA Forest Service, 2000; updated 2002). See FEIS Appendix C for complete documentation of BMPs.

Trees smaller than 14 inches dbh may not be merchantable by the time timber sales are expected to proceed (Spring to Summer 2004). As material deteriorates, the mix of volume, between sawtimber and fiber, will trend in the direction of fiber. If there is an unfavorable fiber market, then some of the harvest units may not be offered due to market conditions. Other activities planned within such units may continue, including tree felling and fuels treatment, to insure that planting could be prudently implemented.

All roads used for timber haul will receive road maintenance in accordance with the timber sale contract, including dust abatement. All roads used for timber haul or other contractor access are subject to OSHA requirements. The criteria that will determine whether hazard abatement will be accomplished through “fall and leave” vs. “fall and remove” will be based on LRMP standards and guidelines for down wood. Fall and remove trees could be “included timber” in a timber sale by approval under timber sale contract provisions. Fall and remove will be applied only to trees in areas that have more down wood than required by Forest Plan Standards and Guidelines (80 lineal feet of downed wood per acre).

Two ‘subsets’ of commercial salvage are Roadside Hazard (and Maintenance) Salvage and Salvage Harvest within Riparian Habitat Conservation Areas. Roadside salvage is further divided into two categories:

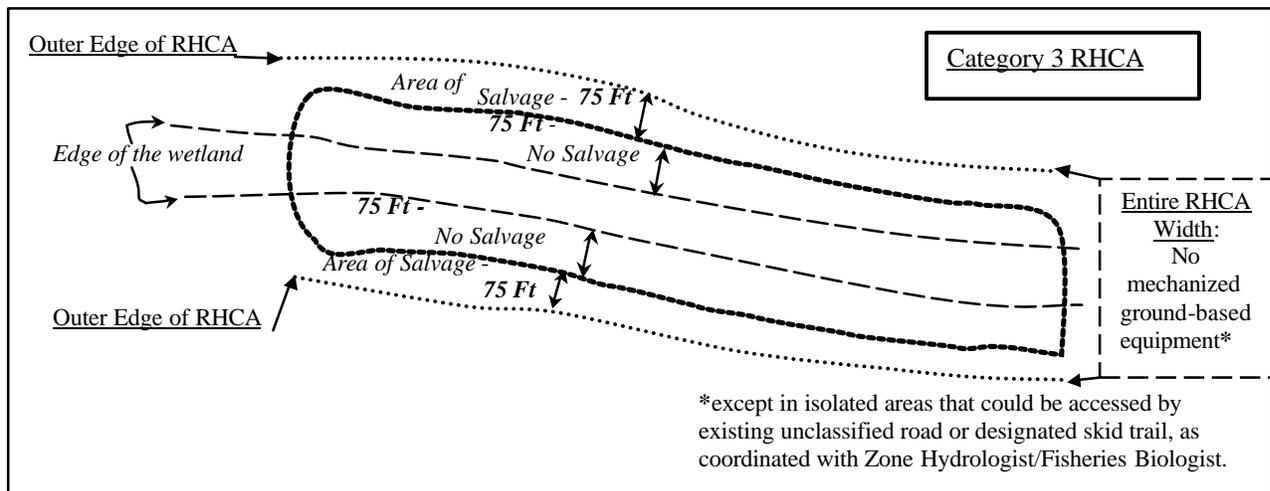
- a.) Alternative G (Modified) will commercially salvage approximately 1,084 acres that are outside RHCAs and within 150 feet of a road with a Maintenance Level of 3, 4, or 5 (covered under the Highway Safety Act) or other roads with an aggregate (gravel) surface. An additional criterion that was used to select roadside treatment areas is whether the road passes through an area that experienced 26 percent or greater mortality, according to September 2002 mortality mapping. Areas that contained sensitive species or other specific resource protection needs were either mitigated for potential adverse effects or were not included in such units, though public safety at these locations will still be addressed on a case-by-case basis. The objectives of roadside treatment include both public safety and reduction of ongoing maintenance needs. Hazard trees will be considered on a case-by-case basis in areas of lesser mortality (25 percent and less) that are adjacent to Road Maintenance Level 3, 4, 5 or aggregate surfaced roads. Clumps of dead trees will be retained in the

roadside treatment corridors to jointly meet visual and wildlife habitat objectives. In all cases, such clumps will only include trees that could not fall onto the road.

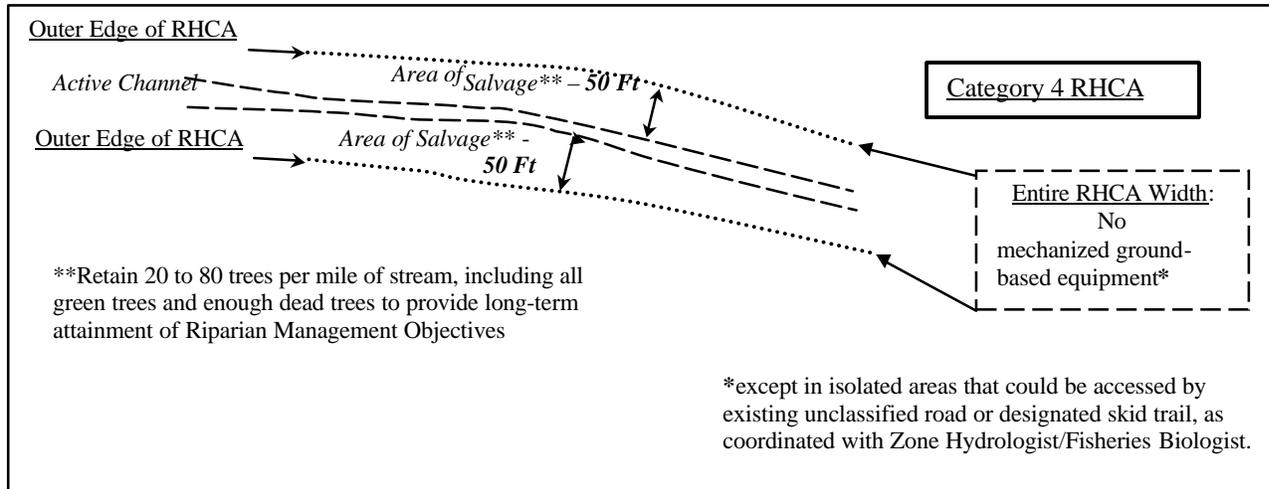
b.) Areas within RHCAs, other than Category 1, were not specifically excluded from roadside treatment. The design of the activity includes specific measures to comply with Fremont National Forest Land and Resource Management Plan (LRMP) Standards and Guidelines and objectives, as amended by the Inland Native Fish Strategy (INFISH). Alternative G (Modified) includes approximately 122 acres of Roadside Hazard (and Maintenance) Salvage within RHCAs. This includes approximately 105 acres within Category 3 RHCAs and 17 acres within Category 4 RHCAs. For those roadside treatment areas within RHCAs, objectives (in addition to public safety and reduction of ongoing maintenance need) include Riparian Management Objectives, as per the Inland Native Fish Strategy (INFISH). Within RHCAs, trees that pose a hazard will be included as commercial salvage only if they are in excess of INFISH objectives for large woody debris (20 pieces per mile greater than 12 inch diameter and greater than 35 feet long). Those trees requiring hazard abatement within RHCA roadside treatment units that are needed to reach attainment of INFISH objectives will be felled and left.

Included in the total commercial salvage are 186 acres within RHCAs that are not in the roadside corridors described immediately above. This includes 0 acres in Category 1 RHCA, 115 acres in Category 3, and 71 acres in Category 4 (there are no category 2 RHCAs in the project area). See FEIS Appendix B for unit-specific information on commercial salvage within RHCAs. All activities within RHCAs will comply with Fremont National Forest Land and Resource Management Plan (LRMP) Standards and Guidelines and Objectives, as amended by the Inland Native Fish Strategy (INFISH). Specifically, the following will be applied to salvage activity within RHCAs, not in roadside hazard corridors:

Category 3 – Ponds, lakes, reservoirs, and wetlands greater than 1 acre: In the outer 75 feet of the RHCA, salvage harvest of selected trees or clumps will be allowed. No mechanized ground-based equipment will be allowed within the entire width of the RHCA, except at existing classified road crossings. An exception to this will be considered in the event that isolated areas of harvest could be accessed by using an existing unclassified road as a temporary road or using a designated skid trail across an RHCA. Such exceptions will be coordinated with the Zone Hydrologist or Fisheries Biologist.



Category 4 – Seasonally flowing or intermittent streams and wetlands less than 1 acre: Site-selective salvage harvest can occur within this RHCA. Between 20 and 80 trees per mile of stream, including all green trees and enough dead trees to provide long-term attainment of Riparian Management Objectives, will be retained. Retained trees will be at least 12 inches dbh and 35 feet tall. No mechanized ground-based equipment will be allowed within the entire width of the RHCA, except at existing classified road crossings. An exception to this may be considered in the event that isolated areas of harvest could be accessed by using an existing unclassified road as a temporary road or using a designated skid trail across an RHCA. Such exceptions will be coordinated with the Zone Hydrologist or Fisheries Biologist.



Snag Retention - Retention of snags for snag and down wood dependent species will be achieved through two primary strategies: 1.) Specifically selected no-salvage/no treatment areas; and 2.) Retention prescriptions within units, which apply to commercial salvage units, as well as site prep (for planting) units and fuels treatment units.

In addition, other areas of no-salvage/no treatment, including those related to cultural resource protection, riparian protection, etc., contribute to habitat for snag and down wood dependent species.

No-salvage areas/no treatment areas have been selected as shown below, following post-fire field inventory, use of GIS coverages and available silviculture data:

- 900 acres that will provide optimal blocks of habitat for species that generally favor large snags (Lewis' woodpecker)
- 1,789 acres that will provide optimal blocks of habitat for species that generally favor smaller snags (black-backed woodpecker)
- 4,938 acres of suitable Lewis' woodpecker nesting habitat
- 4,090 acres of suitable black-backed nesting habitat

Modification from Alternative G: As noted above, 1,789 acres were identified as optimal black-backed woodpecker habitat based on the contiguous size of area and stand characteristics including canopy closure and mortality level. These 1,789 acres are within 12 separate blocks. They are well distributed throughout the project area (six are located in the Silver Fire and six are located in the Toolbox Fire). In Alternative G, the non-commercial fuels treatment in the ¼ mile private land buffer (see description under a subsequent heading) would have affected seven of these twelve areas (two in the Silver Fire and five in the Toolbox Fire) in a manner that would have reduced their size below that needed to provide effective habitat. In sum, 402 acres of optimal black-backed habitat would have been affected in Alternative G by non-commercial fuels reduction within the ¼ mile buffer. **Alternative G (Modified) drops the fuels treatment activity in these 402 acres.** They are located as follows: T 30 S, R 13 E, Sec. 26 and 35; T 30 S, R 14 E, Sec. 13 and 24; T 30 S, R 15 E, Sec. 18, 28, 29 and 32; T 30 S, R 16 E, Sec. 6; T 31 S, R 13 E, Sec. 1 and 2.

Of the above-identified areas, Alternative G (Modified) will retain, in no-treatment areas:

- Approximately 76 percent of the optimal Lewis' woodpecker nesting habitat
- Approximately 91 percent of the optimal black-backed nesting habitat
- Approximately 40 percent of the suitable Lewis' woodpecker nesting habitat
- Approximately 57 percent of the suitable black-backed nesting habitat

Other than the retention achieved by the above areas of no-treatment, prescriptions within commercial salvage units (and within site preparation or fuels treatment units) provide for three different designs to be used for snag clump retention (see below). These design criteria 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.

In areas of less than 50 percent mortality:

Table R.1: Average Number of Snags Per Acre Within Units (Areas of Less than 50 percent Mortality)

Snag Size	Average # snags/acre 1. < 5000' elevation or 2. 5000-5500' elevation and Ecoclass CP-S2-11	Average # of snags/acre 1. > 5500' elevation or 2. 5000-5500' elevation and not Ecoclass CP-S2-11
10-14.9"	0.9	2.0
15-19.9"	1.0	2.0
20-29.9"	0.8	1.7
>30"	0.2	0.4
Total Snags/Acre	2.9	6.1

*CP-S2-11 denotes ponderosa pine - bitterbrush – fescue

In areas of greater than 50 percent mortality:

Table R.2: Average Number of Snags Per Acre Within Units (Areas of Greater than 50 percent Mortality)

Snag Size	Average # snags/acre
10-14.9"	6.0
15-19.9"	2.0
20-29.9"	1.6
>30"	0.4
Total Snags/Acre	10.0

Snags clumps will be retained every 5 to 10 acres within commercial salvage units, fuels treatment areas, and areas of site preparation/fuels treatment. Within a 10-acre area, a minimum of one snag clump will be required, with the exception of narrow units or narrow portions of units (see below). Snag clumps will be representative of the area for which they are being retained, while retaining the largest available snags. Snag clumps will not exceed 2 acres. If the needed snag numbers cannot be achieved within a 2-acre area, the numbers will be made up in another snag clump within the same harvest unit. Snag retention in units or parts of units that are less than 500 feet wide will apply a specific exception to the snag clumping strategy described above. In these narrow units, or parts of units, dead trees that are adjacent to, but outside of, the unit will “count” toward meeting snag retention within the unit or parts of the unit, if the adjacent stand is not proposed for activity and if at least 50 percent of the larger than 10 inch dbh trees are dead. In this case, snags will not be retained within the narrow portion of the unit.

The snag retention strategy for plantations and other areas requiring site-prep that are outside of harvest and/or fuels treatment units is to leave a 2- to 3-acre snag clump every 10 acres.

Temporary Roads

As a connected action to the commercial salvage, it is estimated that approximately 21.5 miles of temporary road will be needed. About 10.5 miles of the 21.5-mile total will simply involve the re-opening of existing unclassified roads. Approximately 11 miles of temporary road will require new construction. The 11 miles of new construction will be on approximately 60 short, separate segments of road. Refer to FEIS Maps 34 and 35 (with additional unit by unit information in the planning record).

Modification from Alternative G: The above estimates for temporary road needs, which have been developed after further field investigation, represent about a 25 percent reduction from FEIS totals in the amount of new temporary road that would be needed to facilitate the commercial salvage activity.

Temporary roads will be built with minimum widths, used for only a short duration, and decommissioned following use. Timber sale contract administration includes collecting deposits from the purchase to insure that temporary road decommissioning will occur, as per BMP intent. No temporary roads will be constructed within Category 1 RHCAs. The BMPs state that temporary roads that are to be used only for one season should have waterbars installed and that those are left open into the fall/winter-wet periods should have all drainage features in place prior to fall/winter wet season. The BMPs note

that surface drainage and erosion are to be controlled through drainage features such as ditching, outslowing, insloping and grade rolling (See FEIS Appendix C). Such drainage features will be used in conjunction with other measures such as slash scattering to ensure that use patterns by the general public don't become established (for example during hunting seasons) during the period that roads are needed for the implementation of Toolbox Fire Recovery project work.

Road Reconstruction

Refer to FEIS Figure 2.3, page 2-31. As a connected action to the commercial salvage, parts of some roads will be surfaced or re-surfaced with pit-run cinders. The following reconstruction, totaling 4.0 miles, will occur:

Table R.3: Alternative G (Modified) Road Reconstruction

ROAD NUMBER	RECONSTRUCTION TERMINI	MILES OF RECONSTRUCTION	SURFACING TYPE REQUIRED
2700 021	Milepost 1.9 to 3038	1.7	Pit Run Cinders-R
2700292	2700296 to 2700591	0.8	Pit Run Cinders-S
2800505	Milepost 0.7, Graham Cr.	0.1	Culvert Backfill
3006	2800 to 3006015	1.4	Pit Run Cinders-R

R = Resurfacing S= Surfacing

The road 2800-505 reconstruction will involve repair work on the roadway at the culvert crossing on Graham Creek, which has washed out part of the roadway surface.

Material will come from three cinder pits that are currently developed:

- Rim Cinder Pit: NW, SE, Sec.34, T.29S., R.16E
- Thompson Cinder Pit: NW, Sec.24, T.30S., R.13E.
- 3004 Cinder Pit: NE, NE, Sec.5, T.31S., R.16E.

Road Management

Modification from Alternative G: Alternative G (Modified) will implement the road decommissioning and closure designs fully analyzed under Alternative C in the FEIS. This is a modification of Alternative G. Refer to FEIS Maps 7 and 8 and FEIS Appendix E. Approximately 72.9 miles of road will be closed (blocked), approximately 69.0 miles of road will be decommissioned, and approximately 129.1 miles of road will be left open. Specific concerns were identified during consultation with The Klamath Tribes that indicated a desire on the part of the Tribes to retain roads in order to fully access treaty right resources. There are approximately 2,065 acres of former Klamath Indian Reservation within the project area boundary. All roads currently open within the former reservation lands will remain open with the implementation of Alternative G (Modified). Overall, as a result of road management actions, open road density in the project area as a whole (on National Forest System lands) will drop to 1.76 miles per square mile.

