United States Department of Agriculture

Fremont-Winema National Forests

Silver Lake Ranger District

65600 Highway 31
P.O. Box 129
Silver Lake, OR 97638
541-576-2107

Toolbox Fire Recovery Project Open Houses

(May 12-13; North Lake School & La Pine "Newberry Station" Best Western)

Descriptions of Alternatives

On July 12, 2002, a lightning storm ignited 67 fires on the Fremont National Forest. On the Silver Lake Ranger District, two of these fires, the Toolbox Fire and the Silver Fire, became the primary fires within the Toolbox Complex.

The Toolbox Complex includes approximately 85,000 acres, including 49,500 of National Forest lands, 8,000 acres of Bureau of Land Management lands, and 27,500 of privately owned lands.

Inventory and Field Reconnaissance on 48,500 acres of National Forest (within the burned area) was accomplished during the fall of 2002 to determine the Current Status of: Forest Stands (mortality level); Wildlife Habitat; Soils (compaction levels); Cultural Resource Sites; Streams and Fish Habitat; Fuels Profiles; Road System; Recreation Facilities and Range Resources.

Based on that reconnaissance, a site-specific initial proposal ("Proposed Action") was presented to the public and other agencies during initial "public scoping" (completed December 2002). Based on comments, and the concerns they reflect (called "Issues"), new, **alternative proposals** that offer differing means to accomplish the stated purpose of the project were developed. The May 12-13 Open Houses are designed to present the Alternatives, to explain them and to receive feedback from the public about them.

All information that is depicted on the maps or in the text displays reflects current "working drafts" as of May 12, 2003. They are for information sharing purposes only

Issues

Issues are points of discussion, debate, or dispute about environmental effects that may occur as a result of the proposed action or an alternative. It is these *potential* environmental effects, particularly potential negative effects, through which issues provide focus and influence alternative development, including development of mitigation measures

Key Issues

The alternatives respond to the following key issues identified during initial project scoping, both public and internal.

Key Issue: Changes in Motorized Access

Issue Statement: Proposed road rehabilitation activities would reduce public access for recreation and personal use fuelwood gathering. The proposal would also reduce opportunities for members of the Klamath Tribes to hunt or gather treaty right resources within former Klamath Reservation boundaries.

Key Issue: Economic Efficiency and Economic Opportunities

Issue Statement: The overall economic viability of the project could be reduced by including restoration proposals other than commercial salvage, and by including helicopter yarding for a portion of the commercial salvage.

Key Issue: Effects on Soils, Watersheds, and Aquatic Habitat

Issue Statement: The proposed salvage and connected actions, including temporary road construction, could potentially have adverse effects on water quality and timing of runoff, and cumulatively contribute to adverse effects on soils.

Key Issue: Effects on Wildlife Habitat

Issue Statement: Habitat for cavity dependent species could be negatively impacted by commercial salvage operations. Fuels reduction that includes the use of prescribed fire could negatively impact mule deer habitat.

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

Issue Statement: This issue embodies divergent public input on which overall approach to recovery best accomplishes actual recovery and restoration. Some commenters believe that recovery and restoration would be better achieved through an approach that did not include the proposal to commercially salvage fire damaged trees. Others believe recovery and restoration would be better achieved through an approach that allows for commercial harvest of salvage-eligible fire damaged trees.

Alternative A

(No Action)

Alternative A is the No Action alternative. This alternative is required and serves as a baseline for comparison of the effects of all of the alternatives. This alternative responds to the following ***key issues***:

Changes in Motorized Access **-** This alternative would not conduct any road decommissioning, closure or improvement work, so no changes in access would result. No progress toward or compliance with Forest Plan standards for maximum road density would occur.

Effects on Soils, Watersheds, and Aquatic Habitat **-** This alternative would not cause short-term impacts to soil and watersheds from commercial salvage or other fuel reduction activities. On the other hand, it would not actively reduce sediment from existing roads or improve riparian habitat through specific restoration projects.

Effects on Wildlife Habitat **-** This alternative would not cause impacts to Cavity Dependent species habitat. Cover, one primary aspect of mule deer habitat would not be impacted, though road density, another aspect of mule deer and other wildlife habitat, would not be improved.

Recovery using a limited-intervention approach vs. Recovery using a full-range of active management practices, including commercial salvage **-** This alternative would not conduct any commercial salvage or fuel reduction work. It would allow heavy fuel loads to accumulate on the ground in all burned areas. No reforestation, through planting, would occur. Attainment of sustainable LOS conditions would rely on passive recovery.

Under this alternative there would be no change in current management direction or in the level of ongoing management activities within the project area. Work previously planned within the project area would still occur under all alternatives, including Alternative A

Commercial Salvage - No activity would occur.

Reforestation - The burned areas would be left to reforest naturally; no trees would be planted.

Fuels Treatments and Reductions - No fuel reduction would occur; all fuels, both live and dead trees, would be left.

Prescribed Fire - No activity would occur.

Road Management - No activity would occur. All 271.0 miles of road on National Forest lands within the project boundary would remain open. Open road density would remain at 3.68 miles per square mile.

Soil and Riparian Protection and Restoration Projects - Protection would rely on a passive approach in which no activities that could impact soil or watersheds would occur. No improvement to riparian habitat through specific restoration projects would occur.

Alternative C

(Modified Proposed Action)

This alternative is a modified version of the proposal that was presented to the public in November 2002 as the Proposed Action. Alternative C follows the same approach toward meeting the purposes and needs as did the initial proposed action, and, like the proposed action, places an emphasis on providing wood products while contributing to the long-term development of late and old forest structure. It includes adjustments made to the scale and location of proposed activities, primarily based on additional site-specific information derived from resource reconnaissance completed in the fall of 2002.

