

## CHAPTER 2. ALTERNATIVES

### Introduction

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Chapter 2 describes the proposed action and alternatives to the proposed action, including a no action alternative. This chapter also describes the measures necessary to mitigate environmental effects, identifies management requirements, develops monitoring plans, and shows a summary comparison of the alternatives as they relate to key issues and the purpose and need for action. Maps (labeled as figures) of alternatives considered in detail are included in a Map Section at the end of this FEIS. In the Map Section, figures that compare action alternatives are generally organized consecutively to make visual comparisons easy.

The Flagtail Fire Recovery Project FEIS incorporates information and relies on direction provided by the Malheur Forest Plan, as amended. All alternatives have been designed to adhere to State and Federal laws and regulations.

This chapter is divided into six sections:

- Alternative Development Process
- Alternatives Considered but Eliminated from Detailed Study
- Alternatives Considered in Detail
- Management Requirements, Constraints, and Mitigation Measures
- Monitoring Plans
- Comparison of Alternatives

Affected environment and environmental consequences of implementing alternatives for the Flagtail Fire Recovery Project analysis area can be found in Chapter 3. The analysis file is referenced throughout this document and contains additional documentation and analysis

### Alternative Development Process

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This chapter of the FEIS describes in detail five alternative ways to manage land and resources in the Flagtail Fire project area. The Proposed Action was developed using the District Ranger's specific direction detailed in the Project Initiation Letter, dated October 11, 2002. Public participation to review and comment on proposed activities in the Flagtail Fire area began in February 2003 and continues with this FEIS. Forest Service resource specialists were part of an interdisciplinary team (IDT) that worked on development of action alternatives. Based on comments received from the public and other agencies, direction given by Forest leadership, and through incorporating Forest Plan amendments, existing State and Federal laws, and Forest Service interim direction, the range of options/differences between alternatives is limited. The alternatives were designed to stay within the framework of ecological stewardship and the Malheur Forest Plan.

All the action alternatives described in the FEIS and the DEIS were developed with some common themes. All action alternatives would to varying degrees:

- Remove fire-killed trees or trees expected to die as a result of fire injury. In Alternatives 2, 3, and 5, removal of trees occurs through salvage harvest; in Alternative 4 removal involves only small (8-inch or smaller DBH) trees. Incidental

- live trees (trees expected to live) will only be removed to construct roads and landings and to eliminate safety hazards during logging operations.
- Use planting to reforest the burn area.
  - Reduce future fuel loads to be consistent with the National Fire Plan.
  - Minimize the construction of new roads.
  - Reduce road impacts on wildlife habitat and water quality.
  - Relocate Dedicated Old Growth (DOG) and Replacement Old Growth (ROG) areas burned by the fire because they are no longer suitable habitat.
  - Apply water quality Best Management Practices (BMPs) in the design and implementation of the alternatives to protect water quality (see Appendix F).
  - Avoid controversy of perceived effects to streams and riparian areas by not harvesting any trees in RHCAs and MA 3A. Any tree (8-inch DBH or larger) felled for safety in RHCAs and MA 3A will remain in RHCAs/MA 3A.
  - Avoid effects on sensitive areas such as heritage sites and sensitive plant sites by not proposing harvest in those areas.
  - Provide some level of employment to the local community.

Each action alternative analyzed in detail discloses environmental effects associated with its implementation, thereby facilitating a comparison of alternatives. This comparison of effects along with projected environmental consequences detailed in Chapter 3 provides the Responsible Official with information needed to make an informed choice between alternatives.

The IDT and Responsible Official felt the alternatives to be analyzed in detail represented a range of reasonable alternatives (40 CFR 1502.14 (a)) and that they address the underlying needs of reducing fuel loadings, capturing economic value of the killed and damaged trees, providing safe and adequate access, reducing the effects of roads on wildlife habitat and water quality, re-establishing upland vegetation, and designating suitable Dedicated and Replacement Old Growth areas to replace those degraded by the fire. The No Action Alternative is defined as no change from management activities as they now exist.

## Alternatives Considered but Eliminated from Detailed Study

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Federal agencies are required by NEPA to rigorously explore and objectively evaluate all reasonable alternatives and to briefly discuss the reasons for eliminating any alternatives that were not developed in detail (40 CFR 1502.14). The following ten alternatives were considered, but eliminated from detailed consideration for reasons summarized below.