Precommercial Thinning

This activity entails thinning within approximately 2,214 acres of existing plantations in order to promote the long-term development of sustainable LOS forest conditions. Thinning and slash treatment will be accomplished with either chainsaws or low ground pressure mechanized equipment. Thinning prescriptions that maintain big game hiding cover will be used. Specifically, the stand density objective is approximately 130 trees per acre, including one small, unthinned cover patch per acre.

Reforestation (Planting)

Refer to FEIS Maps 30d and 31d and information under "Portions of Alternative G (Modified) that are Deferred from Authorization", ROD page 14. Alternative G (Modified) includes an estimated 20,241 acres of reforestation (including 170 acres that are deferred). Planting of tree seedlings will occur within areas that experienced loss of stocking due to fire. Due to a variance in current conditions, reforestation needs throughout the project area range from areas on which full reforestation on all acres will occur, such as in areas of heaviest mortality; to areas that were lightly burned and could become fully stocked by "spacing off" from existing green trees. To account for this variance, some areas will be fully planted (all acres planted at desired spacing) while some will be planted somewhat more lightly and some will only be "spot planted."

Reforestation strategies include consideration for several factors, including legal requirements, availability of nursery stock, site preparation, fuels treatment operation scheduling and annual capabilities, planting contractor safety concerns, and size of area that needs reforestation. Seedlings will be typically planted at between 130 and 250 trees per acre, which is anticipated to be

the minimum planting density needed to result in approximately 100 trees per acre (in typical sites) surviving their juvenile period. This then forms the population from which a sustainable LOS forest will be developed in the future. Densities higher than this will occur only on sites with thick, well-established competing vegetation, or areas that have indicators of high expected mortality (such as high gopher activity). This situation is expected to occur in the final years of planting. The need for higher planting densities is based on local, site-specific experience with seedling mortality rates. Most seedlings will be ponderosa pine. Variability in planting pattern is a desired objective and will be achieved as a result of variable site conditions, highly variable need (mortality pattern), and allowance in planting contracts for average spacing that can vary by up to 50 percent in order to plant the best micro-sites (for instance if planting is being done at an average 18-foot spacing, it is allowed that trees be planted as close as 9 feet and as wide as 27 feet).

In order to implement reforestation, site preparation (“site prep”) to remove trees that would be hazardous to planting contractors (under Occupational Safety and Health Administration (OSHA) guidelines) would sometimes be necessary. Mechanical treatments could include bunching, mastication (with a slashbuster or similar equipment), roller-chopper, grapple piling, or yarding, if a fiber market developed. In areas where it was determined that site preparation for hazard abatement was needed in order to plant, all dead standing trees outside of wildlife retention areas would be felled, lopped, and scattered. Where concentrations of down material prevented access to planting spots, additional treatment (either low-ground pressure mechanical treatments or burning) will occur. Mechanical treatments could include bunching, mastication (with a slashbuster or similar equipment), roller-chopper, grapple piling, or yarding, if a market developed.

Site preparation for reforestation will consist of falling dead material and follow-up fuels treatment. Site preparation areas in Alternative G (Modified) include approximately:

- 10,416 acres of fuels treatments with additional site preparation.
- 4,900 acres of site preparation without other fuels treatment (including 170 acres that are deferred).

It is estimated that reforestation, fuels treatment in areas to be planted, and site preparation will occur between 2004 and about 2011, subject to annual capabilities for these activities. This takes into consideration the requirement for safe working conditions in relation to hazards from falling trees. If scheduling scenarios change and unanticipated hazards associated with dead standing trees develop within harvest units, additional acres of site preparation may occur. If such additional site preparation were necessitated, it would not occur in these harvest units any earlier than necessary to meet the 5-year reforestation requirement

No conifer reforestation is proposed within Category 1 RHCAs, to allow the full development of riparian vegetation. In Category 3 and 4 RHCAs, in order to provide future shade and long term large woody debris recruitment, conifer planting will occur in those forested stands that experienced moderate and high vegetative mortality. To promote the development of deciduous riparian vegetation, no conifer planting will occur within 50 feet of any stream channel. Planting in Category 3 and 4 RHCAs will be at a density that achieves sustainable LOS stand conditions at 20 to 40 trees per acre. In other specifically identified areas where the fires produced mortality in areas that had been encroached over the past century by conifers, reforestation will not occur. These are typically “meadow-edge” areas that have been encroached by lodgepole pine.

Fuels Treatments and Reductions

By using whole tree yarding (WTY) and yarding with tops-attached-to-last-log (YTA), the commercial salvage operation itself will provide the initial step of fuels reduction. Limbs and tops piled at the landing will be disposed of later through burning, or if marketable used as chips or firewood. It is estimated that salvage operations will generate approximately 1,000 landing piles.

Within salvage units, fuels treatment in addition to whole tree yarding and leaving tops attached will occur on 8,488 acres (about 83 percent of the total area of salvage). See FEIS Appendix B for a list of units. In contrast with the other action alternatives, Alternative G (Modified) also contains 6,106 acres (including 330 acres that are deferred) additional fuels treatments in areas within ¼ mile of the boundary between National Forest System lands and private lands. About 1,650 acres (including 52 acres that are deferred) that were proposed for commercial salvage (in the DEIS) and were dropped as commercial salvage (in the FEIS) will still receive fuels treatment. Refer to FEIS Maps 23 and 24 and information under “Portions of Alternative G (Modified) that are Deferred from Authorization,” ROD page 14. The primary criteria that determined whether an area dropped from commercial salvage is retained for “Fuels Treatment Outside of Commercial Salvage” is whether the predicted fuel loading, based on percent mortality and stand characteristics, would exceed 20 tons per acre. For all areas, fuels treatment methods could include: piling and burning, hand piling and burning, landing pile burning, air curtain destructors, ladder fuel reduction (thinning - dead trees only), crushing (tomahawk / roller chopper), or mastication (with equipment often referred to as a “slash buster”). All of the above methods are viable options for treating fuels under certain conditions. The primary treatment options are expected to be landing pile burning, ladder fuel reduction thinning,

mastication, and underburning. Snag retention requirements, as described for Commercial Salvage units, would also apply to areas of fuels treatment.

Fuels treatment will be achieved through a mix of strategies, with timber purchasers responsible for activity generated fuels treatment and other planned fuels treatments achieved with appropriated funds. Areas proposed for fuels treatment that would rely on appropriated funds are focused on high priority areas, which improves the probability that such funding will be allocated. In that light, it has been determined that Fire Restoration funding is available to accomplish 2004 and 2005 fuels treatment and site preparation work on a schedule that is consistent with that used to perform the project analysis, as displayed on FEIS pages 3-466 and 3-467.

As per INFISH Standard and Guideline FM-1, fuel treatment strategies in RHCAs are to be designed, "...so as not to prevent attainment of Riparian Management Objectives" (RMOs). The RMOs are specific, measurable habitat parameters that provide a basis for measuring the state of stream function and the attainability of the riparian goals described in INFISH. Fuels treatments in RHCAs will occur through a variety of mechanical means only after the reestablishment of adequate vegetation.

Modification from Alternative G: As previously noted, in Alternative G the non-commercial fuels treatment in the ¼ private land buffer would have affected seven of the twelve optimal black-backed woodpecker habitat areas in a manner that would have reduced their size below that needed to provide effective habitat. Alternative G (Modified) drops 402 acres of non-commercial fuels treatments reductions within the ¼ mile buffer in order to maintain effectiveness in all 12 identified areas of optimal black-backed woodpecker habitat.

Table R.4: Fuels Treatments and Reductions (Modified Alternative G)

Type/Location of Fuel Treatment	Acres
Fuels Treatment in Commercial Salvage Units (besides those within ¼ mile of Pvt. Lands).	4,732
Fuels Treatment in Commercial Salvage Units within ¼ mile of Pvt. Lands, in addition to Whole Tree Yard and Yard Tops Attached.	3,756
Fuels Treatment outside Commercial Salvage within ¼ mile of Pvt. Lands.	6,106
Fuels Treatment outside Commercial Salvage (besides those within ¼ mile of Pvt. Lands). These were Commercial Salvage Units in DEIS, but were dropped from harvest in the FEIS.	1,650
TOTAL	16,244

Approximately 10 percent of the area in the ¼ mile National Forest-Private zone is currently functioning as mule deer cover. None of these cover areas are within Winter Range. In the 10 percent of the buffer area that is mule deer cover, ladder fuel reduction treatments will not occur. This limitation will result in retention of desired wildlife cover. Ladder fuel reduction treatments in all other areas will "slash" (thin) material less than 5 inches in areas with excessive trees. As noted above in the discussion of snag retention, approximately 402 acres that were prescribed for fuels treatment outside commercial salvage within ¼ mile of private lands in Alternative G have been dropped from Alternative G (Modified).

Prescribed Fire

Modification from Alternative G: Alternative G (Modified) includes a prescribed fire treatment (3,112 acres, including 750 acres that are deferred) that is 460 acres smaller than Alternative G. This modification of Alternative G will retain all existing areas that are currently classified as mule deer cover. This modification includes dropping the following:

Range	Subwatershed	Legal Description	Acres Dropped
Transition Range	East Duncan	T 30 S, R 16 E, Sec. 17	33 acres
Summer Range	East Duncan	T 30 S, R 16 E Sec. 20,21,28 and 29	231 acres
	Lower Duncan	T 30 S, R 16 E, Sec. 21	96 acres
	Upper Duncan	T 30 S, R 15 E, Sec. 27 and 34 T 31 S, R 15 E, Sec. 2	100 acres

Refer also to FEIS Map 24 and information under “Portions of Alternative G (Modified) that are Deferred from Authorization”, ROD page 14. This prescribed burn activity is separate from the activity fuels treatments discussed above. It will be primarily outside of harvest units, but there is minor overlap into units. The desired condition is to produce a mosaic of shrub habitat and cover while increasing forest sustainability. The objective is to achieve a 40 percent to 60 percent *burned* / 60 percent to 40 percent *unburned* mosaic. Initially the area would be burned once to meet the desired condition, after which the area would be maintained with a prescribed fire frequency of 20-40 years.

Riparian Protection and Restoration Projects

The following projects are included in Alternative G (Modified):

Aspen Enhancement – Approximately 690 acres of aspen habitat treatments designed to protect or enhance the aspen clone. Refer to FEIS Maps 21 and 22. Each stand will be further evaluated to determine the condition of the aspen and what kind of treatment is appropriate for that stand. Treatments will be designed to mitigate browsing by livestock and big game or the effects of encroachment of conifers and juniper.

Treatment may include the following:

- Thinning of snags or live trees to protect regeneration, encourage aspen growth, and discourage access of livestock or big game. If it is determined that snags need to be felled to meet the objectives, snags will be retained at or above the numbers required within harvest units.
- Fencing.

Placement of Large Woody Debris - This would consist of placement of large woody debris or other in-stream structures to meet Riparian Management Objectives in approximately 9.6 miles of perennial fish bearing stream. Refer to FEIS Map 21.

Deciduous Planting - This would consist of approximately 7 acres of riparian area deciduous plantings. Refer to FEIS Map 21.

Road 2917413 Drainage Improvement - This short road provides access to Bunyard Crossing, a dispersed recreation site. It was identified during the roads analysis process as needing drainage improvement on one section. The road is adjacent to Silver Creek (a perennial, fish bearing stream). Currently the road does not provide adequate drainage, resulting in a section of the road becoming saturated with moisture. This results in sediment being introduced into Silver Creek. Drainage improvement would consist of installing a cross drain culvert for the purpose of eliminating the introduction of sediment into Silver Creek. This is particularly important because of the high vegetative mortality that occurred at this site. Until the vegetation recovers, the potential for sediment movement into the creek is higher, since the roots that helped trap sediment were destroyed.

Forest Plan Amendment

No Forest Plan Amendment is needed with the decision to select Alternative G (Modified). Alternative G (Modified) drops 460 acres of proposed prescribed fire (the acres that trigger LRMP Amendment described in the FEIS) that were included in

Alternative G. Due to this modification of Alternative G, the proposed site-specific Forest Plan amendment for summer range mule deer cover, transition range mule deer cover, and summer range mule deer habitat effectiveness, on an area totaling 460 acres that is included with Alternative G in the FEIS, is not required. The loss of cover that would have been associated with the use of prescribed fire in the areas identified for Alternative G in the FEIS, would not occur, because prescribed fire was dropped from those acres. Neither Alternative G nor Alternative G (Modified) include any prescribed fire on mule deer winter range.

Mitigation and Resource Protection Measures

All Mitigation and Resource Protection Measures that were a part of Alternative G in the FEIS are included as a part of Alternative G (Modified), (see FEIS Chapter 2 pages 2-48 to 2-61) and FEIS Appendix C. In addition, the following mitigation measure modification is included with Alternative G (Modified):

1. Mitigations pertaining to the discovery of new cultural sites during preparation or implementation are modified to include notification of the Forest Archaeologist, as follows:

If cultural sites are discovered during on-the-ground preparation of sale units or at any time prior to the ground-disturbing activity, the Forest Archaeologist and the North Zone Heritage department will be notified. The site will be reviewed on the ground by the assigned Archaeologist or Cultural Resource Technician, who will develop protection measures, if needed. Once this review has been undertaken, and resources protected, project activity can proceed.

If a cultural site is discovered during harvest or any ground disturbing activity, all work will cease in the immediate vicinity of the discovery. At that time, the Forest Archaeologist and the North Zone Heritage department will be notified, and the location will be reviewed on the ground. The assigned Archaeologist or Cultural Resource Technician will develop protection measures for these sites, if needed. Once this review has been undertaken, and resources protected, project activity can proceed.

Monitoring

All monitoring included in FEIS Appendix D is included in Alternative G (Modified).

In addition, monitoring for mountain mahogany regeneration will occur within 2 years following this decision, rather than in 5 to 10 years as discussed in the FEIS, to respond to concerns expressed by the Klamath Tribes.

Other

Old Growth - A management element of Alternative G that is not an “action” but, rather, the administrative implementation of Forest Plan direction, is the field identification and delineation of areas suitable as Management Area (MA) 3 and 14 (“Old Growth”). MA3 / MA 14 help maintain viable populations of dependent native vertebrate species including goshawks, black-backed woodpeckers, pine marten, and pileated woodpeckers. Each individual old growth stand within the project area was assessed on the ground to determine if the stand contained functional habitat for the species for which it is designated.

The 1989 Fremont LRMP does not indicate specific locations for MA 3 and MA 14. The maps in the LRMP instead displayed approximate locations using a series of identically shaped circle-symbols in a grid-type fashion. The actual locations of the areas were directed by the LRMP to be “selected by a team composed of timber and wildlife as a minimum.” This site-specific selection occurred over most portions of the Silver Lake Ranger District between 1989 and 1994, as dozens of projects were planned. The Forest Plan further directs that if stands are no longer suitable (due to wildfire, etc.) a new old growth stand would be delineated as a replacement.

For this project, site-specific inventories were performed to determine the current functionality of all MA 3 or 14 within the project area. If the surveys determined that an MA 3 or MA 14 stand remained functional, no salvage was proposed for that old growth area. If it was determined that the stand was non-functional, a new old growth stand was mapped (see Maps 32 and 33 in the FEIS map packet). Approximately 376 acres were identified as “non-functional - replace immediately.” Approximately 452 acres were delineated as replacements for these stands. Replacement old growth areas were identified using the Region 6 Interim Old Growth Definitions as a guide (Hopkins et al. 1992). Since the identification of replacements is simply an implementation of Forest Plan direction, it does not constitute a Forest Plan amendment. It is expected that a separate decision document will be issued in the near future to implement a land allocation change for the 452 acres identified as replacement MA 3/14.