This alternative was developed by modifying the Proposed Action in response to the following ***key issue***:

***Changes in Motorized Access* -.** The initial proposed action displayed some proposed road decommissioning. However, it acknowledged that following an area-wide Roads Analysis, additional recommendations for decommissioning, closure, or leaving roads open would be included in the fully developed alternatives. Alternative C includes a full set of road management actions. The initial proposed action did not address the question of access within the portion of the project area that is in within former Klamath Indian Reservation boundaries. In response to public input, Alternative C, the modified proposed action, would retain existing access within former Klamath Indian Reservation boundaries.

Commercial Salvage – This includes approximately 14,441 acres with a total of 312 harvest units within the project area boundary. The Toolbox Fire portion contains 176 proposed harvest units, and 136 proposed harvest units are within the Silver Fire portion. Total sawtimber harvest volume is estimated to be 73.3 mmbf (million board feet). For all action alternatives, within commercial salvage units in ponderosa pine stands, mixed conifer stands and lodgepole pine stands, trees not reserved for retention for habitat or other resource reasons with less than 20 percent bright green crown would be considered eligible for salvage harvest, with no diameter limits. In addition to the above criteria, in mixed conifer stands, white fir trees (those trees less than 21" dbh only) that show evidence of receiving heat to the bole, such as scorching, blackening, or immediately adjacent high intensity fire activity (i.e. a consumed down log next to the tree) would be removed as fire-damaged trees.

Roadside Hazard Treatment - For all action alternatives, included in the total commercial salvage proposal are approximately 1,300 acres that are 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.

Logging Systems - Of the 312 salvage units in Alternative C, 297 units, totaling 13,971 acres, with an estimated timber volume of 69.2 mmbf, are proposed as "ground-based". The typical slopes in the project area are very gentle, with about 70 percent being less than 15 percent sideslope and 90 percent to 95 percent at less than 30 percent sideslope. Fifteen salvage units in Alternative C, totaling 470 acres, with an estimated timber volume of 4.1 mmbf, are proposed as "helicopter."

Snag Retention - Retention of snags for cavity dependent species would be achieved through several strategies: 1.) Specifically selected no-salvage areas; 2.) Retention prescriptions within salvage units - same for all alternatives (**see Alternative H**). No-salvage areas have been selected following field inventory in fall 2002. The inventory identified approximately 3,690 acres that would provide suitable blocks of habitat for cavity nesters, including consideration for species that generally favor large snags (Lewis' woodpecker) and those that favor smaller snags (black-backed woodpecker). For Alternative C, approximately 3,309 of these inventoried acres would be in "no-salvage" areas where all snags would be retained.

Reforestation -Planting of tree seedlings would occur within approximately 34,000 acres that experienced loss of stocking due to fire. This includes areas that are proposed for salvage harvest, "other" areas that are not proposed for salvage in this alternative such as previous overstory removal units, previous partial cut units or areas without a

commercially viable salvage component, and existing plantations. For all action alternatives, most seedlings would be ponderosa pine. Seedlings would be planted at between 130 and 250 trees per acre.

Precommercial Thinning - Approximately 2,214 acres of precommercial thinning in existing plantations would occur in order to promote the long-term development of sustainable late and old structure (LOS) forest conditions. Thinning prescriptions that would maintain big game hiding cover would be used. Specifically, leave stand density objective would be approximately 130 trees per acre, including one small un-thinned cover patch per acre.

Fuels Treatments and Reductions - By using whole tree yarding and yarding with tops-attached-to-last-log, the commercial salvage operation itself would provide the initial step of fuels reduction. Specifically, use of whole-tree yarding is designed to initiate a reduction of risk from activities-generated fuels. In all ground-based salvage units, trees 21 inches dbh (diameter breast height) or less would be whole tree yarded. Using this method, logs are skidded with tops and limbs attached. In all salvage units except helicopter, for trees greater than 21 inches dbh, tops would be left attached to the last log and thereby yarded to the landing. Whole tree yarding and leaving tops attached can be a final or intermediate fuel treatment. Within salvage units, fuels treatment in addition to whole tree yarding and leaving tops attached would occur on approximately 10,244 acres. This would include reduction of fuels created by the fire and by salvage activity. These treatments are planned for salvage units in which the majority of the acres would be expected to exceed 20 tons of fuel per acre within 15 years if no action is taken. Such additional fuels treatments would occur following salvage activity, with the method to be determined through post-sale monitoring. Methods could include: underburning, broadcast burning, jackpot burning, machine (low ground pressure) pile and burning, grapple pile and burning, hand pile and burning, air curtain destructors, ladder fuel reduction (thinning - dead trees only), crushing (tomahawk / roller chopper), mastication ("slash buster"), or other methods.

Prescribed Fire - This involves prescribed fire beyond that used for activity fuels treatments discussed above. It would be primarily outside of harvest units, but there would be some minor overlap into units. Approximately 3,572 acres are proposed for prescribed fire as part of an additional fuels strategy and as a means of contributing to the long-term promotion of sustainable LOS conditions. Areas proposed for prescribed fire are all outside of mule deer winter range.

Road Management - Several roads (identified on the map) would be either decommissioned or closed, for the purpose of promoting watershed recovery or reducing their impact on wildlife habitat. For Alternative C approximately 72.9 miles of road would be closed (blocked), approximately 69.0 miles of road would be decommissioned and approximately 129.1 miles of road would be left open. Road decommissioning is defined as activity that results in the stabilization and restoration of unneeded roads to a more natural state. As a result of these actions, open road density in the project area as a whole (on National Forest System lands) would drop to 1.76 miles per square mile.

Soil and Riparian Protection and Restoration Projects -

Aspen - Approximately 690 acres of aspen habitat have been identified for treatments designed to protect or enhance the aspen clone. Treatment may include the following:

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

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.