- 1. Include riparian planting, aspen restoration, Bald Hills erosion control, coarse and large wood addition to stream channels, and riparian fuel treatment in the alternatives.**

In January 2003, the Responsible Official decided that although these projects do aid the recovery of the Flagtail area they do not meet the underlying needs of this analysis including reducing fuel loadings, capturing economic value of the killed and damaged trees, providing safe and adequate access, reducing the effects of roads on wildlife and water quality, re-establishing upland vegetation, and designating suitable Dedicated and Replacement Old

Growth areas to replace those degraded by the fire. These projects are being addressed in ongoing projects or future analysis as discussed in Chapter 1, Background and Actions Outside of this EIS to Address Recovery Needs.

## **2. Helicopter log all the harvest units.**

The harvest system selected in each alternative was based on the system that provided adequate resource protection while balancing its economic viability. Helicopter logging systems were prescribed where resource protection warranted it. Due to the flat terrain on much of the fire area, creating an alternative that prescribes helicopter logging on all acres was not considered a necessary resource protection need. Applying the mitigation measures identified in this chapter with the selected harvest system, all Forest Plan Standards and Guidelines, as amended, will be met. Also, a preliminary economic analysis showed that an alternative designed exclusively for helicopters had a negative present net value of 1.4 million dollars. Additionally, local job opportunities would be reduced as no helicopter companies are based in the area.

## **3. Harvest within Riparian Habitat Conservation Areas (RHCAs) and Non-Anadromous Riparian Areas (MA 3A)**

Harvest within RHCAs (and MA 3A) was considered early in the process but was dropped from further analysis. The degree of controversy associated with commercial harvest in RHCAs could delay the entire project. Prompt removal of the dead material while it still has commercial value is important to accomplish the resource objectives. Fuels reduction and aspen enhancement activities are planned in the future to address the reduction of fire risks and restoration of aspen along with other riparian restoration activities, see Chapter 1, Actions Outside of this EIS to Address Recovery Needs.

## **4. Harvest of live trees**

The combined harvest of live trees and salvage of the dead and dying trees was an alternative considered by the IDT. However, because the mortality from the Flagtail fires was so great, 90% of the burned area had 60-100% mortality, the live tree component was left to provide additional habitat diversity and a source for natural regeneration.

## **5. Skyline and tractor harvest all units**

Skyline and tractor systems are usually the most economical method of harvest. An analysis of these systems showed that an additional 9 miles of new road construction would be needed to implement this proposal. That was not consistent with the direction in the Project Initiation Letter that said to minimize the construction of roads and reduce road density.

## **6. Response to the National Fire Plan**

The team looked at developing an alternative that specifically responded to elements of the National Fire Plan. Specifically, the team evaluated the practicality of significantly reducing future fuels along the Forest boundary adjacent to private lands. It was determined that Alternatives 2, 3, and 5 accomplished that same objective.

## **7. Allow burned forest to regenerate naturally**

The IDT considered the comments to allow Flagtail Fire area forest to regenerate naturally. Where success is reasonably assured within 5 years, due to site-specific conditions, this method of regeneration will occur (see description of Alternatives 2 through 5). Ten units totaling 300 acres were selected for natural regeneration.

In the balance of the fire area, conditions are such that planting is recommended to reforest the burned areas. It is estimated that natural seeding will take up to 2 decades to minimally restock the areas within the 800' seed dispersal band around live trees. The area beyond the 800' seed dispersal band is expected to take 2 to 5 decades to naturally reforest. This time lag does not meet the direction from the Regional Forester (Regional Forester Letter 2002) to reforest salvaged areas within 5 years and reforest non-salvaged areas as quickly as practicable.