Table R.5: Management Area 3 and 14 Old Growth Within the Project Area

Old Growth Area	Management Area	Fire	Species	Functionality Determination	Acres of Original Old Growth Area	Acres of Replacement Old Growth Area`
PPGOGO414015	14	Silver	Goshawk	Functional	60	
PPGOGO414109	14	Silver	Goshawk	Functional	61	
PPGOGO414112	14	Silver	Goshawk	Functional	61	
LPTTTT403049	3	Silver	Black-backed Woodpecker	Non-functional Replace in 10 years	56	
LPTTTT414050	14	Silver	Black-backed Woodpecker	Functional	72	
LPTTTT414041	14	Silver	Black-backed Woodpecker	Functional	80	
LPTTTT414040	14	Silver	Black-backed Woodpecker	Non-functional Replace in 10 years	116	
LPTTTT414038	14	Silver	Black-backed Woodpecker	Functional	66	
PPGOGO414002	14	Toolbox	Goshawk	Non-functional Replace immediately	71	71
PAGOGO414136	14	Toolbox	Goshawk	Non-functional Replace immediately	97	128
LPTTTT403107	3	Toolbox	Black-backed Woodpecker	Non-functional Replace in 10 years	76	
PPGOGO414105	14	Toolbox	Goshawk	Functional	115	
PPGOGO414109	14	Toolbox	Goshawk	Non-functional Replace immediately	68	68
PAGOGO414108	14	Toolbox	Goshawk	Non-functional Replace immediately	80	121
PPGOGO414122	14	Toolbox	Goshawk	Functional	52	
PPGOGO414106	14	Toolbox	Goshawk	Non-functional Replace immediately	60	64

Portions of Alternative G (Modified) that are Deferred from Authorization

The following activities were analyzed as integral components of the alternatives, but are not authorized by this Record of Decision to the full quantified extent that was included in that analysis:

Out of a total of 4,900 acres of reforestation in Alternative G (Modified) that involves just site prep and planting without other fuels treatment, 170 acres are deferred, pending completion of cultural resource surveys and the issuance of a separate decision document. Therefore, this ROD authorizes 4,730 acres of reforestation that involves just site prep and planting without other fuels treatment. Total reforestation authorized with this decision is 20,071 acres. The deferred areas correspond to the following legal descriptions: T29S, R13E Sec 25,26,36; T29S, R14E Sec 30,31; T29S, R115E Sec 35; T29S, R16E Sec 32; T30S, R13E Sec 11; T30S, R15E Sec 2,3,12,30; and T31S, R13E Sec 11.

Out of a total of 6,106 acres in Alternative G (Modified) of fuels treatments and reductions outside of commercial salvage units within ¼ mile of private lands, 330 acres are deferred, pending completion of cultural resource surveys and the issuance of a separate decision document. Therefore, this ROD authorizes 5,776 acres of fuels treatments and reductions outside of

commercial salvage units within ¼ mile of Private Lands. The deferred areas correspond to the following legal descriptions: T29S, R13E Sec 34; T29S, R16E Sec 32,34; T30S, R13E Sec 3,35; T30S, R15E Sec 19,28,32,35; T30S, R16E Sec 6 and T31S, R14E Sec 2.

Out of a total of 1,650 acres in Alternative G (Modified) of fuels treatments and reductions outside of commercial salvage units (besides those within ¼ mile of private lands) 52 acres are deferred, pending completion of cultural resource surveys and the issuance of a separate decision document. Therefore, this ROD authorizes 1,598 acres of fuels treatments and reductions outside of commercial salvage units (besides those within ¼ mile of private lands). The deferred areas correspond to the following legal description: T30S, R14E, Sec 26.

Out of a total of 3,112 acres in Alternative G (Modified) of prescribed fire, 750 acres are deferred, pending completion of cultural resource surveys and the issuance of a separate decision document. Therefore, this ROD authorizes 2,362 acres of prescribed fire. The deferred areas correspond to the following legal descriptions: T30S, R14E Sec 24; T30S, R15E Sec 19,26,27,35 and T30S, R16E Sec 29,30.

Reasons for the Decision (Response to Decision Factors)

The analysis documented in the Toolbox Fire recovery Project FEIS explores the necessity for action (or no-action) in relation to six needs. The analysis also weighs the relative success of six different alternatives in achieving five identified project purposes. I have selected Alternative G (Modified) because it best meets those needs and purposes, as discussed below.

why the project is needed (the need for action versus no-action)

The No Action alternative was not selected because the underlying needs identified for this project would not be met without action. Specifically:

The need for wildlife habitat within the project area, including snags and down wood, and live forest – The *short-term* need for snag and cavity dependent species habitat would be met without action. The *short-term* need for down wood wildlife habitat is also well achieved without action. However, meeting the *longer-term* needs that are associated with live forest habitats, particularly late and old structural forest habitats, which are in shortest supply in the area, would be significantly retarded without action. As disclosed in the FEIS (pages 1-3 and 3-88 to 3-90), due to extensive areas of tree mortality, the amount of area without a ponderosa pine seed source is greater than would have occurred historically. The amount of standing dead trees is well above historical norms. Without action, within 30 years areas that burned at over 50 percent mortality would have little conifer stocking, but instead an abundant, vigorous shrub component growing within an uncharacteristically heavy fuel bed from the down trees. Where a seed source is currently present and natural regeneration does occur, it would often be overabundant, producing a conifer component that is too highly stocked to create a sustainable condition through fire processes alone. The combinations of fuels reduction and planting, coupled with the snag retention designs that are a central component of the actions will enable a young forest to develop under conditions that would allow the use of prescribed fire within 25 to 30 years. Prescribed fire is considered an important, cost-effective tool in moving young ponderosa pine stands toward sustainable older stands. Active intervention to re-establish these stands is the quickest way to re-create the live LOS forest habitat lost in the fires.

Another element of wildlife habitat that would not be met without action relates to the road densities in the project area. Road management proposals to close or decommission roads, as included in the action alternatives, would bring road densities to levels directed by the LRMP and improve the quality of mule deer habitat. These road management actions will reduce disturbance to numerous other wildlife species as well.

Aspen would respond favorably from the fires without action. However, the aspen enhancement actions included in the action alternatives, through either the falling dead trees or fencing, provide additional protection from browsing and help maintain the habitat created by natural responses to the fire.

The need for lower surface fuel loadings within the project area – While the no-action alternative would not necessarily affect the chances for a fire start to occur, the un-manipulated fuel succession that would occur with the no-action alternative would produce persistent elevated fuel loadings. As displayed in the FEIS (Pages 3-20 to 3-23; summarized on page 3-34) the no action alternative would reduce fuels on no (0) acres. Instead, following a single decade of snags falling down, all eight subwatersheds that comprise the project area would develop very high down fuel loads, in some areas as much as 100 tons per acre. These conditions contribute to uncharacteristic fire behavior by producing extreme flame lengths and rates of spread. Fires with such extreme behavior cannot be successfully suppressed with the firefighters and equipment typically available on the Forest, especially in the event of multiple fire starts.

Dry lightning storms with numerous lightning strikes are a regular feature of summer weather patterns across the Silver Lake Ranger District, including the project area. The combination of such lightning events and the high fuel loads create a scenario very likely to produce uncharacteristically large and intense fires. The fires of July 12, 2002 that became the Toolbox Complex resulted from a similar scenario, though the heavy fuels were in the form of overly dense stands of live trees and brush. With heavy fuel loads now on the ground, drier, and intermixed with vigorous shrubby growth, fire behavior could be expected to be even more uncharacteristic and difficult to control than the 2002 fires. This high-risk condition would be present for several decades at a minimum.”

While large woody fuels have little influence on the initial spread and intensity of the surface fires, fire persistence, resistance-to-control, and burnout time (which affects soil heating) are significantly influenced by loading, size, and decay state of large woody fuel (Brown, 2003). Brown suggests that higher amounts of coarse woody debris are acceptable only if there are few small fuels. If there is a high loading of small material, less coarse woody material should be left on site. Brown also indicates 10 to 30 years after the fire, “...high burn severity would primarily occur where large woody material was lying on or near the soil surface.” In an environment of heavy fuels close to the ground comprised of both large down trees and concentrations of smaller trees, the potential for soil damage would be higher than the 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.

Re-introduction of low-intensity fire is the best way to create forest habitat in the project area that can be sustained over time. If lower- and mid-elevation ecosystems are to be managed using a disturbance regime similar to that with which they evolved, 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. These fuels reduction actions are all designed to produce fuels profiles that lower the risk of future intense fire behavior, and facilitate the future use of prescribed fire.

Even if no fire starts occurred and the negative effects from high burn severity wildfires were not manifested, future management of the area would be significantly compromised by the fuels loads that would be present without action. It is in the 25 to 35 year timeframe when the first applications of prescribed fire on the young ponderosa pine forest would ideally be implemented in the Toolbox area. Accumulations of untreated fuels on a landscape would make prescribed fire use difficult to implement for many decades. Less use of prescribed fire would further contribute to subsequent fuels build up.

The need for high-quality fish and riparian habitat within the project area – Currently the project area’s ability to provide high-quality fish and riparian habitat is limited primarily by the presence of a relatively dense network of roads. In addition, for the short term, there is an increased potential for sediment delivery to stream channels because of vegetation loss from the 2002 fires. Additionally, some stream segments are now deficient in the large woody debris that helps to create the pool and riffle structure important to desired fish species.

Without active intervention, the road system within the project area will continue to disrupt natural water infiltration processes and promote delivery of sediment to stream channels. The no-action alternative would not produce the benefits to high-quality fish and riparian habitat that are expected as a result of the road management actions. While the actions associated with closure or decommissioning are expected to contribute to short-term increases in sediment, they provide for a long-term sediment reduction. Water Erosion Prediction Project (WEPP) technology is a computer model based on infiltration equations that uses local climate data sets, soil texture, vegetation type, ground cover, and topography (WEPP, 2001). WEPP technology produces an estimated sediment savings from the closure and decommissioning of classified roads of 72.9 miles and 69.0 miles, respectively (as in Alternative G Modified), on the order of 0.7 tons/yr. The sediment-saving road management actions are dispersed throughout the entire planning area with a focus on eliminating roads in proximity to RHCAs.

The ground disturbing activities associated with commercial salvage logging, temporary roads, road reconstruction, and fuels treatment would not take place under a no-action alternative. However, in this regard there is little difference in the effect of the action alternatives and the no-action because the amount of proposed action within aquatic or riparian habitats is very minor and the actions are designed with an array of protective measures. Riparian Habitat Conservation Areas have been established to set up no-activity or no mechanized equipment buffers as directed by INFISH. Designs have been tailored to insure that activity does not retard the attainment of riparian management objectives.

Probability of sediment transport as a result of all proposed activities in the action alternatives, including commercial salvage, is related to the probability of a storm event occurring that is of sufficient size to move (or transport) sediment. With projected erosion rates near background levels and rapid recovery likely, overall sediment risks for the project are very low. The estimate of 0.05 tons/year of short term sediment production, with a 14 percent probability of transport (as determined by WEPP technology – see FEIS pages 3-279 to 3-283) during the year of skidding operations in four salvage units in the Toolbox Fire portion, is within the range of sediment production determined as “background rates” by the Burned Area Emergency Rehabilitation (BAER) team. The entire Toolbox Fire portion of the project contains no fish bearing streams. These four units are on gentle slopes that average 10 to 15 percent sideslope. The nearest perennial fish-bearing stream is over 10 miles away,

and in another subwatershed (see further discussion in Chapter 3, Soils section). Overall, the analysis documented by the FEIS shows that, while there will be minor short term increases in sediment production and risk of transport with the action alternatives, the overall sediment saving associated with the road decommissioning and closure actions far outweighs the short-term detrimental effect.

Some aspects of quality fish and riparian habitat would be obtainable with a no-action alternative. Effects of the wildfire have been, and will likely continue to be, beneficial to the regeneration of riparian vegetation. Many of the riparian areas burned quite hot, resulting in extensive conifer mortality. This will stimulate a strong regenerative response from the riparian vegetation. During the first summer following the fires this has been evident. Riparian vegetative recovery along most of the stream channels within the project area has already begun. A few areas have burned so intensely that desired deciduous trees and shrubs, such as willow, alder, cottonwood and red-twig osier are not likely to re-establish without active intervention. Some miles of stream channel that lack down woody debris require active placement of such debris to create desired pool/riffle stream structure.

A direct attainment of the need for high-quality fish and riparian habitat that would be obtainable with an action alternative, but not with no-action, relates to three other riparian improvement projects:

- Placement of large woody debris in approximately 9.6 miles of perennial fish bearing stream.
- 7 acres of riparian area deciduous plantings.
- Road 2917413 Drainage Improvement (installing a cross drain culvert for the purpose of eliminating the introduction of sediment into Silver Creek)

The need for endemic, rather than epidemic, populations of bark beetles within the project area – While bark beetle populations are always present in the pine types and play a role as natural disturbance agents, conditions within the project area are now conducive to the development of *epidemic* outbreaks of bark beetles. This increases the likelihood that many of the remaining live trees within the project area will die as a result of bark beetle attacks. Such additional mortality would further reduce the already-scarce late and old structure (LOS) forest that is the desired condition in the project area.

Bark beetle outbreaks, while episodic, are the single most significant cause of mortality in the pine type of the area. In the early 1900s, speculation that bark beetles could be killed through use of fire led to a series of studies to determine the effects of fire on bark beetle populations, both short and long term. These studies looked at a series of controlled burns and wildfires to study the entomological effects. These studies found that bark beetles are attracted to burned areas, and that unless fires are severe enough to burn the bark from the trees, they are of little value in controlling bark beetles. Of trees with “medium injury” (more than half the crown scorched), 92 percent were attacked and killed by bark beetles, 8 percent survived (Miller and Keen, 1960). 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 green trees.

As acknowledged in the FEIS, the most effective means of reducing the potential for impacts from insect infestation is to implement commercial and pre-commercial thinning in green stands. With the exception of pre-commercial thinning in existing plantations, that course of action is not pursued by this project. However, another strategy is to remove trees that have recently died, or are of low vigor, as a means of removing centers of potential breeding activity. The action of removing dead trees, including those with less than 20 percent bright green crowns, removes “fading” trees that provide the best bark beetle brood trees.

A no action scenario leaves all dead material including newly available beetle habitat that is created by the progression of tree mortality that occurs during the first two years following the fire. This would not contribute at all to the need for endemic populations of bark beetles within the project area.

The need for forest stands with structural conditions closer to the Historic Range of Variability (HRV) within the project area – This is closely related to the need for live forest habitat and the need for lower surface fuel loadings. The 2002 stand replacing surface and crown fire occurred in a forest with a density structure that was a significant departure from historic open ponderosa pine forest conditions. Moving forest stands toward the Historic Range of Variability is desirable because such conditions provide the highest degree of sustainability. Sustainability refers to the ability of forested systems to withstand or resist rapid and widespread structural change due to fire, insects, and disease. The 2002 fire occurred within a forest 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 parts of the Toolbox Complex.

A no-action alternative would rely on natural regeneration, rather than planting. As noted above, due to extensive areas of tree mortality, the amount of area without a ponderosa pine seed source is greater than would have occurred historically. Most of the seed produced by a ponderosa pine does not disperse much farther than the height of the cone on the mother tree. A no action scenario is likely to result in a very incomplete initial reforestation, characterized by areas of dense young regeneration

adjacent to live trees, interspersed with areas of brush, all overlain with heavy fuels within about a decade. In this case, neither the character of the regeneration nor the fuels conditions would contribute to development of a sustainable structure within HRV, but instead would likely contribute to another round of high intensity fire outside of the low intensity historical fire pattern. Recovery of the area to a stable state in which low intensity fires sustain mid-aged and LOS ponderosa pine forest conditions would be significantly retarded.

Active intervention is needed to ensure successful development of a sustainable forest with structural conditions closer to the Historic Range of Variability. Such successful intervention depends initially on reforestation; then on facilitating the eventual return of characteristic fire (i.e. frequent, low-intensity, stand-tending 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.

Planting with ponderosa pine seedlings is prescribed on approximately 20,241 acres (including 170 that are deferred), including areas of salvage harvest and other areas (many in existing plantations) that experienced loss of stocking due to fire. This provides the initial step toward the long-term development of structural conditions closer to HRV. Altering the existing and projected fuel loads within the project area through large wood removal, follow-up slash treatments and fuels treatments outside of salvage areas creates fuels conditions that increase the likelihood that subsequent fire could be contained before it resulted in a re-occurrence of large uncharacteristically intense stand replacement wildfire. Altering the fuel loadings also provides the opportunity for application of prescribed fire within 25 to 30 years in the area – at which point an ongoing program involving prescribed fire could become the single most important tool in the development of stand conditions closer to HRV. Prescribed fire has proven to be an important, cost-effective tool in moving young ponderosa pine stands toward sustainable older stands.

The precommercial thinning (2,500 acres of existing plantations) will also be a step, consistent with LRMP direction, in moving young stands toward structural conditions that are within the Historic Range of Variability (HRV).

The need for commercial timber production within the project area - The Fremont National Forest Land and Resource Management Plan (LRMP) (1989), includes a Forest-wide management goal to provide sawtimber and other wood products to help sustain a viable local economy. A no-action scenario would do nothing to meet this need. The action alternatives contribute to this need in varying amounts.

Meeting Project Purpose

I have selected Alternative G (Modified) because the specific balance achieved with Alternative G (Modified) provides the best mix of prospective results in regard to attainment of project purpose as identified in the FEIS, while adequately addressing the issues and public comments that arose during the analysis. Each purpose is discussed below.