Deciduous Planting - This would consist of approximately 7 acres of riparian area deciduous plantings

Road 2917413 – 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 for the moisture with which it comes in contact. As a result, a section of the road becomes saturated with moisture, which introduces sediment from the road to the adjacent stream. The solution to this problem is to allow the moisture a pathway away from the road through the construction of proper roadway drainage.

Forest Plan Amendment - Prescribed burning in some areas outside of mule deer winter range is expected to result in reduction of cover for mule deer. For this reason, this alternative includes a site-specific amendment to the Forest Plan (1989) that would modify the standards and guidelines for mule deer habitat outside of winter range, in this project area. Specifically, Forest Plan standards for Cover for Mule Deer are amended to the levels identified in this alternative in order to allow for treatments that substantially promote the long term development of sustainable LOS conditions.

Riparian Habitat Conservation Areas

Approximately 7 percent of the project area is within **Management Area 15** (Fish and Wildlife Habitat/Water Quality). The Forest Plan directs that the aquatic and riparian zones of all drainages and water bodies and their immediately adjacent uplands be managed to meet the following objectives: maintenance or improvement of water quality and fish habitat; providing recreation opportunities; and maintenance and improvement of riparian habitat for dependent wildlife species. MA 15 includes all perennial, intermittent, and ephemeral drainages.

In 1995 the Inland Native Fish Strategy (INFISH) amended the Forest Plan. The INFISH amendment to the LRMP established additional forest-wide fisheries standards and the creation **of riparian habitat conservation areas or 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) prohibits timber harvest within RHCAs, except as follows:

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

The salvage, fuels reduction, and conifer planting components of the proposed action that would occur within MA 15 have been designed in accordance with those guidelines (see specific design features below). Proposed salvage and fuels reduction are in response to the need to reduce the intensity of subsequent fire in the riparian zones, while promoting the recovery of healthy forest conditions that would contribute to long-term attainment of Riparian Management Objectives. Other project activities within RHCAs, such as placement of large woody debris and riparian area deciduous plantings, are in direct response to the immediate need to attain Riparian Management Objectives.

All Action Alternatives include some commercial salvage in RHCAs. For Alternatives D and H, this includes salvage only within identified Roadside Hazard Corridors that intersect RHCAs. For Alternatives C, E and G, commercial salvage within RHCAs includes additional area outside of Roadside Hazard Corridors (see following tables)

Commercial Salvage **outside** Roadside Hazard Corridors		**Alt. A**	**Alt. C**	**Alt. D**	**Alt. E**	**Alt. G**	**Alt. H**
Commercial Salvage in RHCAs (Acres)	**Category 1 RHCA** – Perennial Fish Bearing Streams	0	22	0	4	0	0
	Category 3 RHCA - Ponds, lakes, reservoirs, and wetlands greater than 1	0	262	0	204	262	0
	Category 4 RHCA - Seasonally flowing or intermittent streams	0	147	0	108	147	0

Commercial Salvage **within** Roadside Hazard Corridors		**Alt. A**	**Alt. C**	**Alt. D**	**Alt. E**	**Alt. G**	**Alt. H**
Commercial Salvage in RHCAs (Acres)	Category 1 RHCA	0	15	15	15	15	15
	Category 3 RHCA	0	186	186	186	186	186
	Category 4 RHCA	0	15	15	15	15	15

*The following would be applied to salvage activity in RHCAs, **outside** of Roadside Hazard Corridors:*

Category 1 – Fish Bearing Streams: In the outer 100 feet of the RHCA (which are typically 300 feet wide, or wider, in slope distance beyond the edge of the active stream channel, on each side of the stream) salvage harvest of selected trees or clumps would occur. Helicopter yarding would be used. A feathered forest edge would be retained. No salvage would occur other than in the outer 100 feet of the RHCA. No mechanized ground-based equipment would be allowed within the entire width of the RHCAs, as a part of the commercial salvage operation, except at existing classified road crossings.

Category 3 – Ponds, lakes, reservoirs, and wetlands greater than 1 acre: In the outer 75 feet of the RHCA (which are typically 150 feet wide slope distance beyond the edge of the wetland, pond, lake or reservoir) salvage harvest of selected trees or clumps would be allowed. Helicopter yarding would be used where topography warrants. "Line-pulling" from ground-based equipment would be used otherwise. A feathered forest edge would be retained. No mechanized ground-based equipment would be allowed within the entire width of the RHCA, except at existing classified road crossings. An exception to this would 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 would be reviewed on a case-by-case basis by the Zone Hydrologist.

Category 4 – Seasonally flowing or intermittent streams: Site selective salvage harvest can occur within this RHCA (which is typically 50 feet wide in slope distance beyond the edge of the active stream channel, on each side of the stream). Between 20 and 80 trees per mile of stream, including all green and sufficient dead trees to provide long-term attainment of Riparian Management Objectives, would be retained. Retained trees would have a minimum dbh of 12 inches and a minimum height of 35 feet. No mechanized ground-based equipment would be allowed within the entire width of the RHCA, except at existing classified road crossings. An exception to this would 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 would be reviewed on a case-by-case basis by the Zone Hydrologist.

*The following would be applied to salvage activity in RHCAs, **within** Roadside Hazard Corridors (All Alternatives):*

- Individual tree marking will occur in roadside hazard units within Riparian Habitat Conservation Areas, where necessary.
- Minimize line-pulling distances to limit soil disturbance and avenues of sediment transport to stream channels.
- No mechanized ground based skidding equipment allowed within the first 150 feet on Category 1 RHCAs and within 50 feet of stream channel on Category 3 & 4 RHCAs. Harvest activity will be permitted within the entire width of RHCA by operating on existing roads.
- In order to decrease the hazard of culvert plugging, minimize the amount of slash and debris remaining on the ground immediately upstream of any culvert. Whole tree yard trees where possible, and scatter any slash away from culvert openings.