## **8. Treatment as recommended in the Beschta Report (1995)**

The team considered an alternative that would manage burned forest similar to the management recommendations in the Beschta Report (1995). Specifically, this alternative would not harvest trees on steep ground, sensitive soils, or severely burned soils, would not harvest trees in riparian areas, would not build temporary road to access harvest units, and would not harvest live trees. With these limitations in place, most units originally being considered for commercial harvest in Alternative 2 would no longer be available for harvest; 37 units plus portions of 7 additional units could be considered for harvest treatment. In accordance with the Beschta Report (1995) recommendations, in remaining areas available for treatment this alternative would leave ½ of the snags by size class, and would leave all trees greater than 20 inches DBH or older than 150 years. Also, to avoid erosion and soil compaction concerns, conventional ground-based harvesting (tractor/skidder) would not be used. With the addition of these limitations, the remaining 37 units (plus portions of 7 units) would become uneconomical and/or infeasible to harvest. Helicopter logging of these units would be uneconomical (due to the low density of harvest). Skyline logging of these units would not be feasible because of the flat ground and lack of intermediate supports available after the fire; use of additional towers to act as intermediate supports would be uneconomical. Tractor/skidder harvesting is the only feasible and economically viable option for harvest in these remaining units; following Beschta recommendations would mean no units become viable to harvest.

The resultant treatment based on Beschta recommendations would closely resemble the Flagtail Fire Recovery Project Alternative 4 - no commercial timber harvest, road maintenance, improvement, and obliteration, and altered livestock grazing; natural regeneration would occur on those acres where Forest Service policy allows us not to plant (see "Allow Burned Forest to Regenerate Naturally" above). Since the results would be similar to Alternative 4, the IDT and the Responsible Official felt that another new alternative was redundant.

## **9. Use of prescribed fire only to treat fuels**

The IDT considered the comment to do a prescribed burn only to treat fuels.

Currently, the ground fuel loadings are low and there is no need to treat them. Guidance from the Regional Forester (Regional Forester Letter 2002) is to reforest salvaged areas within 5 years and non-salvaged areas as quickly as practicable. This limits the use of prescribed fire without affecting reforestation efforts. About the time ground fuels increase to levels that could be treated with prescribed fire (6-10 years), small trees (planted and naturally regenerated) would be vulnerable to the effects prescribed fire, and high tree mortality would be expected. By the time the trees are large enough to consider use of prescribed fire (15-20 years), fuel loads would be very high (40 tons/acre) making use of low intensity, low severity prescribed fire prohibitive.

## **10. Designate new Dedicated Old Growth (DOG) areas and retain old DOGS as MA-13**

A comment requested that a new alternative be developed that would designate new Dedicated Old Growth (DOG) areas outside the fire perimeter as currently designed in the DEIS, but instead of reclassifying burned over MA-13 as MA-1, General Forest, retain these areas as MA-13, Replacement Old Growth (ROG) areas. During alternative development, the District wildlife biologist looked at opportunities to convert the burned DOGs to ROGs. DOG 220 had a sufficient number of trees survive to be managed as a ROG and was retained as MA-13; DOG 221 did not have a sufficient number of live trees to provide for ROG habitat, and so a new ROG 221 was designated outside the fire area (see Chapter 2, Alternatives 2-4, pp. 44-54 and Chapter 3, Old Growth Forest, pp. 119-126). The Forest Plan establishes Forest-level acre objectives for MA-13 (see Malheur Forest Plan, p. IV-105). The proposal to retain existing DOG/ROGs as MA-13 as well as add additional acres outside the fire area to MA-13, would re-designate a substantial amount of acres from MA-1 to MA-13, requiring a significant plan amendment.

## **Alternatives Considered in Detail**

As described in the Alternative Development section, the No Action and four action alternatives were analyzed to predict their effect on the environment. The basic purpose and design of each alternative is detailed in this section. The Forest Service developed the management requirements, constraints, and mitigation measures to be used as part of the action alternatives. These methods to avoid or mitigate possible undesired consequences of alternatives are described in the next section, Management Requirements, Constraints, and Mitigation Measures, of this chapter. Tables 2-1, 2-2, and 2-3 at the end of this chapter provide a tabular comparison of alternatives by activity and issue.

### **Alternative 1**

#### **Purpose and Design:**

The purpose of this alternative is to allow current processes to continue, along with associated risks and benefits, in the Flagtail analysis area.

The “No Action” alternative is required by NEPA. In this document the “no action” alternative means the proposed project (which includes all activities identified in the proposed action) would not take place in the Flagtail analysis area at this time. Alternative 1

is designed to represent the existing condition. It serves as a baseline to compare and describe the differences and effects between taking no action and implementing action alternatives.