As quickly as feasible, create sustainable forest, stream, and riparian habitats within the project area that meet the desired conditions established by the Fremont N.F. Land and Resource Management Plan (LRMP) – The analysis documented in the FEIS concludes that Alternative G will implement the combination of actions most likely to develop sustainable late and old structural (LOS) forest stands in the future on a substantially greater area than would the other action alternatives (FEIS page 3-115). This is in keeping with LRMP direction to create healthy forest conditions while moving forest stands toward structural conditions that are within the Historic Range of Variability (HRV). The Regional Forester's Amendments to the LRMP direct a project analysis for timber sales to "characterize the proposed timber sale and its associated watershed for patterns of stand structure by biophysical environment, and compare to the Historic Range of Variability (HRV)." It states further that HRV "should be based on conditions in the pre-settlement era." A primary finding of the project analysis, as documented in the EIS is that the project area, as a whole, is below the Historic Range of Variability because it is deficient in live forest stands exhibiting Late and Old Structure (LOS).

With Alternative G (Modified), approximately 20,682 acres, through the specific combinations of site preparation and planting, and fuels treatments described earlier in this document, will be reforested within a fuels environment that should allow the future development of sustainable LOS stands, assuming maintenance through time by underburning or other techniques.

The primary modifications to Alternative G (reduced application of prescribed fire outside of salvage areas, dropping 402 acres of non-commercial fuels treatment, and an adjusted road management strategy) will have minimal effect on the long-term development of LOS, when compared to the effect that was determined by the FEIS for Alternative G. The acres dropped from prescribed burning treatments were in areas lightly burned by the fire. Such lightly burnt areas, where prescribed fire alone will be used, represent a condition that is already significantly closer to the desired sustainable condition, than is represented by those areas most affected by the 2002 fires.

Dropping 402 acres of fuels treatment that was proposed in Alternative G will result in about 200 acres less achievement in terms of creating of sustainable forest conditions. This adjustment is parceled out among seven distinct locations, including five sites in the Toolbox Fire and two sites in the Silver Fire, and, as such, will have very minimal effect in terms of reduced

fire risk or future development of sustainable LOS, at any given location. Because the twelve identified areas of optimal black-backed habitat represent the twelve best areas of habitat that were identified during reconnaissance, their value as habitat, albeit short-term, outweighs their importance as contributors to sustainable LOS conditions or reduction in the risk of future uncharacteristic fire.

The more extensive road closure and decommissioning that characterizes Alternative G (Modified), compared to Alternative G, could slightly reduce future wildfire suppression effectiveness by slowing access to some locations. However the stand and fuels conditions initiated by Alternative G (Modified) will reduce fuels enough to offset the minor delays in access resulting from the closed/decommissioned road segments. The significant gain in restoration of stream and riparian habitats through this level of road closures and decommissionings offsets the slight reduction in access for fire suppression and the resultant slightly higher potential for a fire start to develop into a stand replacement fire.

The other action alternatives would not meet this element of project purpose as fully as Alternative G (Modified). Specifically, Alternative C, which comes closest to Alternative G (Modified) in this regard, would achieve only about 70 percent of the result of Alternative G (Modified). The no-action alternative is not likely to contribute toward the attainment of this project purpose. See FEIS pages 3-88 to 3-120 for a full discussion of the varying effects of the alternatives on future forest development. The following table offers a comparison of alternatives with Alternative G (Modified):

Table R.6: Comparison with Alternative G (Modified) Regarding Development of Sustainable LOS

Alternative	Areas most likely to Develop into Sustainable LOS stands in the Future (Acres)	Percent of Attainment Compared to Alternative G (Modified)
A (No Action)	0 acres	0 %
C	14,652	71%
D	11,190	54%
E	8,950	43%
G (as per FEIS)	20,882	101%
H	13,320	64%

Stream and riparian habitats are another component of this project purpose. The LRMP directs that aquatic and riparian zones of all drainages and water bodies and their immediately adjacent uplands be managed to maintain or improve water quality, fish habitat, recreation opportunities, and riparian habitat for dependent wildlife species. The Inland Native Fish Strategy (INFISH, 1995) amended the LRMP by creating Riparian Habitat Conservation Areas (RHCAs). Riparian Habitat Conservation Areas, as defined in INFISH, are portions of watersheds where riparian dependent resources receive primary emphasis and management activities are subject to specific standards and guidelines. INFISH Standards and Guidelines for Timber Management (TM-1) generally prohibit timber harvest within RHCAs; however, they do allow for post-fire salvage “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 (RMOs) and where adverse effects can be avoided to inland native fish.”

RMOs are habitat parameters that provide a basis for determining the state of stream function, and the attainability of riparian goals. The FEIS documents an analysis that uses the above standard by comparing the specific elements of the RMOs, which include: pool frequency, water temperature, large woody debris, bank stability, lower bank angle, and width to depth ratio, as they would be affected by the different alternatives. The key result is a determination of whether the alternative would retard or prevent attainment of a specific Riparian Management Objectives.

As concluded in the FEIS (pages 3-407 to 3-409), and summarized in the table below, none of the alternatives would hinder or retard the attainment of INFISH Riparian Management Objectives (RMOs) for pool frequency, large woody debris, water temperature, and width to depth ratio, or cause significant harm to native fish and their habitats in the long-term.

Table R.7: Potential of Alternatives to Hinder or Retard the Long-term Attainment of INFISH RMO's.

RMO	Alt. A	Alt. C	Alt. D	Alt. E	Alt. G	Alt. H
Pool Frequency	No	No	No	No	No	No
Large Woody Debris	No	No	No	No	No	No
Water Temperature	No	No	No	No	No	No
Width-to-Depth Ratio	No	No	No	No	No	No

The FEIS does note that Alternatives C, D, E, G and H, with RHCA harvest along fish bearing streams within road corridors (16 acres), have the potential for some increased short-term sedimentation into redband trout habitat. Alternative G (Modified) does not include the 16 acres of harvest within Category 1 RHCA so the potential for short-term sediment increase into redband trout habitat will not be present. In this sense, Alternative G (Modified) is more favorable than any other action alternative.

An additional analysis of stream and riparian health that is documented in the FEIS documents is cumulative watershed effects. This analysis considered 10 elements of watershed functionality to determine the overall effect (restore, maintain or degrade) of each of the alternatives. These 10 elements are: roads, soils, canopy, riparian vegetation, channel, pools, large wood, temperature, sediment, and fish passage. Each of these elements is evaluated within the site-specific context of each of the eight subwatersheds in the cumulative effects analysis areas, based on their current condition and physical factors, including soils, mass wasting hazard, precipitation, rain-on-snow potential zones, drainage density, watershed relief ratio, and elevation.

The analysis reveals that the primary project elements influencing the attainment of Riparian Management Objectives and the effect on watershed functionality are: 1) the effectiveness of the mitigation and resource protection measures (included in all action alternatives) and 2) the relative amount of road decommissioning included in the alternatives. In addition, placement of large wood in the stream channels as part of the aquatic habitat restoration included in all action alternatives will provide instream structure to aid in pool formation and complexity. Plantings of deciduous tree species within affected riparian areas will improve water temperatures and reduced sediment inputs over the long-term.

Alternative G (Modified) includes all of the riparian improvement projects that were analyzed for this project, as do Alternatives C, G and H. In that light, Alternative G (Modified) is equal in contributing to the creation of stream and riparian habitats that meet the desired conditions established by the LRMP. Alternative E does not include a full complement of riparian improvement projects and includes the least road decommissioning of any action alternative, as noted in the comparison table below; therefore, it would do the least toward meeting project purpose in regard to stream and riparian habitat. Alternative G (without modification) included only the amount of road decommissioning and closure needed to bring the project area down to the road density that would minimally comply with LRMP direction. Alternative G (Modified), having adopted the more extensive road decommissionings and closures of Alternative C, will produce a result that exceeds minimum LRMP direction. It will do as well as Alternatives D and H in improving watershed functionality by reducing the adverse effects of roads.

Table R.8: Road Management and its Contribution to Improving Watershed Functionality

		Alt. A	Alt. C	Alt. D	Alt. E	Alt. G	Alt. H	Alt. G (Modified)
Road Decommissioning (miles)		0	69.0	71.6	14.6	71.6	71.6	69.0
Road Closure (miles)		0	72.9	75.5	67.4	10.4	72.9	72.9
Contribution to Watershed Function as it Relates to Roads throughout the eight subwatershed analysis area	Restore - Number of subwatersheds	0	6	6	0	0	6	6
	Maintain - Number of subwatersheds	2	2	2	8	8	2	2
	Degrade - Number of subwatersheds	6	0	0	0	0	0	0

A full presentation of cumulative watershed effects in regard to all 10 elements of watershed functionality can be found in the FEIS, pages 3-326 to 3-404.

Provide the highest production of commercial timber and jobs consistent with the first purpose above - The analysis presented in the FEIS discloses that Alternatives C and G would produce the highest output for both of these elements. Alternative G (Modified), with a reduction in timber volume from Alternative G of less than one percent, will contribute essentially the same high outputs. The following table summarizes this.

Table R.9: Commercial Timber Production and Job Support

		Alt. A	Alt. C	Alt. D	Alt. E	Alt. G	Alt. H	Alt. G Modified
Commercial Salvage	Total Volume (MMBF)	0	36.1	21.5	31.6	36.1	33.4	36.0
Job Support	Direct Jobs	0	271	161	237	271	251	270
	Total Jobs, incl Indirect	0	406	242	356	406	376	405

See FEIS pages 3-451 to 3-479 for a full discussion of economic factors.

Retain the most snag and down wood habitat consistent with the first purpose above – Snag retention guidelines were designed for the Toolbox project using DecAID. DecAID is an advisory tool developed to help wildlife managers evaluate the effects of forest conditions (existing conditions or conditions that would result from proposed activities) on wildlife that use snags and down wood. It is a summary, synthesis, and integration of current scientific knowledge about the sizes and amounts of snags and down wood used by cavity nesting birds in specific vegetation types in the West.

From FEIS, page 3-152: “Tolerance level” is the number of individual birds within a given population that will nest in forest stands characterized by a certain number and size range of snags. For example, black-backed woodpeckers show a 30 percent tolerance level for stands that contain 62 snags of 10-20 inch dbh. This means that 30 percent of all the black-backed woodpecker nests in that area were found in that kind of stand. In burned areas, black-backed woodpeckers prefer to nest in areas with many relatively small (10 to 20 inches dbh) snags. Thus, for black-backed woodpeckers, stands with more of these snags support a higher tolerance level. For instance when stands are characterized by as many as 88 snags in the 10 inches+ dbh size, they support a 50 percent tolerance level that is, half of the black-backed woodpecker nests in a given population are found in stands that provide this range of snag size and abundance. Thus, tolerance level can be interpreted as an assurance that stands characterized by a given range of numbers and sizes of snags will be used for nesting by a given percentage of a particular bird population.

As displayed in the table below, Alternative A (no action) would retain the most snag dependent species habitat. Alternative A would provide for the greatest number of snags for primary and secondary excavators and for the highest tolerance level or

assurance for all cavity dependent species as all existing snags would be available in several size classes with differing densities. Of the action alternatives, Alternatives D and E would retain the most snag dependent species habitat, followed by (in descending order) Alternatives H, C and G. By modifying Alternative G to drop the 402 acres of non-commercial fuels reduction within the ¼ mile buffer, all 12 identified areas of optimal habitat for black-backed will remain effective, and the overall effect of the modified alternative will be the same as analyzed under Alternative C. This result is substantially more favorable than Alternative G; nonetheless, all other action alternatives besides Alternative G would provide a more favorable result than does Alternative G (Modified).

It is not surprising that the alternatives that would provide the most snag habitat (Alternatives A, D and E) are also the ones that achieve the least in terms of the project purpose to: “As quickly as feasible, create sustainable forest, stream, and riparian habitats within the project area that meet the desired conditions established by the Fremont N.F. Land and Resource Management Plan (LRMP).”

Table R.10: Comparative Summary of Snag Retention

	Alt A	Alt C	Alt D	Alt E	Alt G	Alt H	Alt G Modified
Optimal Black-backed WP Acres Retained	1789	1620	1689	1634	1218	1699	1620
Suitable Black-backed WP	4090	2350	3086	2965	2350	2579	2350
Optimal/ Lewis’ WP Acres Retained	900	683	733	743	683	785	683
Suitable Lewis’ WP	4938	1974	2754	2641	1974	2348	1974
Total Optimal/Suitable Acres Retained	11,717	6,627	8,262	7,983	6,225	7,411	6,627
Tolerance level for black-backed woodpeckers	41%	19%	26%	25%	19%	21%	19%
Tolerance level for Lewis’ woodpeckers	46%	38%	41%	40%	38%	39%	38%

Since the alternatives do vary in the amount of proposed harvest, site preparation, and fuels treatment, the amount or retained optimal or suitable habitat that would be retained varies, as do the tolerance levels. All action alternatives use the same snag retention designs within harvest, site preparation, and fuels treatment units. These designs were developed to provide adequate habitat for snag and down wood dependent species. A reservoir of snag and future down wood habitat that will have a positive cumulative effect on habitat is present in the directly adjacent Winter Fire (2002). The Winter Fire was approximately 34,000 acres (including approximately 24,000 acres of National Forest) and currently only approximately 3,000 acres (which are several miles south of the Toolbox project area) are proposed for salvage harvest on National Forest System lands. Additionally, unsalvaged habitat is present in the extensive unharvested portions of the Toolbox project planning area and in the approximate 1,500 acres of the Toolbox Complex Fires located in the Bridge Creek and Ana Reservoir Subwatersheds that were excluded from the planning area.

The FEIS discloses, based on the most recent science and information available in DecAID, that habitat would be retained under all alternatives to provide for viable populations of all cavity nesting and down wood dependent species (FEIS pages 3-151 to 3-206).

Retain the most mule deer habitat effectiveness consistent with the first purpose above – Modifying Alternative G to drop approximately 460 acres of prescribed fire will provide for mule deer habitat quantity and quality equal to any of the action alternatives, and due to its road closure design, substantially better mule deer habitat quality than No Action.

Retain the most roaded access consistent with the first purpose above – While roads provide desired access for many purposes, such as recreation, fuelwood gathering, and timber harvest, they can increase human disturbance of wildlife such as big game and can interrupt groundwater flows and introduce unhealthy amounts of sediments into streams. Only Alternative G (Modified) provides full access to former Klamath Tribal lands while decreasing overall road density to nearly the same degree as any of the other action alternatives. Alternative G (Modified) best balances the goal of retaining as much access as possible with the goal of recreating sustainable LOS forest, stream and riparian habitats as quickly as feasible.

Key Issue Responsiveness

Because issues often reflect opposing values, responses to one key issue, or an element of project purpose or need may generate an output or effect that is the opposite in regard to another key issue (or issues).

Five key issues were identified for this project. These include:

- Changes in Motorized Access
- Economic Efficiency and Economic Opportunities
- Effects on Soils, Watersheds, and Aquatic Habitat
- Effects on Wildlife Habitat
- Recovery using a limited-intervention approach vs. Recovery using a full range of active management practices, including commercial salvage
-

Each of the issues were assigned quantitative indicators, as summarized in tabular form on the following page. This table includes additions to the information contained in the EIS by displaying issue indicator results for Alternative G (Modified). The analytical outputs represented below are intended for the purpose of quick comparisons between alternatives. Refer to FEIS Chapter 3 for details and for further explanation.