RHCA 1 (Unit Numbers) – 179, 217, 220, 236,245,261

RHCA 3 – 10, 13, 15, 17, 33, 49, 52, 54, 69, 77, 88, 89, 90, 118, 123, 124, 126, 179, 182, 191, 193, 217, 220, 225, 227, 230, 236, 296, 301, 302, 303, 309, 310

RHCA 4 – 29, 30, 49, 77, 84, 131, 236, 273, 274, 275, 278, 291

Alternative D

Alternative D emphasizes maintenance of water quality through limiting activities that could potentially contribute to adverse cumulative watershed effects. It retains some commercial salvage, focused in roadside hazard treatment areas and areas where fuel loading is predicted to exceed 20 tons per acre within 15 years if no action is taken. No units are included in this alternative that would require temporary road construction.

This alternative was developed by modifying Alternative C in response to the following ***key issues***:

Effects on Soils, Watersheds, and Aquatic Habitat - In order to eliminate the potential for adverse effects to RHCAs, no units (other than Roadside Hazard Treatment) are proposed for commercial salvage that are within any portion of any category of Riparian Habitat Conservation Area. In order to reduce the overall level of upland disturbance and therefore decrease the potential for cumulative watershed effects, commercial salvage is proposed in less than half the amount of acres as in Alternative C.

Recovery using a limited-intervention approach vs. Recovery using a full-range of active management practices, including commercial salvage - Alternative D proposes less active management practices than does Alternative C. Among the action alternatives, Alternative D has the greatest proportion of the total project area that would not rely on commercial activity as a component of recovery. About 87% of the National Forest lands within the project boundary would not include commercial activity.

Commercial Salvage -This includes salvage harvest of approximately 6,367 acres within a total of 197 harvest units within the project area boundary. The Toolbox Fire portion contains 109 proposed harvest units, and 88 harvest units are proposed within the Silver Fire portion. Total sawtimber harvest volume is estimated to be 33.7 mmbf (million board feet).

Roadside Hazard Treatment – Same as Alternative C. Included in the total commercial salvage proposal are approximately 1,300 acres that are 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. Areas within Riparian Habitat Conservation Areas were not specifically excluded from Roadside Hazard treatment.

Logging Systems - Of the 197 salvage units in Alternative D, 189 units, totaling 6,007 acres, with an estimated timber volume of 30.5 mmbf, are proposed as "ground-based". Eight salvage units in Alternative D, totaling 360 acres, with an estimated timber volume of 3.2 mmbf are proposed as "helicopter."

Snag Retention - Retention of snags for cavity dependent species would be achieved through several strategies: 1.) Specifically selected no-salvage areas; 2.) Retention prescriptions within salvage units - same for all alternatives (**see Alternative H**). In addition, other areas of non-salvage, including those related to cultural resource protection, riparian protection, etc. contribute to habitat for cavity dependent species. No-salvage areas have been selected following field inventory in fall 2002. The inventory identified approximately 3,690 acres that would provide suitable blocks of habitat for cavity nesters, including consideration for species that generally favor large snags (Lewis' woodpecker) and those that favor smaller snags (black-backed woodpecker). For Alternative D, approximately 3,665 of these inventoried acres would be in "no-salvage" areas where all snags would be retained.

Reforestation -Planting of tree seedlings would occur within approximately 34,000 acres that experienced loss of stocking due to fire. This includes areas that are proposed for salvage harvest, "other" areas that are not proposed for salvage in this alternative such as previous overstory removal units, previous partial cut units or areas without a commercially viable salvage component, and existing plantations. For all action alternatives, most seedlings would be ponderosa pine. Seedlings would be planted at between 130 and 250 trees per acre.

Precommercial Thinning - Approximately 2,214 acres of precommercial thinning in existing plantations would occur in order to promote the long-term development of a sustainable LOS forest conditions.

Fuels Treatments and Reductions - Alternative D follows the same principles as Alternative C, but due to less areas of harvest, there would be less fuel treatment. By using whole tree yarding and yarding with tops-attached-to-last-log, the commercial salvage operation itself would provide the initial step of fuels reduction. Specifically, use of whole-tree yarding is designed to initiate a reduction of risk from activities generated fuels. In all ground-based salvage units, trees 21 inches dbh or less would be whole tree yarded. Using this method, logs are skidded with tops and limbs attached. In all salvage units, except helicopter, for trees greater than 21 inches dbh, tops would be left attached to the last log and thereby yarded to the landing. Whole tree yarding and leaving tops attached can be a final or intermediate fuel treatment. Within salvage units, fuels treatment in addition to whole tree yarding and leaving tops attached would occur on approximately 5,680 acres. This would include reduction of fuels created by the fire and by salvage activity. These treatments are planned for salvage units in which the majority of the acres would be expected to exceed 20 tons of fuel per acre within 15 years if no action is taken. Such additional fuels treatments would occur following salvage activity, with the method to be determined through post-sale monitoring. Methods could include: underburning, broadcast burning, jackpot burning, machine (low ground pressure) pile and burning, grapple pile and burning, hand pile and burning, air curtain destructors, ladder fuel reduction (thinning - dead trees only), crushing (tomahawk / roller chopper), mastication ("slash buster"), or other methods.

Prescribed Fire - This involves prescribed fire beyond that used for activity fuels treatments discussed above. It would be primarily outside of harvest units, but there would be some minor overlap into units. Approximately 2,450 acres are proposed for prescribed fire as part of an additional fuels strategy and as a means of contributing to the long-term promotion of sustainable LOS conditions. **No prescribed fire is proposed in areas that are classified as mule deer cover**.