Current management activities taking place in the area would continue if Alternative 1 were selected, but no new activities would take place. Only those management activities considered part of normal maintenance requirements, or those allowed under previous decision documents would continue. Activities such as motorized access travel management, road maintenance, dispersed recreation, noxious weed management, fire protection, and livestock grazing would be allowed to continue as they currently take place in the project area. However, resumption of livestock grazing would be subject to the Forest's post burn grazing guidelines. These guidelines would allow grazing to resume at current levels after two or more years depending on fire severity and the results of range monitoring. Grazing may be delayed for a longer period if necessary to meet other resource objectives (Appendix H).

## **Description of Specific Features:**

### **Forest Vegetation/Structure**

There would be no commercial timber harvest in Alternative 1 (Appendix A).

There would be no planting under this alternative (Appendix A). For the purpose of comparison of alternatives, this alternative would analyze the effect of natural regeneration, except for the planting which already occurred on 190 acres through a CE (Background, Chapter 1). However, because of Regional Forester direction (Regional Forester Letter 2002) to reforest burned areas that are not salvaged as soon as possible, this reforestation would need to be addressed in a subsequent analysis.

### **Fuel Loads**

No fuels treatments are proposed in the No Action Alternative. There would be approximately 6,180 acres of standing dead trees, and there would be an average of 34-48 tons of future fuel accumulations per acre depending on the plant association group (see Figure 17, Map Section and Appendix A).

### **Roads/Access**

No road construction, reconstruction, decommissioning, or closures would occur in Alternative 1 (Figure 9, Map Section); however, normal road maintenance such as re-closing roads opened during fire suppression activities and felling hazard trees on open roads would continue. Roads would be maintained in accordance with annual maintenance plans. Open road densities would remain at pre-fire levels. About 46.5 miles of road in the fire area would remain open year-round to public motorized access.

## Wildlife Habitat

Normal road maintenance including felling hazard trees on open roads would continue. All other snags would be retained under the No Action Alternative except those covered under future analyses identified in Chapter 1, Additional Fire Recovery Projects Ongoing or Completed, and Actions Outside of this EIS to Address Recovery Needs. Snag levels throughout the area would be about 25-80 snags per acre 10 inches DBH and greater (Figure 31, Map Section); primary cavity species generally prefer larger diameter snags, so the 8-10-inch DBH snags are not calculated here.

Alternative 1 would not identify new Dedicated Old Growth (DOG) or Replacement Old Growth (ROG) areas. DOGs burned by the Flagtail Fire would remain as Management Area-13. All snags would be left standing, other than trees that may be cut or utilized through future activities identified in Chapter 1, Background, and Actions Outside of this EIS to Address Recovery Needs.

However, if the No Action Alternative is chosen, the Forest Service still maintains the discretion to adjust DOG, ROG, and management areas by conducting a separate environmental analysis.

## Conformance with Forest Plan Standards and Guidelines, as amended

Alternative 1 was developed to provide a baseline for comparison with the action alternatives. Because of the high tree mortality and loss of canopy cover caused by the Flagtail Fire, existing Dedicated Old Growth within the project area is unsuitable for many old-growth associated species and therefore this alternative does not meet Forest Plan Standards and Guidelines (36 CFR 219.10 (c)).

## Alternative 2 – Proposed Action

### Purpose and Design:

This alternative was designed to maximize recovery of the economic value of fire killed and damaged trees and to reduce future fuel loadings. The economic return would be further enhanced by providing local jobs. Reducing fuels is responsive to the hazardous fuel reduction element of the National Fire Plan. By intensively treating the burned acres, future fuel loads will be within their historical range, reducing the impacts of future wildfires on the environment and restoring health to fire-adapted ecosystems.

This alternative meets the other identified needs, including providing safe and adequate access, reducing the effects of roads on wildlife habitat and water quality, re-establishing upland vegetation, and designating suitable Dedicated and Replacement Old Growth areas to replace those degraded by the fire.

Current management activities taking place in the area would continue if Alternative 2 were selected. Activities such as motorized access travel management, road maintenance, dispersed recreation, noxious weed management, fire protection, and livestock grazing would still occur in the project area. However, resumption of livestock grazing would be subject to the Forest's post burn grazing guidelines. These guidelines would allow grazing to resume at current levels after two or more growing seasons depending on fire severity and the results of

range monitoring. Grazing may be delayed for a longer period if necessary to meet other resource objectives (USDA Forest Service 2003-Appendix H).