Table R.11: Comparisons of Activities and Key Issue-Related Effects

KEY ISSUE and Indicators		Alt. A	Alt. C	Alt. D	Alt. E	Alt. G	Alt. H	Alt. G Mod.
Changes in Motorized Access								
Access and Road Management (Project Area, as a whole)	Leave Open (Miles)	271.0	129.1	123.9	188.9	188.9	126.5	129.1
	Close and Decommission (Miles)	0	141.9	147.1	82.0	82.0	144.5	141.9
	Open Rd. Density (Miles/Sq. Mi.)	3.7	1.8	1.7	2.6	2.6	1.7	1.8
Access and Road Mgmt. (Former Klamath Reservation)	Leave Open (Miles)	12.4	12.4	7.4	9.7	9.7	9.7	12.4
	Close and Decommission (Miles)	0	0	5.0	2.7	2.7	2.7	0
Economic Efficiency and Opportunity		Alt. A	Alt. C	Alt. D	Alt. E	Alt. G	Alt. H	Alt. G Mod
Commercial Salvage	Total Volume (MMBF)	0	36.1	21.5	31.6	36.1	33.4	36.0
	Acres	0	10,230	6,309	8,931	10,230	9,515	10,214
Logging Systems	Ground-Based (% of Volume)	N/A	97.8%	96.7%	97.5%	97.8%	100%	97.8%
	Helicopter (% of Volume)	N/A	2.2%	3.3%	2.5%	2.2%	0%	2.2%
Temporary Roads (miles) – Minimum width road segments, averaging ¼ mile in length, used for short duration and decommissioned following use		0	26.0	4.1	22.0	26.0	22.0	26.0
Net Timber Value	\$ per mbf	N/A	\$59.84	\$59.74	\$58.68	\$59.84	\$60.16	\$59.83
	Total (million \$)	0	2.2	1.3	1.9	2.2	2.0	2.2
Job Support	Direct Jobs	0	271	161	237	271	251	270
	Total Jobs, incl Indirect	0	406	242	356	406	376	405
Present Net Value	Current Projects @ 4% Disc. Rate (million \$)	0	-8.0	-6.7	-5.8	-8.9	-7.1	-8.8
Effects on Soil-Watershed-Aquatic Habitat (only Parameters that differ are displayed)		Alt. A	Alt. C	Alt. D	Alt. E	Alt. G	Alt. H	Alt. G Mod
Effect on Watershed Functionality: (Restore – R; Maintain –M; Degrade – D)		R/M/D	R/M/D	R/M/D	R/M/D	R/M/D	R/M/D	R/M/D
<div style="border: 1px dashed black; padding: 5px;"> The numbers to the right represent the number of subwatersheds within the analysis area (from amongst 8 sub-watersheds), 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	6/2/0
	Large Wood	0/7/0	3/4/0	3/4/0	3/4/0	3/4/0	3/4/0	3/4/0

Table R.11: 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	Alt. G Mod	
Effects on Soils, Watersheds and Aquatic Habitat (continued)									
Soil Fertility: Restoration of “Gap” Architecture – Acres where actions would reduce Lignifications		0	10,230	6,309	8,931	10,230	9,515	10,214	
Sediment Risk: Long-Term Reduction from Enhancement Projects (Tons/Year)		0	0.7	0.7	0.6	0.6	0.7	0.6	
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	0.77	
Amount of Sediment produced (short-term) in 4 units with “slight” potential for sediment transport (Tons/Ac)		0	0.05	0.05	0.05	0.05	0.05	0.05	
Note: BAER Report found background erosion rates were .01-.05 tons/ac and post-fire rates were .06-.09 tons/ac. (Tons/Yr)		0	29.9	4.5	4.5	29.9	27.9	29.9	
Compaction: Detrimental Soil Condition in Excess of Regional Standards (20%)?		No	No	No	No	No	No	No	
Riparian Protection and Restoration Projects	LWD Placement (Miles)	0	9.6	9.6	9.6	9.6	9.6	9.6	
	Aspen Enhancement (Acres)	0	690	690	0	690	690	690	
	Deciduous Planting (Acres)	0	7	7	0	7	7	7	
	Improve Rd 2917413 Drainage?	No	Yes	Yes	No	Yes	Yes	Yes	
Aquatic Habitat: Attainment of INFISH Riparian Management Objectives – Yes or No?		Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Effects on Wildlife Habitat		Alt. A	Alt. C	Alt. D	Alt. E	Alt. G	Alt. H	Alt. G Mod	
Snag & Down Wood Habitat Retained (no-Salvage/no activity areas)	Optimal/Suitable Black-backed WP (Acres)	1789/4090	1620/2350	1689/3086	1634/2965	1218/2350	1699/2579	1620/2350	
	Optimal/Suitable Lewis’ WP (Acres)	900/4938	683/1974	733/2754	743/2641	683/1974	785/2348	683/1974	
Mule Deer Habitat Effectiveness (H.E. %)	Winter Range	5.4	10.0	10.0	7.7	7.7	10.0	10.0	
	Transition Range	6.3	8.0	8.0	7.3	7.3	8.0	8.0	
	Summer Range	34.0	40.3	41.5	38.6	38.6	40.3	40.3	
Recovery of Sustainable LOS Conditions		Alt. A	Alt. C	Alt. D	Alt. E	Alt. G	Alt. H	Alt. G Mod	
Fuel Treatment & Fire Behavior	Fuels treatment: post-harvest within salvage units or outside units (Acres)		0	10416	7318	5749	16646	9177	16244
	Resistance to Control in Areas Treated (see acres in above row)	Rate of Spread (Chains/Hr)	2 to 6*	1 to 3	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	1.5 - 1.8
	Rx Fire Outside Harvest Units (Ac.)		0	3572	2450	0	3572	2450	3112
Development of LOS - Acres with combinations of treatment (fuel reduction-site prep-plant) that would most likely result in future sustainable LOS stands		0	14652	11190	8950	20882	13320	20682	

For the first Key Issue “**Changes in Motorized Access.**” Alternative G (Modified), which adopts the road management designs of Alternative C, is the most responsive alternative (along with Alternatives A and C) in regard to providing a full level of motorized access to former Klamath Reservation lands. Access within former reservation lands will remain at its current level. The other action alternatives would result in a reduction of motorized access that ranges from about 22 percent to 40 percent (FEIS pages 3-484 and 3-488).

For the project area as a whole, Alternative G (Modified) will limit motorized access to a level nearly equal to Alternatives D and H (which includes the most road decommissioning or closure) and considerably more than Alternatives G and E. Alternatives G and E both fall somewhat short of achieving the LRMP desired maximum level open road density (2.5 miles per square mile). Alternative G (Modified) falls in between the open road density levels prescribed by Alternative D and H, and the higher level prescribed by Alternatives G and E. Alternative G (Modified) will reduce open road density to 1.8 miles of road per square mile, thereby surpassing LRMP minimum objectives.

For the reasons above, Alternative G (Modified) provides the best balance between providing access to National Forest System lands within the project area while reducing human disturbance to wildlife and providing beneficial watershed effects.

Regarding the issue “**Economic Efficiency and Opportunity.**” Alternative G (Modified), as far as providing raw materials for wood products and job support, provides a very desirable result. Alternative G (Modified) is within about 0.4 percent of achieving the higher level of Alternative G. It will provide 68 percent more direct job support than Alternative D, 14 percent more direct job support than Alternative E, and 8 percent more direct job support than Alternative H.

In terms of present net value it compares unfavorably with most of the other action alternatives. This is attributable to the greater amount of activity included in the alternative that does not provide immediate economic return, such as fuels treatments. The primary cost difference between Alternative G (with or without modification) and the other action alternatives is fuels treatment outside commercial salvage units. Estimated costs related to this activity are between two and three times the cost estimated for the other alternatives for this activity. However, as displayed by the analysis and discussed several times in the Record of Decision, this is a crucial activity in its contribution toward meeting overall purpose and need. While the fuels treatment activity is the primary differentiator between the action alternatives, the key factor that results in all action alternatives having a negative present net value is reforestation. However, this reforestation is also a crucial step in achieving overall purpose and need, as well as a legal and regulatory requirement and, therefore, its expense is not a critical decision factor.

In response to the issue “**Effects on Soils, Watersheds, and Aquatic Habitat.**” Alternative G (Modified), as previously discussed in this document compares favorably with the other action alternatives. As demonstrated by the analysis documented in the EIS, the primary factor that influences watershed condition is the effects of roads on overall watershed and riparian functionality. Riparian areas are functioning properly when adequate vegetation, landform, and large woody debris is present to dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid floodplain development; improve flood-water retention and groundwater recharge; develop diverse ponding and channel characteristics to provide habitat conditions necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. Functionality was determined based on whether objectives are being met using the criteria developed within ICBEMP. Aquatic and riparian habitat was compared by the Toolbox analysis to INFISH Riparian Management Objectives (USDA 1995) (FEIS pages 3-312 to 3-326).

By dropping the 16 acres of salvage within the RHCA of fish-bearing streams, Alternative G (Modified) has the least potential for short-term sediment increase into redband trout habitat. By decommissioning 69 miles of roads, or 25 percent of the roads within the project area, Alternative G (Modified) provides favorable results in terms of watershed restoration that are essentially equal to Alternatives D, G and H. These other alternatives would decommission 71.6 miles of road, or 26 percent of the roads within the project area. The difference lies in the decision with Alternative G (Modified) to retain all existing access within former Klamath Reservation lands. The difference is small enough that Alternative G (Modified) equals or exceeds all alternatives in measures relating to effects on Soil-Watershed-Aquatic Habitat, with the exception of the measure of amount of sediment produced (short-term) in the only four units which were identified during the analysis as having a slight potential for sediment transport.

Probability of transport, as described in the EIS, is related to the probability of a storm event occurring that is of sufficient size to move (or transport) sediment. The Toolbox analysis considered 50 years of possible storm events. With erosion rates near background levels (see discussion in Chapter 3 Soils section) and rapid recovery likely, overall sediment risks for the project are very low. The estimate of 0.05 tons/year of short term sediment production, with a 14 percent probability of transport (as determined by WEPP technology) during the year of skidding operations on a small portion of the project area (represented by units 130, 131, 133 and 134 – a total of 599 acres in Alternative G Modified) is within the range of sediment production determined as “background rates.” The Burned Area Emergency Rehabilitation (BAER) team identified background erosion rates in the area as .01-.05 tons/ac, with immediate post-fire rates having been elevated to .06-.09 tons/ac. All four units are in

the far southeast area of the Toolbox Fire portion of the project. The entire Toolbox portion of the project contains no fish bearing streams. These four units are on gentle slopes that average 10 to 15 percent sideslope. The nearest perennial fish-bearing stream is over 10 miles away, and in another subwatershed. The monitoring plan for the project stipulates re-visits to these units by the soil scientist to check for timely recovery. Two of the actions alternatives (D and E), with only 94 acres of proposed salvage harvest within units 130, 131, 133 and 134, would present substantially less potential for short-term sediment transport in this area. However, as disclosed in the EIS, the environmental consequences in relation to these four units are minor and short term.

In response to the issue “**Effects on Wildlife Habitat,**” Alternative G (Modified) compares variably when examined alongside the other action alternatives. This was previously discussed in this document under the headings “Retain the most snag and down wood habitat consistent with the first purpose above” and “Retain the most mule deer habitat effectiveness consistent with the first purpose above”. As noted in earlier discussions, retention of snag and down wood habitat was increased by modifying Alternative G to drop the 402 acres of non-commercial fuels reduction within the ¼ mile buffer (corresponding to areas of optimal black-backed woodpecker habitat). Still Alternative G (Modified) is not as favorable as Alternatives D, E, or H in this regard. Maintenance of mule deer habitat was greatly improved by dropping approximately 460 acres of prescribed fire (corresponding to areas of big game cover in transition and summer range). Still, Alternative D would provide a slightly higher mule deer habitat effectiveness on summer range than Alternative G (Modified) (see Table R.11).

The key issue “**Recovery using a limited-intervention approach vs. Recovery using a full range of active management practices, including commercial salvage**” embodies divergent public input on which overall approach to recovery best accomplishes actual recovery and restoration. It is an issue that allows an exploration of the effectiveness of differing levels of active management toward the long-term creation of sustainable ecological conditions. The analysis documented in the EIS looks at this question from the standpoint of vegetative succession and the likelihood for future uncharacteristic departures from historic sustainable conditions. The analysis also considers the effect of the proposed treatments (or lack thereof) on the practical availability of future management tools - specifically, prescribed fire, as a future management tool that is considered a prudent, cost-effective means for developing and maintaining dry-site ponderosa late and old structural forest conditions. The FEIS, Chapter 3, Forested Vegetation (page 3-117) concludes that for Alternative A – No Action, “Development of LOS structure (in the absence of stand-replacing wildfire) could take up to 300 years across most acres, due to the lag time in reestablishing conifers and the solid establishment of competing vegetation. About 20 to 30 percent of the area could develop LOS structure in 150 to 200 years. This LOS structure would be multi-storied and not a stable, sustainable stand.”

The FEIS also discloses that, “Because no fuels reduction (Alternative A) would occur, higher mortality forested stand types would have very heavy fuel loadings. The larger fuels could persist for 50 to 100 years. This fuel loading would eliminate the use of prescribed fire without very expensive mechanical pretreatments. It would also create a fuelbed, which would support the spread of severe, stand-replacement wildfires. This in turn would increase the potential for soil damage occurring from burning of large, down fuels and the potential for establishment of non-native vegetation and noxious weeds” (FEIS, page 3-116). Without removal of large wood from the system (and the action alternatives focus on those areas where the greatest fuel loads would occur) there is a failure to respond to both a predictable scenario and to one that is not so predictable. Specifically, it is predictable that application of prescribed fire will be a desired operation, probably on several occasions, as a ponderosa pine stand develops during its first 30 to 100 years. While the future occurrence of a wildfire at a given location is indeed not predictable, what is known is that the presence of heavy fuel loads in the event a fire did occur would contribute to undesired consequences. In sum, the analysis documented in the EIS demonstrates that several aspects of active management are important steps in as rapidly as feasible, creating sustainable forest habitats within the project area that meet the desired conditions established by the Fremont N.F. Land and Resource Management Plan (LRMP).

With Alternative G (Modified), approximately 20,682 acres, through the specific combinations of site preparation and planting and fuels treatments described earlier in this document, will be sufficiently stocked with young trees within a fuels environment that should allow the future development of sustainable LOS stands, assuming maintenance through time by underburning or other techniques. These combinations of treatments are expected to create conditions characterized by a residual fuel load that allows prescribed fire to be used more safely and sooner than would otherwise occur. Prescribed fire, which would likely be available within about 25 to 30 years on areas receiving the a full range of treatments, is an essential element in restoring a forest condition that is functioning in sustainable fashion within the parameters that nature has set. For the ponderosa pine forests that dominate the project area, those parameters include short return interval, low intensity fire. The long-term fuels arrangement that could be expected to result from a completely non-commercial alternative design, once the standing dead trees fall, would be one that is generally characterized by a thorough mix of small and large fuels. As displayed the heading “Meeting Project Purpose” in this document, Alternative G slightly exceeds Alternative G (Modified) in terms of promoting recovery of sustainable LOS forest conditions. The other alternatives, through combinations of planting and creation of sustainable fuels conditions, would achieve less recovery than Alternative G (Modified), as follows: 0 percent of the area of recovery (Alternative A); 43 percent of the recovery (Alternative E); 54 percent of the recovery (Alternative D); 64 percent of

the recovery (Alternative H); or 71 percent pf the recovery (Alternative C). Only Alternative G (un-modified) would achieve more (101 percent).

Based on the above comparisons, I believe that Alternative G (Modified) will provide the best mix of prospective results in regard to project purpose and need, the key issues, and public comments.

Mitigation of Adverse Environmental Consequences

As noted earlier in this document, all Mitigation and Resource Protection Measures that were a part of Alternative G in the FEIS are included as a part of Alternative G (Modified). Mitigation measures avoid, rectify, reduce, or eliminate potentially adverse environmental impacts of management activities. Avoiding or minimizing environmental harm has been an important factor throughout the design of this project, from elements incorporated during the initial alternative design process, to the changes that created Alternative G (Modified), as detailed in this ROD. In most cases, effective means of avoiding or minimizing environmental harm have been adopted. However, as documented in the FEIS (page 2-64 to 2-66) some mitigations that would have completely eliminated adverse effects were considered, but not adopted for some (or all alternatives). Two of these (the first two displayed below) that pertained to Alternative G, have been reconciled through the modifications that created Alternative G (Modified). I have considered these potential mitigation measures as described below:

Table R.12: Potential Mitigation Measures

Resource	Alt.(s)	Adverse Effect Not Covered by Mitigation	Measure or design element considered to mitigate adverse effect	Why mitigation measure or design element was not applied
Wildlife: mule deer elk	C, G	Further loss of cover on mule deer habitat due to prescribed fire	No prescribed burning in existing cover stands	Measure is counter to the purpose and need of developing forest stands with structural conditions closer to HRV because prescribed burning is an integral tool to this process. <i>However, by dropping 460 acres of proposed prescribed fire (Alternative G - Modified), the purpose and need is substantially achieved and there is no further loss of cover and adverse effect is eliminated.</i>
Treaty Rights	D; to a lesser extent: E, G, H	The proposal would reduce opportunities for members of the Klamath Tribes to hunt or gather Treaty Right resources within former Klamath Reservation boundaries, using motorized vehicles.	Do not close or decommission roads within former Klamath Reservation boundaries.	Measure is counter to the purpose and need for high-quality fish and riparian habitat. Measure would be counter to Forest Plan direction regarding desired road densities. This design was applied to Alternative C; and Alternatives E, G and H include design that partially responds. <i>However, by adopting Alternative C road management designs for Alternative G (Modified), the purpose and need is substantially achieved and there would be no reduction in opportunity to hunt or gather Treaty Right resources and adverse effect is eliminated.</i>

Table R.12: Potential Mitigation Measures (continued)

Resource	Alt.(s)	Adverse Effect Not Covered by Mitigation	Measure or design element considered to mitigate adverse effect	Why mitigation measure or design element was not applied
Fisheries	C,D,E,G,H and G (Modified)	Short-term impacts on redband trout spawning and rearing habitat caused by insignificant short-term sediment inputs produced by the action alternatives and combined pre-existing sediment sources.	No salvage harvest (although even with Alternative A, minor short-term changes in aquatic habitat are expected due to pre-existing sediment sources)	Attainment of INFISH RMOs is not jeopardized. <i>Short-term increases would be insignificant and further minimized (in Alternative G Modified) by dropping all 16 acres of Category 1 RHCA harvest</i> . In the long-term, the pool frequency RMO would be maintained or improved as natural riparian vegetative recovery occurs and larger scale sediment reductions occur from improvements to the road network. Actions would not likely contribute to a trend toward federal listing or loss of viability to the population or species.
Wildlife: mule deer elk	C,D,E,G,H and G (Modified)	Delayed response of forage including bitterbrush due to salvage harvest	No salvage harvest	Measure is counter to the purpose and needs for commercial timber production, reducing future surface fuel loading and developing forest stands with structural conditions closer to HRV, because salvage harvest helps achieve all of these needs.
Wildlife: all birds (other than those species for which mitigations have been designed - bald eagle, peregrine falcon, and raptors)	C,D,E,G,H and G (Modified)	Direct effect of salvage activity on nesting	No salvage harvest from April 1 – August 1	Harvest activity is expected to take place in only one year at each specific location and the effects would be short-term. Although short-term effects could have been entirely avoided, the design of this project still provides substantial areas of habitat where no (even short-term) disturbance would occur. In the long-term, sufficient habitat within harvest and no-harvest areas would provide for viable populations. Measure is counter to the purpose and need for commercial timber production. Delaying operations until August would contribute to deterioration of value.
Wildlife: pine marten pacific fisher	C,D,E,G,H and G (Modified)	Loss of down wood due to salvage and fuels treatments	No salvage harvest or fuels treatments	No documented sightings of pacific fisher; nearest habitat is 3 miles west in Yamsay Semi-Primitive area. Reducing fuel loadings would protect American marten habitat that remains following activity. Planting and fuel treatments would promote the long-term development of habitat. Retention of 10 to 30 percent of slash plies would provide interim habitat. Measure is counter to the purpose and needs to reduce future fuel loadings, reduce insect infestation, develop long-term sustainable forests with structural conditions closer to HRV, and for commercial timber production.