Road Management - Several roads (identified on the map) would be either decommissioned or closed, for the purpose of promoting watershed recovery or reducing their impact on wildlife habitat. For Alternative D approximately 75.5 miles of road would be closed (blocked), approximately 71.6 miles of road would be decommissioned and approximately 123.9 miles of road would be left open. Road decommissioning is defined as activity that results in the stabilization and restoration of unneeded roads to a more natural state. As a result of these actions, open road density in the project area as a whole (on National Forest System lands) would drop to 1.68 miles per square mile.

Soil and Riparian Protection and Restoration Projects -

Aspen - Approximately 690 acres of aspen habitat have been identified for treatments designed to protect or enhance the aspen clone. Treatment may include the following:

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

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.

Deciduous Planting - This would consist of approximately 7 acres of riparian area deciduous plantings

Road 2917413 – 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 for the moisture with which it comes in contact. As a result, a section of the road becomes saturated with moisture, which introduces sediment from the road to the adjacent stream. The solution to this problem is to allow the moisture a pathway away from the road through the construction of proper roadway drainage.

Forest Plan Amendment - No Forest Plan amendment would be required to implement Alternative D.

Alternative E

Alternative E places an emphasis on economic efficiency in regard to commercial salvage.

This alternative was developed by modifying Alternative C in response to the following ***key issues***:

Changes in Motorized Access - In response to public concern about the appropriateness of reducing access and doubts raised about the efficiency of road decommissioning as a means of promoting watershed recovery, Alternative E would implement road closure or decommissioning simply to the point of meeting maximum open road densities within LRMP standards and guidelines (for the project area as a whole).

Economic Efficiency and Economic Opportunities - Commercial salvage units were selected on a unit-by-unit basis for their predicted ability to provide a positive return when estimated logging costs were compared with projected timber value. This resulted in those units that had more estimated volume per acre being favored. Fuels treatment within salvage units, in addition to whole tree yarding, would occur only in salvage units in which the majority of the acres would be expected to exceed 30 tons of fuel per acre within 15 years if no action is taken. Alternative C used predicted levels of 20 tons per acre as a criterion for additional fuels treatment within salvage units. No fuels treatment through prescribed fire in addition to activity fuels treatment is proposed in Alternative E. In addition, activities that would not directly contribute to economic return were generally designed at levels that provide attainment of minimum LRMP standards and guidelines for soil, water or wildlife resources.

Commercial Salvage - This includes salvage harvest of approximately 11,490 acres within a total of 236 harvest units within the project area boundary. The Toolbox Fire portion contains 131 proposed harvest units, and 105 harvest units are proposed within the Silver Fire portion. Total sawtimber harvest volume is estimated to be 66.1 mmbf (million board feet). A positive economic return was used as an overall objective for the selection of harvest units that would be included in Alternative E. This included the elimination of scattered or isolated ground-based harvest units and a focus on the most concentrated areas of potential helicopter units.

Roadside Hazard Treatment – Same as Alternative C. Included in the total commercial salvage proposal are approximately 1,300 acres that are 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. Areas within Riparian Habitat Conservation Areas were not specifically excluded from Roadside Hazard treatment.

Logging Systems -Of the 236 salvage units in Alternative E, 233 units, totaling 11,183 acres, with an estimated timber volume of 63.4 mmbf, are proposed as "ground-based". Three salvage units in Alternative E, totaling 307 acres, with an estimated timber volume of 2.7 mmbf are proposed as "helicopter."

Snag Retention - Retention of snags for cavity dependent species would be achieved through several strategies: 1.) Specifically selected no-salvage areas; 2.) Retention prescriptions within salvage units - same for all alternatives (**see Alternative H**). In addition other areas of non-salvage, including those related to cultural resource protection, riparian protection, etc. contribute to habitat for cavity dependent species. No-salvage areas have been selected following field inventory in fall 2002. The inventory identified approximately 3,690 acres that would provide suitable blocks of habitat for cavity nesters, including consideration for species that generally favor large snags (Lewis' woodpecker) and those that favor smaller snags (black-backed woodpecker). For Alternative E, approximately 3,398 of these inventoried acres would be in "no-salvage" areas where all snags would be retained.

Reforestation -Planting of tree seedlings would occur within approximately 34,000 acres that experienced loss of stocking due to fire. This includes areas that are proposed for salvage harvest, "other" areas that are not proposed for salvage in this alternative such as previous overstory removal units, previous partial cut units or areas without a

commercially viable salvage component and existing plantations. For all action alternatives, most seedlings would be ponderosa pine. Seedlings would be planted at between 130 and 250 trees per acre.

Precommercial Thinning – None

Fuels Treatments and Reductions - Alternative E follows a somewhat different principle than Alternative C. By using whole tree yarding and yarding with tops-attached-to-last-log, the commercial salvage operation itself would provide the initial step of fuels reduction. Specifically, use of whole-tree yarding is designed to initiate a reduction of risk from activities generated fuels. In all ground-based salvage units, trees 21 inches dbh or less would be whole tree yarded. Using this method, logs are skidded with tops and limbs attached. In all salvage units, except helicopter, for trees greater than 21 inches dbh, tops would be left attached to the last log and thereby yarded to the landing. Whole tree yarding and leaving tops attached can be a final or intermediate fuel treatment. Within salvage units, fuels treatment in addition to whole tree yarding and leaving tops attached would occur on approximately 6,723 acres. This would include reduction of fuels created by the fire and by salvage activity. **These treatments are planned for salvage units in which the majority of the acres would be expected to exceed <u>30 tons</u> of fuel per acre within 15 years if no action is taken (Alternative C used predicted levels of 20 tons per acre as a criterion).** Such additional fuels treatments would occur following salvage activity, with the method to be determined through post-sale monitoring. Methods could include: underburning, broadcast burning, jackpot burning, machine (low ground pressure) pile and burning, grapple pile and burning, hand pile and burning, air curtain destructors, ladder fuel reduction (thinning - dead trees only), crushing (tomahawk / roller chopper), mastication ("slash buster"), or other methods.