## **Description of Specific Features:**

### **Forest Vegetation/Structure**

In Alternative 2, approximately 4,340 acres of timber burned in 98 units (including 10 helicopter landings) would be harvested to reduce future fuel loadings and capture the economic value of fire-killed and damaged trees (Table 2-1, Figure 24, Map Section and Appendix A). Total net volume of commercial timber harvested is expected to be about 20 million board feet (MMBF). In 4 units (units 124, 134, 148, and 152 totaling 140 acres) small diameter trees (3-9 inches DBH) in addition to commercial size trees, would be removed commercially as posts and poles during harvest. Only fire-killed trees or trees expected to die as a result of fire injury would be removed, or live trees that would jeopardize the safety of the harvest operation, would be harvested. Incidental live trees may be removed during road building and landing construction.

The Marking Guide in Appendix B will be used to determine trees expected to die as a result of the fire, insect, or drought stress. The direct effects of the fire kill a number of trees outright; others are weakened by fire and then die later from insect attack or drought. The Marking Guide takes both situations into account when determining which trees to harvest and which to leave standing. This guide is based on the publication "Factors Affecting Survival of Fire Injured Trees: A Rating System for Determining Relative Probability of Survival of Conifers in the Blue and Wallowa Mountains" BMPMSC-03-01, Nov. 2002, developed by Scott, Schmitt, and Spiegel. This rating system takes into account the season of the fire, tree size and species, pre-fire vigor, and the existence of disease and insects and then considers the intensity of the fire as shown by duff consumption, bole scorch, and crown scorch. The Marking Guide incorporates new information and refinements based on field evaluation of the rating guide by Scott, Schmitt, and Spiegel and district silviculture and timber marking personnel during the summer of 2003 and adapts the rating guide to local conditions.

Harvest would be accomplished with helicopter yarding on 870 acres, skyline yarding on 800 acres, and tractor yarding on 2,670 acres; helicopter, skyline, and tractor unit landings are included in these acreages. The purchaser would subsoil about 40 acres of skid trails; landings (approximately 180 acres) would be subsoiled by the purchaser and planted with trees. Fourteen helicopter landings would be constructed and then rehabilitated after use (Figure 24, Map Section and Management Requirements, Constraints, and Mitigation Measures). Four of these helicopter landings, totaling 7 acres, are outside of harvest units. Four landings (H01, H07, H08, and H09) would be used as fueling sites as well as landings for timber. One landing site, H13, would only be used for helicopter service/fueling. All helicopter landings will be located outside of RHCAs.

For analysis purposes, the utilization standards: in helicopter units for all saw-log dead trees is 12 inches DBH; in tractor and skyline harvest units is 8 inches DBH for all species of saw-logs except ponderosa pine which is 10 inches DBH; top diameter for all species is 6 inches

in diameter. These utilization standards are based on merchantability standards from previous fire salvage projects.

Roadside hazard trees along open roads and along any roads used for implementation of this project would be felled to provide safe and adequate roaded access in the fire area. Felled hazard trees in RHCAs would be left on site or used as in-channel wood; felled hazard trees outside of RHCAs would be removed as a commercial product. Roadside hazard trees not associated with a unit may only be removed without tracked or wheeled equipment leaving the road. Commercial timber harvested through roadside hazard tree removal is included in the acres and volumes listed above.

Non-commercial sized trees determined to be hazard trees would also be felled. Many of these hazard trees occur within fuel reduction units or in areas planned for riparian fuel reduction; fuels would be reduced as described below under Fuel Loads or as described in Chapter 1 under Actions Outside of this EIS to Address Recovery Needs. In the visual corridor along County Road 63 and part of Forest Road 24 (mostly in RHCAs) wood from non-commercial sized hazard tree felling (trees averaging 2-7 inches DBH) would be left on site, used for planned riparian enhancement projects (in-channel wood or aspen fencing as described in Chapter 1, Additional Fire Recovery Projects Ongoing or Completed, and Actions Outside of this EIS to Address Recovery Needs) or, where needed to meet visual quality objectives or to reduce the likelihood of ditch failure, would be handpiled and burned. No commercial removal of these small diameter trees would occur, these trees would be moved by hand, and burning would be done above the road and/or outside the riparian vegetation zone. This treatment would also meet visual quality objectives in the visual corridor.