Table R.12: Potential Mitigation Measures (continued)

Resource	Alt.(s)	Adverse Effect Not Covered by Mitigation	Measure or design element considered to mitigate adverse effect	Why mitigation measure or design element was not applied
Wildlife: Northern leopard frog and Northwestern pond turtle	C,D,E,G,H and G (Modified)	Direct effect of instream down wood placement and salvage harvest in riparian areas to individuals or habitat	No salvage harvest or instream down wood placement in riparian areas	No documented sightings of either species on the Silver Lake Ranger District. Actions are not likely to result in a trend toward federal listing or loss of viability. Measure is counter to purpose and needs for high-quality fish and riparian habitat and for commercial timber production.
Recreation	C,D,E,G,H and G (Modified)	Project-related temporary closures of trails, roads, and active salvage areas would impact hiking, skiing, snowmobiling, mushroom picking, firewood gathering, camping, fishing, and seasonal hunting in the short term.	No salvage harvest.	Measure is counter to purpose and needs for commercial timber production and reduced future fuel loadings. Impacts would be short term.
Recreation	C,D,E,G,H and G (Modified)	Road decommissioning and closures would decrease opportunities for road hunting.	Do not close or decommission roads within the project area	Measure is counter to the purpose and need for high-quality fish and riparian habitat. Measure would be counter to Forest Plan direction regarding desired road densities.
Recreation	C, D, E, G and G (Modified)	Helicopter use would generate noise that could be heard away from the local sale area.	Eliminate all helicopter harvest units.	Measure is counter to purpose and needs for commercial timber production and reduced future surface fuel loadings. Impacts would be short term.
Scenery	C,D,E,G,H and G (Modified)	Thinning slash would be visible from scenic corridor	Do not locate thinning units where any portion may be visible from a scenic corridor	Measure is counter to purpose and need to develop a long-term sustainable forest. Visual impacts would be short term because smaller wood decays quickly.

Table R.12: Potential Mitigation Measures (continued)

Resource	Alt.(s)	Adverse Effect Not Covered by Mitigation	Measure or design element considered to mitigate adverse effect	Why mitigation measure or design element was not applied
Social and Environmental Justice	C,D,E,G,H and G (Modified)	Some minorities, low-income residents, and Native Americans may be impacted by the alternatives with lesser amounts of salvage, if the groups are economically tied to that industry.	Increase proposed salvage harvest	These effects would be localized, are not measurable, and would not be disproportionate to low income or minority groups
Social and Environmental Justice	C,D,E,G,H and G (Modified)	Due to road closure/decommissioning, vehicle access year-around would decrease for uses such as hunting and firewood cutting.	Do not close or decommission roads within the project area	Measure is counter to the purpose and need for high-quality fish and riparian habitat. Measure would be counter to Forest Plan direction regarding desired road densities.
Unroaded Area (non-inventoried)	C,D,E,G,H and G (Modified)	Apparent naturalness would be decreased by harvesting timber within small parts of five non-inventoried unroaded areas. Stumps would be visible.	No harvest within non-inventoried unroaded areas.	Measure is counter to purpose and needs for commercial timber production, reduced future surface fuel loading and developing forest stands with structural conditions closer to HRV.
Unroaded Area (non-inventoried)	C,D,E,G,H and G (Modified)	Unroaded recreation opportunities would be somewhat diminished in the short term.	No temporary road construction within non-inventoried unroaded areas.	Measure is counter to purpose and needs for commercial timber production, reduced future surface fuel loading and developing forest stands with structural conditions closer to HRV.
Unroaded Area (non-inventoried)	C,D,E,G,H and G (Modified)	Short-term interruption in solitude associated with logging operations.	No harvest within non-inventoried unroaded areas.	Measure is counter to purpose and needs for commercial timber production, reduced future surface fuel loading and developing forest stands with structural conditions closer to HRV. Impact would be short term.

Other Alternatives Considered (and The Environmentally Preferred Alternative)

In addition to the selected alternative, I have considered six other alternatives (A, B, C, D, E, F), as well as Alternative G (unmodified), which are discussed below.

CEQ regulations require that the Record of Decision specify “the alternative or alternatives which were considered to be environmentally preferable” (40 CFR 1505.2(b)). CEQ’s “Forty Questions” document (46 Federal Register, 18026, March 23, 1981) clarifies that, “the environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA’s Section 101. Ordinarily this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative that best protects, preserves and enhances historic, cultural and natural resources.” I identify Alternative G (Modified) as the **environmentally preferred alternative** because it will contribute the most to long-term forest sustainability (see earlier discussion under “Meeting Project Purpose”) while featuring designs:

- With the least potential for short-term sediment increase into redband trout habitat, of all action alternatives
- That maintain all current areas of big game cover
- That reduce the potential negative watershed effects from roads to essentially the same (or greater) degree than any alternative
- That reduce the potential negative effects from illegal cultural resource gathering associated with open roads to essentially the same (or greater) degree than any alternative.

A detailed comparison of the alternatives can be found in the FEIS on pages 2-27 to 2-74.

Alternative A

No Action. Under Alternative A there would be no change in current management direction or in the level of ongoing management activities, such as road maintenance or the noxious weed treatment program, within the project area. Work previously planned within the project area would still occur under all alternatives, including Alternative A (See FEIS Appendix A, Tables A-12, A-14, A-16 and A-17).

Alternative B

During alternative development, Alternative B was the title given to the initially scoped proposed action. The proposed action released for public scoping in November 2002 included a variety of projects, including an estimated 21,500 acres of salvage harvest. Field reconnaissance, begun in August 2002 and completed in January 2003, coupled with preliminary feasibility assessments of resource protection needs, determined a need to spatially adjust the salvage proposals, typically by reducing their size or shifting their location, in order to provide specific resource protections or to achieve compliance with Forest Plan Standards and Guidelines. In addition to these adjustments, the initial proposal included a very small portion of the Ana River Subwatershed of the Summer Lake Watershed within its project area boundary. In some phases of the analysis of a large project such as this, the effects over entire subwatersheds or watersheds require consideration. To assist in efficiency of analysis, it was decided to not include the small portion of the Toolbox Fire within the Ana River Subwatershed within the Toolbox Fire Recovery Project area. Because of these two adjustment factors, it was decided that it was better not to fully develop and analyze the initially scoped proposed action, but rather analyze in detail an alternative (Alternative C) that maintained the theme of the initial proposal, but responded to these needed adjustments.

Alternative C

Alternative C, in following the same approach toward meeting the purpose and need as the initially scoped proposed action, places an emphasis on providing commercial wood products while promoting forest stands with structural conditions closer to HRV. As discussed in Chapter 1 of the FEIS, Alternative C is considered the proposed action in the FEIS. Highlights include the following:

Table R.13: Alternative C Highlights

Commercial Salvage (Total Acres of Harvest)	10,230 acres
Precommercial Thinning (Acres)	2,214 acres
Reforestation (Total Estimated Planting Acres)	20,241 acres
Including areas where:	
• Proposed Fuels Treatment would be a component of necessary <u>Site Preparation</u>	10,416 acres
• <u>Site Preparation</u> only would occur	4,900 acres
Fuels Treatments and Reductions (Acres of Fuels Reduction):	
• In ground-based units, additional to yard-tops-attached or whole-tree-yard	7,755 acres
• Additional fuels reductions, outside of units	2,661 acres
• Prescribed Fire, outside of salvage units	3,572 acres
Road Management (Percent of 271.0 Miles of Existing Road):	
• Left Open (129.1 miles)	48%
• Decommissioned (69.0 miles)	25%
• Closed (72.9 miles)	27%

Table R.13: Alternative C Highlights (continued)

Road Reconstruction (Miles of Re-surfacing)	4.0 miles
Does Alternative include Soil and Riparian Protection and Restoration Projects? (Yes or No):	
<ul style="list-style-type: none"> • Aspen Enhancement • Placement of Large Woody Debris • Deciduous Planting • Road 2917413 Drainage Improvement 	Yes Yes Yes Yes

Alternative D

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 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 (commercial timber production), it contains substantially less 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. Highlights include the following:

Table R.14: Alternative D Highlights

Commercial Salvage (Total Acres of Harvest)	6,309 acres
Precommercial Thinning (Acres)	2,214 acres
Reforestation (Total Estimated Planting Acres)	16,878 acres
Including areas where: <ul style="list-style-type: none"> • Proposed Fuels Treatment would be a component of necessary <u>Site Preparation</u> • <u>Site Preparation</u> only would occur 	7,318 acres 3,543 acres
Fuels Treatments and Reductions (Acres of Fuels Reduction): <ul style="list-style-type: none"> • In ground-based units, additional to yard-tops-attached or whole-tree-yard • Additional fuels reductions, outside of units • Prescribed Fire, outside of salvage units 	5,435 acres 1,883 acres 2,450 acres
Road Management (Percent of 271.0 Miles of Existing Road): <ul style="list-style-type: none"> • Left Open (123.9 miles) • Decommissioned (71.6 miles) • Closed (75.5 miles) 	46% 26% 28%
Road Reconstruction (Miles of Re-surfacing)	3.6 miles
Does Alternative include Soil and Riparian Protection and Restoration Projects? (Yes or No):	
<ul style="list-style-type: none"> • Aspen Enhancement • Placement of Large Woody Debris • Deciduous Planting • Road 2917413 Drainage Improvement 	Yes Yes Yes Yes

Alternative E

Alternative E places an emphasis on economic efficiency in regard to commercial salvage. It includes substantially less project activity that is not directly related to the recovery of commercial value of dead trees. Highlights include the following:

Table R.15: Alternative E Highlights

Commercial Salvage (Total Acres of Harvest)	8,931 acres
Precommercial Thinning (Acres)	0 acres
Reforestation (Total Estimated Planting Acres) Including areas where:	17,333 acres
<ul style="list-style-type: none"> • Proposed Fuels Treatment would be a component of necessary <u>Site Preparation</u> • <u>Site Preparation</u> only would occur 	5,749 acres 5,165 acres
Fuels Treatments and Reductions (Acres of Fuels Reduction):	5,749 acres
<ul style="list-style-type: none"> • In ground-based units, additional to yard-tops-attached or whole-tree-yard • Additional fuels reductions, outside of units • Prescribed Fire, outside of salvage units 	none none
Road Management (Percent of 271.0 Miles of Existing Road):	
<ul style="list-style-type: none"> • Left Open (188.9 miles) • Decommissioned (14.6 miles) • Closed (67.4 miles) 	70% 5% 25%
Road Reconstruction (Miles of Re-surfacing)	4.0 miles
Does Alternative include Soil and Riparian Protection and Restoration Projects? (Yes or No):	
<ul style="list-style-type: none"> • Aspen Enhancement • Placement of Large Woody Debris • Deciduous Planting • Road 2917413 Drainage Improvement 	No Yes No No

Alternative F

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 analyzed in detail because it would not meet purpose and need in regard to:

- Reducing surface fuel loading
 - Developing forest stands with structural conditions closer to HRV
 - Providing for commercial timber production
- (see additional discussion on FEIS pages 2-61 to 2-63)

Since it is primarily the commercial aspects of the proposed recovery action that were emphasized in the public comment, it is worth noting the range of commercial activity that is included in the alternatives. There are approximately 28,000 acres in the project area that could be characterized as burned commercial forestland that contain a commercial component. Using this as a basis, Alternatives C and G propose commercial activity on about 37 percent of these acres, followed by Alternative H (34 percent), Alternative E (32 percent), Alternative D (22.5 percent) and Alternative A (0 percent). The other alternative considered, but not fully analyzed (Alternative B) included proposals for commercial activity on about 77 percent of the burned area with a commercial harvest component. Since the Beschta recommendations largely rely upon a passive approach to restoration, consideration of Alternative A provides an analysis of some of the components of this approach.

Alternative G

Alternative G places an emphasis on using active management to achieve post-fire recovery, particularly in response to the purpose and need to develop forest stands with structural conditions closer to HRV, while providing some commercial timber production. It focuses on fuels reduction and long-term fire suppression effectiveness (a direct contributor to promoting forest stands with structural conditions closer to HRV). Alternative G was identified as the Preferred Alternative in both the DEIS and FEIS. Highlights include the following:

Table R.16: Alternative G Highlights

Commercial Salvage (Total Acres of Harvest)	10,230 acres
Precommercial Thinning (Acres)	2,214 acres
Reforestation (Total Estimated Planting Acres) Including areas where:	20,241 acres
<ul style="list-style-type: none"> Proposed Fuels Treatment would be a component of necessary <u>Site Preparation</u> <u>Site Preparation</u> only would occur 	10,416 acres 4,900 acres
Fuels Treatments and Reductions (Acres of Fuels Reduction):	
<ul style="list-style-type: none"> In ground-based units, additional to yard-tops-attached or whole-tree-yard Additional fuels reductions, outside of units Prescribed Fire, outside of salvage units 	8,488 acres 8,158 acres 3,572 acres
Road Management (Percent of 271.0 Miles of Existing Road):	
<ul style="list-style-type: none"> Left Open (188.9 miles) Decommissioned (71.6 miles) Closed (10.4 miles) 	70% 26% 4%
Road Reconstruction (Miles of Re-surfacing)	4.0 miles
Does Alternative include Soil and Riparian Protection and Restoration Projects? (Yes or No):	
<ul style="list-style-type: none"> Aspen Enhancement Placement of Large Woody Debris Deciduous Planting Road 2917413 Drainage Improvement 	Yes Yes Yes Yes

Alternative H

Alternative H focuses on wildlife habitats and on contributing developing forest stands with structural conditions closer to HRV, while providing some commercial timber. Highlights include the following:

Table R.17: Alternative H Highlights

Commercial Salvage (Total Acres of Harvest)	9,515 acres
Precommercial Thinning (Acres)	2,214 acres
Reforestation (Total Estimated Planting Acres) Including areas where:	19,586 acres
<ul style="list-style-type: none"> Proposed Fuels Treatment would be a component of necessary <u>Site Preparation</u> <u>Site Preparation</u> only would occur 	9,177 acres 5,079 acres
Fuels Treatments and Reductions (Acres of Fuels Reduction):	
<ul style="list-style-type: none"> In ground-based units, additional to yard-tops-attached or whole-tree-yard Additional fuels reductions, outside of units Prescribed Fire, outside of salvage units 	7,102 acres 2,075 acres 2,450 acres
Road Management (Percent of 271.0 Miles of Existing Road):	
<ul style="list-style-type: none"> Left Open (126.5 miles) Decommissioned (71.6 miles) Closed (72.9 miles) 	47% 26% 27%

Table R.17: Alternative H Highlights (continued)

Road Reconstruction (Miles of Re-surfacing)	4.0 miles
Does Alternative include Soil and Riparian Protection and Restoration Projects? (Yes or No):	
<ul style="list-style-type: none"> • Aspen Enhancement • Placement of Large Woody Debris • Deciduous Planting • Road 2917413 Drainage Improvement 	<p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>

Public Involvement

The need for this action arose due to the lightning-caused Toolbox Complex Fires that burned in July and August 2002. The Toolbox Fire Recovery Project was initially introduced to Klamath Tribal representatives at the August 2002 “pre-SOPA meeting” (SOPA is the acronym for “Schedule of Proposed Actions”). A formal proposal to assist the recovery of areas burned through salvage of burned timber, fuels reduction, re-forestation and riparian and aquatic improvement projects was detailed in a Notice of Intent to prepare an Environmental Impact Statement that was published in the Federal Register on November 1, 2002. The proposed action was contained in a scoping packet that was initially mailed to the public and other agencies for comment on November 12, 2002. As the public outreach process provided additional names of interested persons, the scoping packet was subsequently mailed to additional addresses through late December 2002. These mailings were sent to congressional and local governmental representatives, tribal governments and staff, area post offices, adjacent landowners, government agencies at all levels, conservation and environmental organizations, livestock and timber industry representatives, and other private individuals on the Silver Lake Ranger District NEPA mailing list. Organizations or individuals who were not previously on the list, but who were known to have an interest in projects such as the Toolbox project were added to the Silver Lake Ranger District NEPA mailing list. A total of 214 individuals or organizations eventually received scoping packets. In addition, as part of the public involvement process, the agency hosted Open Houses in Christmas Valley and La Pine, Oregon on May 12 and 13, 2003.