Prescribed Fire - None

Road Management - Several roads (identified on the map) would be either decommissioned or closed, for the purpose of promoting watershed recovery or reducing their impact on wildlife habitat. For Alternative E, approximately 67.4 miles of road would be closed (blocked), approximately 14.6 miles of road would be decommissioned and approximately 188.9 miles of road would be left open. Road decommissioning is defined as activity that results in the stabilization and restoration of unneeded roads to a more natural state. As a result of these actions, open road density in the project area as a whole (on National Forest System lands) would drop to 2.57 miles per square mile.

Soil and Riparian Protection and Restoration Projects -

Other than road management activities, as described above, the following types of Soil and Riparian Protection and Restoration Projects would be implemented: placement of large woody debris in perennial stream.

<u>Large Woody Debris</u> – 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

Forest Plan Amendment - No Forest Plan amendment would be required to implement Alternative E.

Alternative G

Alternative G places an emphasis on fuels reduction and long-term fire suppression effectiveness.

This alternative was developed by modifying Alternative C in response to the following ***key issues***:

Changes in Motorized Access - In response to public concern about the appropriateness of reducing access, Alternative G offers road management proposals that differ from Alternative C. Specifically, Alternative G would implement road closure or decommissioning simply to the point of meeting maximum open road densities within LRMP standards and guidelines. Since a primary theme of Alternative G is Fuels Reduction and Long Term Suppression Effectiveness, maintaining a higher road density than proposed in Alternative C could, under some circumstances, provide an added measure of open road access during initial response to fire starts. Retention of access within former Klamath Indian Reservations was a consideration in developing road management proposals. Specifically, only those roads that were recommended for decommissioning by the roads analysis process are scheduled for treatment.

Recovery using a limited-intervention approach vs. Recovery using a full-range of active management practices, including commercial salvage - Alternative G proposes more active management practices as a means of achieving long-term recovery than does than Alternative C. In order to promote long-term recovery, Alternative G includes proposals for fuels reduction that exceed those included in Alternative C.

Commercial Salvage - Similar to Alternative C. Approximately 14,419 acres within a total of 311 harvest units within the project area boundary. The Toolbox Fire portion would contain 176 proposed harvest units, and 135 harvest units would within the Silver Fire portion. Total sawtimber harvest volume is estimated to be 73.2 mmbf (million board feet).

Roadside Hazard Treatment – Same as Alternative C. Included in the total commercial salvage proposal are approximately 1,300 acres that are 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.

Logging Systems - Of the 311 salvage units in Alternative G, 297 units, totaling 13,970 acres, with an estimated timber volume of 69.3 mmbf, are proposed as "ground-based". Fourteen salvage units in Alternative G, totaling 449 acres, with an estimated timber volume of 3.9 mmbf are proposed as "helicopter."

Snag Retention - Retention of snags for cavity dependent species would be achieved through several strategies: 1.) Specifically selected no-salvage areas; 2.) Retention prescriptions within salvage units - same for all alternatives (see Alternative H). No-salvage areas have been selected following field inventory in fall 2002. The inventory identified approximately 3,690 acres that would provide suitable blocks of habitat for cavity nesters, including consideration for species that generally favor large snags (Lewis' woodpecker) and those that favor smaller snags (black-backed woodpecker). For Alternative G, approximately 3,312 of these inventoried acres would be in "no-salvage" areas where all snags would be retained.

Reforestation -Planting of tree seedlings would occur within approximately 34,000 acres that experienced loss of stocking due to fire. This includes areas that are proposed for salvage harvest, "other" areas that are not proposed for salvage in this alternative such as previous overstory removal units, previous partial cut units or areas without a commercially viable salvage component and existing plantations. For all action alternatives, most seedlings would be ponderosa pine. Seedlings would be planted at between 130 and 250 trees per acre.

Precommercial Thinning - Approximately 2,214 acres of precommercial thinning in existing plantations would occur in order to promote the long-term development of a sustainable LOS forest conditions. Thinning prescriptions that would maintain big game hiding cover would be used. Specifically, leave stand density objective would be approximately 130 trees per acre, including one small un-thinned cover patch per acre.

Fuels Treatments and Reductions - Alternative G follows a different strategy than Alternative C by adding fuels reduction actions in areas that would not be treated in Alternative C. As with Alternative C, whole tree yarding and leaving tops attached can be a final or intermediate fuel treatment. Within salvage units, fuels treatment in addition to whole tree yarding and leaving tops attached would occur on approximately 11,354 acres. This would include reduction of fuels created by the fire and by salvage activity. As with Alternative C, fuels treatment in addition to whole tree yarding would occur in salvage units in which the majority of the acres would be expected to exceed 20 tons of fuel per acre within 15 years if no action is taken. Such additional fuels treatments would occur following salvage activity, with the method to be determined through post-sale monitoring. Methods could include: underburning, broadcast burning, jackpot burning, machine (low ground pressure) pile and burning, grapple pile and burning, hand pile and burning, air curtain destructors, ladder fuel reduction (thinning - dead trees only), crushing (tomahawk / roller chopper), mastication ("slash buster"), or other methods. **Alternative G includes proposals for fuels treatment in areas that would not receive fuels treatment under the criteria used in Alternative C. These include areas <u>within</u> harvest units (within ¼ mile of the boundary between National Forest and private) in which the majority of the acres would <u>not</u> be expected to exceed 20 tons of fuel per acre within 15 years if no action is taken. This accounts for 1,132 acres, which are included in the total of 11,354 acres reported above. Alternative G also includes fuels treatment in areas <u>outside</u> of salvage units altogether, that are within conifer ecotypes (excluding juniper) and that are within ¼ mile of the boundary between National Forest and private lands, regardless of predicted fuel loading. This accounts for approximately 5,596 acres.** Fuels treatment methods could include: underburning, broadcast burning, jackpot burning, machine (low ground pressure) pile and burning, grapple pile and burning, hand pile and burning, air curtain destructors, ladder fuel reduction (thinning - dead trees only), crushing (tomahawk / roller chopper), mastication ("slash buster"), or other methods.