Approximately 3,960 acres within the harvest units and 330 acres outside of the harvest units would be planted to reforest areas that sustained high tree mortality. Planting would be done to accelerate recovery of forest habitats. The species and spacing for planting in each area will vary depending on the Plant Association Group. Spacings are wider than normal and are to be varied to duplicate the irregular patterns of natural reforestation. Non-forested openings up to an acre are permissible to provide vegetation diversity and wildlife forage. One hundred ninety acres of uplands have been planted through a CE (Background, Chapter 1). Natural regeneration would occur on approximately 300 acres within the project area in areas that are expected to successfully reforest within 5 years due to the availability of a seed source. The remaining acres of the burned area are adequately stocked and would not require reforestation.

## **Fuel Loads**

Fuels, including those created by the fire and by salvage activity, would be reduced to within the range of historical levels on about 3,230 acres within the harvest units. Fuel loadings after harvest and post harvest treatments, including standing dead, will be within historical range varying from 5-25 tons per acre (Figure 18, Map Section and Appendix A), depending on plant association group. Fuel loading in units adjacent to private lands will be reduced to the lower end of the historical range to provide additional protection from wildfire. When desired fuel loadings of 5-25 tons per acre would be achieved through harvest, no post harvest treatment was proposed. Post harvest treatments were proposed when needed to

further reduce fuels to the desired range. Fuel loading on remaining harvested acres would be moved toward historical levels. After treatment, down woody material is expected to meet Forest Plan standards as described in Chapter 2, Management Requirements, Constraints, and Mitigation Measures.

Fuel treatment methods on 4,320 acres salvage harvested would include yarding with tops attached, felling dead and dying trees 8-inch DBH and less, grapple piling and burning or post and pole removal, and handpiling and burning (see Glossary). Approximately 1,820 acres would have yarding with tops attached during harvest; 1,230 acres would have yarding with tops attached during harvest, with a post harvest treatment of felling the small diameter trees, grapple piling and burning piles; 140 acres in 4 units (124, 134, 148, and 152) would have yarding with tops attached, with felling the small diameter trees and removing them commercially as posts and poles during harvest; 290 acres would have yarding with tops attached during harvest, with a post harvest treatment of felling the small diameter trees, handpiling and burning piles; and helicopter units (840 acres) would only have a post harvest treatment of felling the small diameter trees, handpiling and burning piles (see Figure 27, Map Section). Utilization of the biomass in landing piles could occur if there is a market, or the piles would be burned. Acres of post-harvest treatment will be verified after harvest. No fuel treatment would be necessary on about 20 acres because post harvest levels would be within Forest Plan standards and guidelines.

Fuel reduction would occur on an additional 70 acres where no harvest is occurring (Figure 27, Map Section). Treatments would reduce fuels 8 inches DBH and smaller. Fuel reduction would occur in units with smaller tree fuel levels that, if treated, would move units to be within the range of historical levels or move them closer to historical levels. Post treatment loadings, including standing dead, in these units would vary from 8 to 44 tons per acre, depending on plant association group. The upper end of this range is represented by a 7-acre unit in the cool dry plant association group and treatment would reduce the fuel loading from 61 to 44 tons per acre. The remainder of the acres are in the warm dry plant association group and average 19 tons per acre after treatment. Treatment would include felling the small diameter trees, grapple piling and burning piles on approximately 20 acres and handpiling and burning piles on 50 acres (Appendix A).

No fuel treatment would occur on about 390 acres (of the original units described in Alt. 1, Appendix A). About 20 acres are salvaged but do not have a post-harvest treatment (as described above), and 370 acres did not have the fuel levels in trees 8 inches and less that would affect the total fuel loading enough to make it worth treating.

## **Roads/Access**

Based on roads analysis (USDA Forest Service 2003), the following proposed actions for roads and access were developed. Alternative 2 would construct 0.3 miles of new system road to replace about 1 mile in the Snow Creek RHCA (see Figure 10, Map Section). The segment in the RHCA would be decommissioned. The new road location is designed to improve water quality in Snow Creek while still providing access.