Using the comments from the public, other agencies, and the Klamath Tribes, the interdisciplinary team identified the key issues detailed earlier in this document, created the alternatives described above to address those issues, and prepared a Draft Environmental Impact Statement that was released on October 3, 2003 for a 45-day comment period. During the DEIS comment period, a public workshop was held in Silver Lake on November 6, 2003. Comments were received from 18 individuals and/or organizations.

Numerous areas of controversy were raised in comment letters. A brief discussion of some of these are displayed below (quotes from comment letters are *italicized*). This is not a complete summary of all public comments received (See FEIS Appendix G for a full representation of comments received, followed by agency responses).

Typical of forest fires in Central Oregon, much of this fire burned with low and moderate severity, and many trees survived. Fires such as this have shaped Central Oregon for millennia. While fire in general is characteristic of this area, the July 2002 fire that occurred in the Toolbox area was not characteristic of the history of this area because the condition of the vegetation at the time of the fire was not characteristic of the history of this area. Using both aerial photography and field reconnaissance, the levels of tree mortality on National Forest lands, were determined to be (as of September 2002):

- Low mortality: occurred on 19 percent (of the forested portion of National Forest lands); or 6,463 acres
- Moderate mortality: 28 percent; or 9,292 acres
- High mortality: 16 percent; or 5,215 acres
- Very high mortality: 37 percent; or 12,216 acres

While there is incomplete site-specific literature on the fire history and fire ecology of the immediate fire area, Miller et al. 2001 completed a report that included the northeast portion of the Toolbox analysis area. That study found significant changes in forest stand structure and fire return intervals since the 1870s. Pre-suppression era fire history was characterized by a pattern of frequent low intensity disturbance from fire, which produced relatively low fuel loads, significantly less ladder fuels, more grass component and a more open forest structure than existed just prior to the fires of the Toolbox Complex. Miller’s study determined that the historic fire return interval was less than ten years for over several hundred years prior to the suppression era. (Miller et al., 2001,5). The extensive mortality in the Toolbox Fire Complex is a departure from characteristic historic wildfires conditions in eastside pine forest communities when wildfires were ground fires, and mature pine generally lived through wildfires with some scarring (Agee, 1993, Biswell, 1989, Miller et al., 2001).

The proposed actions will not achieve the projects stated purpose and need but will instead likely cause unacceptable environmental impacts and increase the risk of catastrophic fire rather than decrease it. Many of the comments received appear to assume that the only activity that will actually occur within the commercial salvage units is the removal of large boles. This is not the case. While all action alternatives propose some degree of commercial salvage, they all include a design in which additional fuels treatment would be applied to the non-commercial components of the overall fuel load in areas where predicted fuel loading would exceed a certain threshold. The threshold is 20 tons per acre in Alternative G (Modified). These additional fuels treatments would either result in actual fuel loading reductions (tonnage) or significantly reduced fuel bed depths (see DEIS/FEIS Fire and Fuels section - Environmental Consequences – Direct and Indirect Effects). As the alternatives were adjusted from the levels of proposed commercial salvage in the DEIS to the reduced levels in the FEIS, this same concept was applied. Those areas that were dropped as commercial salvage units, in which the predicted fuel loading would exceed 20 tons per acre (without treatment), were retained as “Fuel Treatment outside Commercial Salvage”.

The Forest Service failed to analyze a reasonable range of alternatives in the Toolbox DEIS. The DEIS must address a no-harvest restoration alternative that implements prescribed burning, culvert replacement, large woody debris (LWD) recruitment, and road obliteration alone, without commercial timber harvest. As noted earlier in this document, a no-commercial logging alternative emphasizing a passive approach to restoration based on “Beschta Report” recommendations was considered but not analyzed in detail (see additional discussion on FEIS pages 2-61 to 2-63) because it would not meet purpose and need in regard to:

- Surface fuel loading
- Forest stands with structural conditions closer to the Historic Range of Variability (HRV)
- Commercial timber production

While large material, such as that removed by commercial harvest does play a lesser role in determining initial fire behavior, in comparison to smaller components of the fuelbed, large fuels are an important factor in contributing to eventual extreme or detrimental fire behavior or detrimental impacts on soils. Brown (2003), Rothermel (1991), and other sources cited in the EIS support this. Accumulations of large dead woody fuel, especially containing larger diameter decayed pieces, can hold smoldering fire on a site for extended periods. When high winds occur, the sustained burning of persistent fire can be fanned into fast moving, dangerous fires (Chandler and others 1983). Torching, crowning, and spotting, which contribute to large fire growth, are greater where large woody fuels have accumulated under a forest canopy and can contribute to surface fire heat release (Brown, 2003). Brown also indicates 10 to 30 years after the fire, “high burn severity would primarily occur where large woody material was lying on or near the soil surface.” Thirty to sixty years after the fire, “Higher severity burning than would typically occur during earlier periods is possible depending on extent of soil coverage by large woody pieces.” (Brown, page 9). It is in the 25 to 35 year timeframe when the first applications of prescribed fire on the young ponderosa pine forest, an important tool in the development of characteristic forest stands with historic structural conditions, would likely be implemented in the Toolbox area. Attempting to accomplish this in an environment characterized by very high surface fuel loading from large woody debris would be imprudent.

The roadless/unroaded analysis fails to disclose and consider the significant value of natural recovery in unroaded areas. Natural recovery will be more diverse and complex and result in actual diverse forest conditions, whereas heavy salvage and loss of hazard trees will result in uniform, dense stands that resemble plantations tree farms. In effect, much of the unroaded area that was depicted on maps provided by the Oregon Natural Resources Council will include only non-commercial activities. The total amount of commercial salvage that is proposed within the five identified unroaded areas in Alternative G (Modified) is 597 acres. The amount of each of the five unroaded areas (percent of total area) proposed for salvage logging, or reasonably foreseeable future commercial thinning (logging) in other projects (as noted in FEIS Appendix A, Table A-16) represents 1 percent, 6 percent, 6 percent, 4 percent, and 2 percent of the total area of the five areas, including area both within and outside of the project area. Other combinations of activities that would occur within the five unroaded areas, are varied and included combinations of:

- No activity - including several 100 percent snag retention areas of both large diameter ponderosa pine and smaller diameter ponderosa and lodgepole pine (Lewis’ and black-backed woodpecker).
- Commercial salvage only (with a snag retention clump every 5 to 10 acres within units)
- Commercial salvage with post-salvage fuels treatment (with a snag retention clump every 5 to 10 acres within units)
- Fuels treatment only, outside of commercial salvage, with snag retention clumps
- Prescribed fire only
- Reforestation would be implemented on an as-needed basis within the unroaded areas, ranging from areas on which full reforestation on all acres would occur (such as in areas of heaviest mortality) to areas that were lightly burned that would be “spot planted.”

This range of activity, coupled with the diversity provided by widely varying levels of mortality that occurred as a result of the fires, should result in diverse forest conditions.

Aside from that brief mention of the proposed Winter Fire project, the DEIS fails to mention any other concurrent or future projects occurring near the project area. Moreover, the agency makes no effort to discover the impacts of actions on private lands, even though 27,500 acres (out of the total 85,000 acres that burned within the Toolbox Fire Complex) were burned on private land. The statements in the above comment do not accurately describe the cumulative effects analysis contained in the DEIS (or FEIS). Appendix A, an integral part of both the DEIS and FEIS provides the starting point for an extensive cumulative effects analysis. Tables A-12 through A-17 in DEIS/FEIS Appendix A list future projects or activity, including those on private and BLM lands. The activities in these tables are then referenced in the cumulative effects discussion in each of the individual resource sections in Chapter 3. Brief excerpts from the DEIS and FEIS are presented below for two resource areas (watershed cumulative effects and cumulative effects on goshawk habitat) in relation to effects from activities on private lands.

Since the large majority of private lands, especially those on which post-fire salvage has already occurred, are in the Toolbox Fire portion of the project area, a single subwatershed (Benny Creek – with effects discussion beginning on DEIS page 3-303; FEIS page 3-338), which has a relatively high percentage of private lands provides a good example:

“An estimated 3,990 acres of timber were removed from private land within the subwatershed (Benny Creek), which equates to 15 percent of the subwatershed in the fall of 2002. The long 2003 rain and snow season extending from March into May provided soil moisture conditions for seedbed response and ground cover recovery. The removal of salvage timber directly after the fire occurred along with the response to the fire allowed for greater sedimentation directly after the fire occurred. However, the precipitation and the openings created by the salvage has allowed for good ground cover recovery on the private land and has therefore limited sedimentation transport opportunities.” (DEIS page 3-305; FEIS page 3-340).

“Industrial forest lands. Throughout the analysis area have logged extensively throughout the 20th century. By 2000, almost all stands were logged at least once. The extensive use on private lands has increased ground disturbance and increased erosion.” (DEIS page 3-306; FEIS page 3-340).

Conclusion (on DEIS page 3-309; FEIS page 3-344): “Cumulative effects from the action alternatives are expected to be low in this subwatershed due to the recovery expected on private land salvage harvest, the effective rehabilitation of the suppression activities, monitoring and management of livestock use and allotment condition, and monitoring of possible sediment source units. The action alternatives would reduce fuel loads and reduce road densities and their associated sedimentation to varying degrees.” The cumulative watershed effects analysis is then concluded, for each subwatershed, with a table that summarizes, using a rating of “restore”, “Maintain” or “Degrade” in terms of nine elements that related to different aspects of watershed functionality. For Benny Creek this table is on DEIS page 3-310; FEIS page 3- 345.

Other subwatersheds follow suit.

Goshawk is discussed beginning on DEIS page 3-121 (FEIS page 3-134). In the table of Assessment of Known Goshawk PFAs it is noted that the East Trough Spring PFA has a majority of its area on private lands, which are included (in total) in Table A-13, as salvage harvested. DEIS Table 3.45 (FEIS Table 3.54) shows that, due to its location on private lands, the analysis will consider it to be no longer functional. A “typo” in the cumulative effects discussion for goshawk that appeared in the DEIS has been corrected in the FEIS. The DEIS states “...(past timber management activities have) decreased overall foraging habitat for goshawks. Salvage harvest has occurred on several acres of private land as described in Table A-13 of Appendix A. This would likely reduce foraging habitat for goshawks by removing prey habitat.” The statement has been corrected to “several thousand” acres. In addition, the table of Assessment of Known Goshawk PFAs has been updated in the FEIS, following 2003 surveys, to note that no goshawks were detected during surveys.

See Chapter 3 of the DEIS and FEIS for resource by resource discussions on cumulative effects relating to of activities on private lands. The wildlife section in Chapter 3 includes consideration for private lands activities for numerous wildlife species (see individual species heading in the Wildlife section of Chapter 3).

The Winter Fire occurred in a watershed that is adjacent to the Toolbox Fire Complex on the east side of a major watershed divide (Winter Ridge). Currently proposed salvage activity within the Winter Fire is (at its closest point) 3 miles south of any proposed Toolbox activity and is in the Summer Lake watershed. All parts of the Toolbox Complex that occurred within the Summer Lake Watershed were excluded from the area of proposed project activity in the Toolbox EIS. Despite the

disconnecting factors between Toolbox and Winter, cumulative effects on some wildlife species (black-backed and Lewis' woodpecker, as well as cavity and down wood dependent species in general, wolverine, and peregrine falcon), recreation (Fremont National Recreation Trail), scenery, sensitive plants and noxious weeds, and unroaded areas, have been considered in the Toolbox FEIS sections in Chapter 3.

Consideration for activity on adjacent BLM lands is found in the EIS in the numerous sections (including Fire-Fuels, Wildlife, Watershed, Range, Sensitive Plants, and Noxious Weeds). Tables A-12 through A-17 in DEIS/FEIS Appendix A list future projects or activity, including those on private and BLM lands. The activities in these tables are then referenced in the cumulative effects discussion in each of the appropriate individual resource sections in Chapter 3.

There is no scientific body of knowledge to support the proposed actions. In fact many of the predicted impacts are contrary to the best available science. The Forest Service is required by NEPA to provide scientific support for its assumptions and predictions as well as disclose any evidence that might introduce significant controversy. Such empirical support is lacking entirely in the Toolbox DEIS. The interdisciplinary team consulted over 400 scientific references in preparing the DEIS (See DEIS Volume 2, Literature Cited). The number of references has increased to about 500 in preparing the FEIS. In addition, team members have conferred directly with researchers specifically in relation to this project. The 18 comment letters included approximately 130 scientific or commentary references as substantiation for statements included in their letters. Of these 130 references, about 25 had been cited amongst the sources used to prepare the DEIS. Additionally, in many other cases, similar materials or findings from the same authors were already cited in the DEIS. In order to test and improve the analytical conclusions, the references cited during the comment period were systematically searched out and evaluated by Interdisciplinary Team (IDT) members. The results of that evaluation are displayed in a table that appears on FEIS Appendix G pages G-135 to G-162).

Findings Required by Other Laws and Regulations

Alternative G (Modified) meets requirements under all applicable laws, regulations and policies, as discussed below.

The following table provides a guide to locations within the FEIS where regulatory direction and project effects pertaining to that direction are disclosed. Brief discussions follow.

Table R.18: FEIS Page Numbers with Direction, Pertinent Effects, and Attainment Disclosures

Resource Area	LRMP Framework Described	Other Regulatory Framework Described	Effects Disclosed	Summary of Attainment of LRMP/Regulatory Direction	Comment
General	1-6 to 1-9	1-5 to 1-6			Broad framework presented
Fire and Fuels	3-4	3-4	3-20 to 3-50	3-50	
Forested Vegetation	3-54 to 3-56	3-53 to 3-54	3-88 to 3-120	3-121	
Wildlife	General 3-133 Goshawk 3-134 Mule Deer 3-138 Sapsuckers 3-149 Snag/Down Wood 3-161 Other MIS Threatened, Endangered, Sensitive 3-206 Bald Eagle 3-210 Other TES 3-212 to 3-227 Focal Species Old Growth/Connectivity 3-246 to 3-248		3-136 to 3-137 3-140 to 3-144 3-150 3-171 to 3-205 3-144 to 3-149 3-211 to 3-212 3-212 to 3-227 3-227 to 3-245 3-246 to 3-250	Summary of Attainment for Wildlife 3-253 to 3-255	Some individual species disclosures of effects discussions (for example snag and down wood dependent species) are interspersed with attainment. Biological Evaluation (B.E.) Summary 3-207 to 3-209
Soils (including Wetlands)	3-258	3-259 to 3-260	3-279 to 3-286	3-286	
Watershed	3-288	3-289 to 3-290	3-302 to 3-312 3-338 to 3-404	3-406 to 3-407	
Fisheries	3-290 to 3-291	3-291	3-312 to 3-337 3-405 to 3-406	3-407 to 3-410	B.E. Summary 3-410
Cultural Resources	3-412	3-411 to 3-413	3-419 to 3-423	3-423	
Recreation	3-426		3-429 to 3-433	3-433	
Scenery	3-434 to 3-436		3-439 to 3-449	3-449 to 3-450	
Economics	3-453	3-453	3-457 to 3-479	3-479	
Environmental Justice		3-481	3-482 to 3-484	3-485	
Treaty Rights	3-487 to 3-488	3-487 to 3-488	3-488 to 3-489	3-489	
Sensitive Plants		3-491	3-496 to 3-518	3-519 to 3-521	B.E. Summary 3-519
Noxious Weeds	3-523	3-522 to 3-523	3-526 to 3-533	3-545	
Range Resources	3-535	3-535 to 3-536	3-537 to 3-545	3-545	
Roadless and Unroaded		3-545 to 3-546 3-549	3-547 to 3-548 3-552 to 3-569	3-548 3-569	
Air Quality		3-570 to 3-573	3-577 to 3-583	3-583	

In addition, public comment and responses that pertain to “**Compliance with Fremont LRMP, Laws, and Regulations**” are contained in FEIS Appendix G, pages G-120 to G-134, on the following topics:

- General
- LRMP - Snags and Down Wood
- LRMP – INFISH
- LRMP - Bald Eagle
- LRMP - Road Density
- LRMP - Screens (Regional Forester’s Amendment #1 and #2)
- National Forest Management Act NFMA (including Species Viability)

- Endangered Species Act
- Clean Water Act
- Council on Environmental Quality NEPA Regulations

Other: The FEIS discloses that the analysis revealed no significant irreversible or irretrievable commitment of resources associated with implementing any of the action the alternatives (FEIS page 3-585 and 3-586).