Prescribed Fire - This involves prescribed fire beyond that used for activity fuels treatments discussed above. It would be primarily outside of harvest units, but there would be some minor overlap into units. Approximately 3,572 acres are proposed for prescribed fire as part of an additional fuels strategy and as a means of contributing to the long-term promotion of sustainable LOS conditions. Areas proposed for prescribed fire are all outside of mule deer winter range.

Road Management - Several roads (identified on the map) would be either decommissioned or closed, for the purpose of promoting watershed recovery or reducing their impact on wildlife habitat. For Alternative G, approximately 10.4 miles of road would be closed (blocked), approximately 71.6 miles of road would be decommissioned, and approximately 188.9 miles of road would be left open. Road decommissioning is defined as activity that results in the stabilization and restoration of unneeded roads to a more natural state. As a result of these actions, open road density in the project area as a whole (on National Forest lands) would drop to 2.57 miles per square mile.

Soil and Riparian Protection and Restoration Projects -

<u>Aspen</u> - Approximately 690 acres of aspen habitat have been identified for treatments designed to protect or enhance the aspen clone. Treatment may include the following:

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

<u>Large Woody Debris</u> – 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.

<u>Deciduous Planting</u> - This would consist of approximately 7 acres of riparian area deciduous plantings

<u>Road 2917413</u> – 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 for the moisture with which it comes in contact. As a result, a section of the road becomes saturated with moisture, which introduces sediment from the road to the adjacent stream. The solution to this problem is to allow the moisture a pathway away from the road through the construction of proper roadway drainage.

Forest Plan Amendment - Prescribed burning in some areas outside of mule deer winter range is expected to result in reduction of cover for mule deer. For this reason, this alternative includes a site-specific amendment to the Forest Plan (1989) that would modify the standards and guidelines for mule deer habitat outside of winter range, in this project area. Specifically, Forest Plan standards for Cover for Mule Deer are amended to the levels identified in this alternative in order to allow for treatments that substantially promote the long term development of sustainable LOS conditions.

Alternative H

This alternative was developed by modifying Alternative C in response to the following ***key issues***:

Effects on Wildlife Habitat - Salvage units or portions of salvage units that are proposed in Alternative C were not included in Alternative H if they were in the bald eagle management area (located in the Lower Duncan Creek subwatershed). Most areas that were determined to be suitable habitat for cavity-nesters have been excluded from proposed salvage with Alternative H. Prescribed fire has been limited to areas of non-cover (current condition) within only mule deer summer range.

Effects on Soils, Watersheds, and Aquatic Habitat - In order to eliminate the potential for adverse effects to RHCAs, no units (other than Roadside Hazard Treatment) are proposed for commercial salvage that are within any portion of any category of Riparian Habitat Conservation Area.

Commercial Salvage - Approximately 13,031 acres within a total of 288 harvest units within the project area boundary. The Toolbox Fire portion contains 161 proposed harvest units, and 127 proposed harvest units are within the Silver Fire portion. Total sawtimber harvest volume is estimated to be 63.8 mmbf (million board feet).

Roadside Hazard Treatment - For all action alternatives, included in the total commercial salvage proposal are approximately 1,300 acres that are 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.

Logging Systems - All 288 salvage units in Alternative H are proposed as "ground-based".

Snag Retention - Retention of snags for cavity dependent species would be achieved through several strategies: 1.) Specifically selected no-salvage areas; 2.) Retention prescriptions within salvage units.

No-salvage areas have been selected following field inventory in fall 2002. The inventory identified approximately 3,690 acres that would provide suitable blocks of habitat for cavity nesters, including consideration for species that generally favor large snags (Lewis' woodpecker) and those that favor smaller snags (black-backed woodpecker). For Alternative H, all 3,690 acres would be in "no-salvage" areas where all snags would be retained.

Within commercial salvage units, the following criteria would be used for all alternatives:

Within commercial salvage units, snag retention criteria would be based first on mortality level (areas of < 50% mortality vs. areas of > 50% mortality) and then for areas < 50% mortality, further divided by elevation and ecoclass.

In areas of <50% Mortality:

Average Number of Snags Per Acre Within Harvest Units (areas of <50% mortality)

Snag Size	Average # snags/acre 1. < 5000' elevation 2. 5000-5500' elevation and Ecoclass CP-S2-11	Average # of snags/acre 1. > 5500' elevation 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

In areas of >50% Mortality:

Average Number of Snags Per Acre Within Harvest Units (areas of >50% 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

Clumping and distribution would vary within harvest units to manage for the clump size, snag requirements, and distribution required for different cavity-dependent species. No area greater than 10 acres would be left void of a snag clump. Pre-fire snags will be protected to the extent possible. The total number of snags per unit would average 10 snags per acre.

Reforestation - Same as all other action alternatives**.**

Precommercial Thinning - Same as Alternatives C, D and G.