Alternative 2 would construct 3.9 miles of temporary road to allow access for harvest (Figure 10, Map Section). Temporary roads would consist of 19 short spur roads, ranging from 0.1 to 0.5 miles each. Temporary roads would be stabilized and decommissioned after harvest

activities (as described in Chapter 2, Management Requirements, Constraints, and Mitigation Measures). Approximately 0.3 miles of road would be reconstructed, including 1 culvert replacement for improvement of fish passage and water quality. Sixty miles of road (including haul routes outside the fire area) would have maintenance performed to allow for access to harvest and to reduce impact to other resources.

Approximately 13.1 miles of classified road and 3.9 miles of temporary road would be decommissioned, (see Chapter 6, Glossary), and 6.6 miles of classified road in the fire boundary (plus an additional 1.7 miles of road outside the boundary to the roads' terminus) would be closed year-round to all motorized vehicles to reduce the effects of roads on wildlife and water quality. About 2 miles of unclassified road extensions would also be decommissioned. Decommission activities would include removal of 15 metal and 2 log culverts and replacement with self-maintaining natural stream channel drainage to improve water quality.

Following post sale activities, about 29.2 miles of road in the fire area would remain open year-round for public motorized access (Figure 10, Map Section).

## **Wildlife Habitat**

### *Snags*

In all salvage harvest units, snags 21 inches DBH or greater would be retained at the Forest Plan standard of 2.39 snags per acre to provide habitat for cavity dependent species (Figure 32, Map Section). If snags greater than 21-inch DBH are not available, an appropriate number of snags of the largest representative diameter class would be retained. The snags would be averaged on a 40-acre basis and would be left in small clumps where possible.

Although this snag strategy prescribes 2.39 snags per acre, helicopter units will actually retain all 10-12-inch DBH snags because of utilization standard limitations described under Alt. 2, Forest Vegetation/Structure. These snags, ranging from about 5-30 snags per acre, provide additional benefit to wildlife.

Outside salvage units, all snags would be retained except those felled along open roads to reduce safety hazards and those felled to provide coarse woody material for streams, draws, and uplands (Chapter 1, Additional Fire Recovery Projects Ongoing or Completed, Actions Outside of this EIS to Address Recovery Needs).

### *Forest Plan Management Area 13 (MA-13) - Dedicated Old Growth (DOG) and Replacement Old Growth (ROG)*

Alternative 2 would designate new old growth areas to replace those lost to the fire (see Figure 14, Map Section, for original and replacement DOG/ROG locations). The relocation of Dedicated Old Growth and Replacement Old Growth areas should maintain the integrity of the Forest's old growth network.

Dedicated Old Growth 220 will be converted to a Replacement Old Growth 220. Although this area burned with moderate to severe tree mortality, a sufficient number of large live trees remain to manage this area as replacement old growth. A new DOG 220 would be designated immediately outside the fire perimeter in the Hog subwatershed, and within a ¼ mile of the former DOG 220.

Dedicated and Replacement Old Growth 221 will be relocated outside the fire perimeter. These areas burned with severe mortality of trees; few live trees remain. Areas outside the fire perimeter do not provide a similar sized block of mature and old growth habitat. Consequently, *two* new DOG/ROGs would be established to replace the one lost in the fire. DOG/ROG 221-A will be relocated approximately 3 miles northwest in the Wickiup subwatershed. DOG/ROG 221-B will be established about 2 miles southeast in the Jack subwatershed. The new locations provide better opportunities to manage for old growth given the level of fire damage in the original location. Existing DOG/ROG 221 would be converted to General Forest (MA-1).

#### *Proposed Treatments within Replacement Old Growth (ROG)*

Existing Dedicated Old Growth 220 would be converted to Replacement Old Growth 220. Within the replacement ROG 220 salvage harvest, fuels reduction, and tree planting as discussed earlier would be conducted on 277 acres of the 325-acre area; within these acres, snags would be retained at 2.39 snags per acre. The remaining 48 acres would not be harvested because they are in RHCAs.

Existing DOG/ROG 221 would be converted to general forest (MA-1). Harvest and fuel reduction would occur as described under Forest Vegetation/Structure, Fuels Loads, Roads/Access, and Wildlife Habitat.

### **Forest Plan Amendments**

Two non-significant Forest Plan amendments would be required to implement Alternative 2.