The FEIS also discloses potential effects (none significant) regarding other areas of required disclosure, including:

- Consumers, Civil Rights, Minority Groups, or Women
- Prime Farmland, Forestland Rangeland
- Wetland and Floodplains
- Energy Requirements
- Public and Worker Safety

See FEIS pages 3-586 to 587 for a summary of these topics.

Consistency with Forest Plan Direction

My decision to implement the recovery projects as described in my selected alternative is consistent with the intent of Forest Plan management direction (goals, desired conditions, standards, guidelines). The project was designed in conformance with Forest Plan standards and incorporates appropriate Forest Plan guidelines specifically for snags, down woody material, big game habitat, riparian habitat, streams, and timber harvest. Projects were developed particularly with regard to the goals and standards detailed for the following management areas (which represent the primary MAs found within the project area):

- MA 1: Mule Deer Winter Range
- MA 2: Threatened and Endangered Species Habitat
- MA 3/MA 14: Old-Growth Dependent Species Habitat
- MA 5: Timber and Range Production (amended by Regional Forester's Eastside Forest Plan Amend. #1 and #2)
- MA 6: Scenic Viewshed
- MA 15: Fish and Wildlife Habitat/Water Quality (amended by INFISH)

Consistency with the National Forest Management Act

In all other respects, I have determined that this decision is consistent with the requirements of the National Forest Management Act implementing regulations. The selected alternative is consistent with the seven management requirements from 36 CFR 219.27. Design elements and mitigation associated with the selected alternative will protect soil, water, fish and wildlife habitat and threatened and endangered species to the extent possible in the short-term, while actively managing vegetation, fuels, roads, and recreation to minimize serious or long-lasting hazards resulting from natural physical forces, in this case wildfire, erosion, and flood (FEIS Chapter 3).

All harvest units were planned on lands classified as suited for timber production, and even-aged management or clear cutting of forests will not occur. All restoration activities associated with the selected alternative (including the fuel treatments) will avoid permanent impairment of site productivity. Potential effects on soil productivity are considered in the FEIS in terms of fertility, sediment risk (including the contribution of roads to sediment transport) and compaction. To better address soil quality and productivity, compaction surveys, ground cover recovery, and erosion estimates were completed, specific to the project. Water Erosion Prediction Project (WEPP, 2001) technology that varies with vegetation cover, soil conditions, and climate was used for objective soil erosion and hydrologic estimates. Long-term soil productivity in a semi-arid environment, such as the Toolbox area, is intrinsically tied to ground vegetation, specifically a well-developed grassy ground vegetation. Both the Forested Vegetation and Geology, Geomorphology, and Soils sections of FEIS Chapter 3 refer to Tim Sexton's 1993-1994 sampling in the Lone Pine Fire to determine the effects of fire and salvage logging on productivity in relation to vegetation composition, diversity, biomass, growth and survival (Sexton 1998). The findings are then updated by reporting the findings of return site investigations in 1999 (Malaby 2002) and in 2003 (Regal, pers. Comm. 2003). These re-measurements of Sexton's plots indicate that effects to productivity differences following fire salvage are short term (FEIS page 3-111).

The selected alternative is consistent with the viable population requirements of 36 CFR 219.19 (FEIS pages 3-205, 3-208 to 3-227, 3-405, 3-409, 3-519 and FEIS Appendix G pages G-128 to G-129).

Consistency with National Historic Preservation Act

All surveyed and inventoried cultural and heritage resource sites in the project area will be avoided. Concerns and ideas from the Culture and Heritage Office of the Klamath Tribes were instrumental in the process used to design and inventory for heritage resources. Potential effects on cultural and heritage resources were a key element in alternative design. Project activity has been designed to avoid all previously known and newly recorded sites potentially eligible to the National Register of Historic Places. Under the stipulations in the "Memorandum of Agreement" with the State Historic Preservation Officer (SHPO), the Forest Archaeologist has certified that the project will have "No Effect" on listed or eligible cultural resources. It is reasonable however to assume, for a project this large, that some sites have likely been missed during survey. No cultural resource survey can find 100 percent of all sites.

Any significant site discovered during project preparation and implementation will be protected from project impacts. If sites are discovered during on-the-ground preparation of sale units or at any time prior to the ground disturbing activity, the Forest Archaeologist and the North Zone Heritage department will be notified. The site will be reviewed on the ground by the assigned Archaeologist or Cultural Resource Technician, who will develop protection measures, if needed. If a site is discovered during harvest or any ground disturbing activity, all work will cease in the immediate vicinity of the discovery. At that time, the Forest Archaeologist and the North Zone Heritage department will be notified, and the location will be reviewed on the ground. The assigned Archaeologist or Cultural Resource Technician will develop protection measures for these sites, if needed. See FEIS, Chapter, pages 2-58 to 2-61 for details of mitigation and resource protection measures that pertain to cultural and heritage resources.

Consistency with Endangered Species Act

Biological Evaluations (B.E.s) were prepared to assess potential effects to sensitive and ESA listed plant, wildlife, and fish species and proposed critical habitat as identified by the Pacific Northwest Regional Forester (see above table for FEIS page numbers). In sum, a total of 36 species were evaluated. The B.E.s determined that for all species there would be, as a result of the action alternatives, either "No Effect", "No Impact" or "May impact individuals or habitat, but would not likely contribute to a trend toward federal listing or reduced viability to the population or species". The only listed (Threatened or Endangered) species for which habitat could potentially be affected by the project is bald eagle (Threatened). The biological evaluation found that, for bald eagle, the action alternatives would have "no effect" on the species or habitat. On April 10, 2003, Forest Service specialists consulted with the United States Fish and Wildlife Service (USFWS) regarding the Toolbox Fire Recovery project, including all potential alternatives, mitigation measures, and potential effects to bald eagles and their habitat. USFWS agreed with the conclusions discussed in the Toolbox wildlife report and the B.E. (see FEIS pages 3-209 to 3-211).

Consistency with Clean Air Act

The basic framework for controlling air pollutants in the United States is the 1970 Clean Air Act (CAA), as amended in 1990 and 1999 (42 U.S.C. § 7401 et seq.). The CAA encourages reasonable federal, state, and local government actions for pollution prevention. State Implementation Plans (SIPs) are developed to implement the provisions of the Clean Air Act. The project will be implemented in full compliance with Oregon DEQ air programs through cooperation with the Oregon State Implementation Plan (SIP). The Fremont-Winema National Forest participates in the state of Oregon smoke management program to meet National and State air quality standards for PM-10 and PM-2.5. This project meets all criteria to protect air quality (FEIS pages 3-570 to 3-585).

Consistency with Clean Water Act

The selected alternative will meet and conform to the Clean Water Act as amended in 1982. This act establishes a non-degradation policy for all federally proposed projects. I base this finding on the extensive water quality protection measures and the comprehensive, subwatershed-based approach of the analysis. The design of protective measures was coordinated from the start with district and zone timber sale administration personnel, including direct involvement on the IDT. Those designs, fully described in Chapter 2 of the FEIS, and supplemented in FEIS Appendix C ("Mitigation Details"), includes numerous protective strategies, some fairly passive and already achieved (such as the establishment of RHCAs and their integration into project design), others that are to be put into effect during implementation (such as the timber and road BMPs) that are designed to meet the conditions of the CWA, as well as the project need. Water-related concerns are addressed through a combination of mitigations/BMPs, direct project actions (decommissioning of roads, placement of large woody debris, aspen enhancement, deciduous planting and Road 2917413 drainage improvement) and specific design strategies (such as the establishment of RHCAs). As stated in Appendix C of the FEIS, Best Management Practices (BMPs) are the primary mechanisms to enable achievement of water quality standards, as advised by the Environmental Protection Agency (FEIS, pp C-2 and C-14). As

acknowledged in the FEIS (page 3-303 to 3-305), while BMPs are not the solution to eliminating adverse effects on aquatic resources in the case of excessive management or development projects they can offer effective resource protection during a project like the Toolbox Fire Recovery project that was designed and analyzed in framework that relies on accepted means of resource protection.

Consistency with Other Policy or Guiding Documentation

The Decision for the selected alternative does not include the use of herbicides. Monitoring and prevention are the main strategy to used in implementing project elements to manage unwanted and competing vegetation. The FEIS for Managing Competing and Unwanted Vegetation, November 1988, Record of Decision signed December 1988, and the requirements of the Mediated Agreement, signed May 1989, guide the policies for managing competing and unwanted vegetation considered in this decision.

I find that my selected alternative will meet the intent of Executive Order 11990 (protection of wetlands), which directs federal agencies to "minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands....". In portions of the project area, conifer encroachment onto soils with wetland features is extensive. Fifty-to-seventy year old conifers have encroached onto riparian soils and displaced riparian species, resulting in fire-caused tree mortalities above 50 percent. In one specific site in the southeast portion of the project area, the wetland has diminished by 40 to 50 percent. Following the 2002 fires, sedge plants are beginning to expand along stream banks and across floodplains to match the wet soil features. Treating this area's units as proposed, particularly unit 131, should aid in wetland recovery (FEIS 3-281). Harvest activities and other activities within RHCAs would be in accordance with Fremont National Forest Land and Resource Management Plan (LRMP) Standards and Guidelines, as amended by the Inland Native Fish Strategy (INFISH). These specifically provide direction for: Category 1 – Fish Bearing Streams; Category 3 – Ponds, lakes, reservoirs, and wetlands greater than 1 acre; and Category 4 – Seasonally flowing or intermittent streams. There are no Category 2 streams in the project area. Judicious harvest and fuels within and adjacent to riparian habitat conservation areas RHCA is consistent with Executive Order 11990 for conservation of wetlands (FEIS, page 3-286).

I also find that the selected alternative will comply with Executive Order 12898 (Environmental Justice). Some minorities, low-income residents, and Native Americans may be impacted by the selected alternative through the restriction of timber harvest or other activities to only a portion of the project area, if the groups are economically tied to one of those industries. However, these effects would be localized, are not measurable, and would not be disproportionate to low income or minority groups (FEIS 3-483). Additional details on environmental justice and civil rights impacts can be found in the Toolbox Fire Recovery Project Civil Rights Impact Analysis in the project record.

Protection of Tribal Treaty Rights and Trust Resources

American Indian treaty rights and trust resources will be protected under the decision. This decision affects management of the Fremont-Winema National Forests. Treaty Rights and Trust Resources are primarily defined by the Treaty of 1864 and the Memorandum of Agreement (MOA), The Klamath Tribes and U.S. Forest Service (February 19, 1999). The MOA establishes policies and procedures that implement a government-to-government consultation process between the two parties. The need for the MOA arose from the unique relationship between the Tribes and the Forest Service. The Tribes retain treaty reserved hunting, fishing, trapping and gathering rights on the lands of their former reservation. The MOA brings a protocol and structure to the format and content of consultation on actions that have the potential to impact the Tribes' reserved rights, cultural resources and other resource interests.

The consultation process began when the Toolbox Fire Recovery Project was introduced to Klamath Tribal representatives at the August 2002 quarterly "pre-SOPA meeting." Following the introduction of the project, the Klamath Tribes Natural Resource Department Director named the Tribal Wildlife Biologist as the department's representative for the project. In October 2002, the Klamath Tribes Natural Resources Director granted the Forest Service request to proceed with expedited public scoping as outlined in the 1999 Memorandum of Agreement. During this same time period The Klamath Tribes Culture and Heritage Director began direct communication with the archaeologist on the Toolbox Interdisciplinary Team (IDT). This resulted in cultural resource field reconnaissance crews being assembled that were jointly composed of personnel from the Klamath Tribes and the Fremont-Winema National Forests. These crews performed inventories during the fall of 2002 and throughout the 2003 field season.

In addition to ongoing technical consultation between Forest Service technical and professional staff and tribal counterparts, updates on the project were provided to Klamath Tribal representatives at all subsequent pre-SOPA meetings. During internal Forest Service review of the draft of the DEIS (June 10, 2003 to August 1, 2003), complete copies of the draft document were provided for Klamath Tribal review, concurrent with internal Forest Service 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).

During the 45-day comment period a meeting involving the Klamath Tribal Director for Natural Resources, the Tribal Wildlife Biologist, the Fremont Winema Forest Supervisor and members of her staff was held to discuss the comments that the Klamath Tribes were preparing for submittal. The purpose of the meeting was to expand upon some of the points that were being drafted into the Tribal comment letter and freely exchange ideas on both the Toolbox project and overall management of the Fremont-Winema National Forest.

Following preparation of the FEIS, during the drafting of the Record of Decision, a meeting was held at the Tribal Offices in Chiloquin, Oregon to discuss the draft ROD in light of specific concerns that were expressed in the Tribal comment letter or other concerns. Attending that meeting were the Tribal Wildlife Biologist, the Klamath Tribes Culture and Heritage Director, the Klamath Tribes Cultural Resource Protection Specialist, the Silver Lake District Ranger, representing the Responsible Official, and the Toolbox IDT Leader.

Two key issues were identified during the Toolbox analysis, based both on input from the Klamath Tribes and from the public that pertain to treaty right resources. These include: "Changes in Motorized Access" and "Effects on Wildlife Habitat." Alternative G, the identified preferred alternative in the DEIS and FEIS, was modified into the selected Alternative G (Modified), as noted in this ROD, largely in response to these two issues. Specifically, Alternative G (Modified):

- Retains current areas of big game cover by dropping such areas from prescribed fire actions
- Leaves open all existing access within former Klamath Reservation lands
- Provides increased protection of cultural resources by substantially lowering overall open road density
- Includes monitoring for mountain mahogany regeneration that will occur within 2 years following this decision
- Establishes variability in conifer planting pattern as a desired objective

Implementation

Administrative Review or Appeal Opportunities

Implementation Date

Emergency Situation Determination

This decision is subject to appeal pursuant to 36 CFR 215. Any written notice of appeal of the decision must be fully consistent with 36 CFR 215.14, "Appeal Content." The notice of appeal must be filed hard copy with the Appeal Deciding Officer, ATTN: 1570 APPEALS, 333 S.W. First Avenue, P.O. Box 3623, Portland, Oregon, 97208-3623, faxed to (503) 808-2255, sent electronically to appeals-pacificnorthwest-regional-office@fs.fed.us, or hand delivered to the above address between 7:45AM and 4:30PM, Monday through Friday except legal holidays. The appeal must be postmarked or delivered within 45 days of the date the legal notice for this decision appears in the Klamath Falls Herald and News. The publication date of the legal notice in the Klamath Falls Herald and News is the exclusive means for calculating the time to file an appeal and those wishing to appeal should not rely on dates or timeframes provided by any other source.

Electronic appeals must be submitted as part of the actual e-mail message, or as an attachment in Microsoft Word, rich text format or portable document format only. E-mails submitted to e-mail addresses other than the one listed above or in other formats than those listed or containing viruses will be rejected. Only individuals or organizations who submitted substantive comments during the comment period may appeal. The portions of this decision not determined to be an emergency may be implemented 50 days after this legal notice if no appeal is received. If an appeal is received the portions of this project and decision not determined to be an emergency may not be implemented for 15 days after the appeal decision.

The Regional Forester, as a designee of the Chief of the Forest Service has determined that an emergency situation exists as per 36 CFR part 215.10 for the following components of this project and decision:

- 7,287 acres of commercial salvage of sawtimber (see Figure 1 and Figure 2 following the signature page), which is subject to deterioration, and post harvest fuels treatment. Connected actions to this include temporary roads, road reconstruction and road maintenance as needed to access and haul commercial salvage units.
- 4,500 acres of fuels treatments and site preparation for reforestation outside of commercial salvage units (see Figure 3 and Figure 4 following the signature page)

For that portion of the decision determined to be an emergency, though still subject to administrative appeal, implementation may proceed no earlier than 30 days after the notice of availability for the environmental impact statement was published in the Federal Register (the publication date was March 26, 2004). This is consistent with 36 CFR part 215.10 which requires compliance with the timeframes and publication requirements that are described in 40 CFR 1506.10(b)(2). 40 CFR 1506.10(b)(2) stipulates that implementation may occur 30 days after the publication of the notice of availability (NOA) for the environmental impact statement in the Federal Register.

Contact Person

For additional information concerning this decision or the Forest Service appeal process, contact:

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P.O. Box 129
Silver Lake, OR 97638
(541)-576-7569

/s/ Karen Shimamoto

April 23, 2004

KAREN SHIMAMOTO
Forest Supervisor
Fremont-Winema National Forests

DATE