Fuels Treatments and Reductions - Alternative H follows the same principles as Alternative C, but due to somewhat less areas of harvest, there would be less fuel treatment. By using whole tree yarding and yarding with tops-attached-to-last-log, the commercial salvage operation itself would provide the initial step of fuels reduction. Specifically, use of whole-tree yarding is designed to initiate a reduction of risk from activities generated fuels. In all salvage units, trees 21 inches dbh or less would be whole tree yarded. Using this method, logs are skidded with tops and limbs attached. In all salvage units, except helicopter, for trees greater than 21 inches dbh, tops would be left attached to the last log and thereby yarded to the landing. Whole tree yarding and leaving tops attached can be a final or intermediate fuel treatment. Within salvage units, fuels treatment in addition to whole tree yarding and leaving tops attached would occur on approximately 9,070 acres. This would include reduction of fuels created by the fire and by salvage activity. These treatments are planned for salvage units in which the majority of the acres would be expected to exceed 20 tons of fuel per acre within 15 years if no action is taken. Such additional fuels treatments would occur following salvage activity, with the method to be determined through post-sale monitoring. Methods could include: underburning, broadcast burning, jackpot burning, machine (low ground pressure) pile and burning, grapple pile and burning, hand pile and burning, air curtain destructors, ladder fuel reduction (thinning - dead trees only), crushing (tomahawk / roller chopper), mastication ("slash buster"), or other methods.

Prescribed Fire - This involves prescribed fire beyond that used for activity fuels treatments discussed above. It would be primarily outside of harvest units, but there would be some minor overlap into units. Approximately 2,450 acres are proposed for prescribed fire as part of an additional fuels strategy and as a means of contributing to the long-term promotion of sustainable LOS conditions. Areas proposed for prescribed fire in this alternative are all outside of mule deer winter range and transition range. No prescribed fire is proposed in areas that are classified as mule deer cover.

Road Management - Several roads (identified on the map would be either decommissioned or closed, for the purpose of promoting watershed recovery or reducing their impact on wildlife habitat. For Alternative H approximately 72.9 miles of road would be closed (blocked), approximately 71.6 miles of road would be decommissioned, and approximately 126.5 miles of road would be left open. Road decommissioning is defined as activity that results in the stabilization and restoration of unneeded roads to a more natural state. As a result of these actions, open road density in the project area as a whole (on National Forest lands) would drop to 1.72 miles per square mile.

Soil and Riparian Protection and Restoration Projects -

Aspen - Approximately 690 acres of aspen habitat have been identified for treatments designed to protect or enhance the aspen clone. Treatment may include the following:

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

2. Fencing.

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.

Deciduous Planting - This would consist of approximately 7 acres of riparian area deciduous plantings

Road 2917413 – 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 for the moisture with which it comes in contact. As a result, a section of the road becomes saturated with moisture, which introduces sediment from the road to the adjacent stream. The solution to this problem is to allow the moisture a pathway away from the road through the construction of proper roadway drainage.

Forest Plan Amendment - No Forest Plan amendment would be required to implement Alternative H.

Toolbox Fire Recovery Project – Activities Proposed by Alternative

			Alt. A	Alt. C	Alt. D	Alt. E	Alt. G	Alt. H
Commercial Salvage	Total Acres		0	14441	6367	11490	14419	13031
	Acres w/i Roadside Hazard Corridors		0	1300	1300	1300	1300	1300
	Total Volume (MMBF – million bd. ft)		0	73.3	33.7	66.1	73.2	63.8
Commercial Salvage in RHCAs - Acres (these are included in the above)	Category 1 - Acres		0	37	15*	19	15*	15*
	Category 3 - Acres		0	448	186*	390	448	186*
	Category 4 - Acres		0	147	15*	123	147	15*
			* all acres are within Roadside Hazard Corridors					
Logging Systems	Ground-Based - Acres		0	13971	6007	11183	13970	13031
	Helicopter	Acres	0	470	360	307	449	0
		Number of Units	0	15	8	3	14	0
		Volume (MMBF)	0	4.1	3.2	2.7	3.9	0
Snag Retention – Acres of "no-salvage" within 3,690 acres of identified suitable cavity-nester habitat			3690	3309	3665	3398	3312	3690
Precommercial Thinning - Acres			0	2214	2214	0	2214	2214
Fuels Treatments and Reductions - Acres	Whole Tree Yard or YTA only		0	4197	688	4768	3065	3961
	Addl. Treatment w/i Salv. Units		0	10244	5680	6723	11354	9070
	Addl. Treatment o/s Salvage Units, within ¼ Mi of PVT Boundary		0	0	0	0	5596	0
Reforestation - Acres	Site Prep		0	5301	10603	5330	3580	4695
	Fuels Treatment (in Refo. areas only. This is a subset of the Fuels Treatment above)		0	8642	4776	5759	11350	7535
	Planting (net)		0	20906	20743	20753	20728	20721
Prescribed Fire – Acres			0	3572	2450	0	3572	2450
Road Management	Decommission - Miles		0	69.0	71.6	14.6	71.6	71.6
	Close - Miles		0	72.9	75.5	67.4	10.4	72.9
	Leave Open - Miles		271.0	129.1	123.9	188.9	188.9	126.5
	Open Rd. Density – Miles/Sq. Mi.		3.68	1.76	1.68	2.57	2.57	1.72
Temporary Road Development	Re-open Unclassified Rds - Miles		0	21.4	5.7	15.8	21.4	19.7
	New Development - Miles		0	16.0	0.0	13.3	16.0	14.9
Road Reconstruction – Miles			0	9.5	5.5	9.5	9.5	9.5
Soil and Riparian Protection/ Restoration Projects	LWD Placement – Stream Miles		0	9.6	9.6	9.6	9.6	9.6
	Aspen Enhancement - Acres		0	690	690	0	690	690
	Deciduous Plant in Riparian - Acres		0	7	7	0	7	7
	Rd. 2917413 Drainage Improvement		No	Yes	Yes	No	Yes	Yes