Selecting Alternative 2 would include two site-specific, non-significant amendments (one being Management Area designations, the second being a short-term reduction in Visual Quality Objectives) to the Malheur National Forest Plan, as amended. Alternative 2 was designed, in part, to replace Dedicated Old Growth that is now unsuitable due to the fire. One amendment would create a new DOG 220 and convert the old DOG to a ROG. A second part of the amendment would relocate DOG and ROG 221 and convert the original acres to MA-1. Alternative 2 would permit removal of snags to Forest Plan levels which would reduce Visual Quality Objectives to below Forest Plan standards in the visual corridor. The second amendment would permit a short-term (less than 15-year) reduction in the Visual Quality Objective.

Selection of this alternative, including these two amendments, would be consistent with the Forest Plan, as amended (36 CFR 219.10 (c)).

## **Alternative 3**

### **Purpose and Design:**

Wildlife species use burned forest habitats differently than live, green forests. In post-fire habitats, minimum Forest Plan snag standards may not be sufficient to assure use by all primary cavity excavators. Snag density, size and distribution influence use levels and vary by individual species. Alternative 3 was designed to leave higher levels of snag habitat distributed in a way that accommodates a broader range of cavity excavator species while also implementing the goals and objectives of the National Fire Plan. Implementation of this

strategy will reduce fuel loadings, but to a lesser extent than Alternative 2. This alternative also meets the other identified needs, including capturing economic value of the killed and damaged trees, providing safe and adequate access, reducing the effects of roads on wildlife habitat and water quality, re-establishing upland vegetation, and designating suitable Dedicated and Replacement Old Growth areas to replace those degraded by the fire.

Current management activities taking place in the area would continue if Alternative 3 were selected. Activities such as motorized access travel management, road maintenance, dispersed recreation, noxious weed management, fire protection, and livestock grazing would still occur in the project area. However, resumption of livestock grazing would be subject to the Forest's post burn grazing guidelines. These guidelines would allow grazing to resume at current levels after two or more growing seasons depending on fire severity and the results of range monitoring. Grazing may be delayed for a longer period if necessary to meet other resource objectives (USDA Forest Service 2003-Appendix H).

## **Description of Specific Features:**

### **Forest Vegetation/Structure**

Leaving higher levels of snag habitat would limit the ability to economically treat some areas. Additionally, some areas would be set aside for black-backed woodpeckers and for snag retention. This would reduce the acres treated under this alternative when compared to Alternative 2.

In Alternative 3, of the 3,330 acres in units, approximately 2,870 acres of timber burned by the Flagtail Fire would be harvested on 90 units (including 8 helicopter landings) to reduce future fuel loadings and capture the economic value of killed and damaged trees (Table 2-1, Figure 25, Map Section and Appendix A). Total net volume of commercial timber harvested is expected to be about 10 million board feet (MMBF). In 4 units (units 124, 134, 148, and 152 totaling 130 acres) small diameter trees (3-9 inches DBH) in addition to commercial size trees, would be removed commercially as posts and poles during harvest. As in Alternative 2, only fire killed or trees expected to die as a result of fire, insect, or drought stress would be removed, or live trees that would jeopardize the safety of the harvest operation, would be harvested (see glossary). Incidental live trees may be removed during road building and landing construction.

Harvest would be accomplished with helicopter yarding on 450 acres, skyline yarding on 430 acres, and tractor yarding on 1,990 acres; helicopter, skyline, and tractor unit landings are included in these acreages. The purchaser would subsoil about 40 acres of skid trails; landings (approximately 120 acres) would be subsoiled by the purchaser and planted with trees. Ten helicopter landings would be constructed and rehabilitated after use (Figure 25, Map Section and Management Requirements, Constraints, and Mitigation Measures). Two of these landings, totaling 3 acres, are non-forested. Four of them (H01, H07, H08, and H09) would be used as landings for timber and service/fueling sites; the remainder would only be used as timber landings.

For analysis purposes, the utilization standards: in helicopter units for all saw-log dead trees is 12 inches DBH; in tractor and skyline harvest units is 8 inches DBH for all species of saw-

logs except ponderosa pine which is 10 inches DBH; top diameter for all species is 6 inches in diameter. These utilization standards are based on merchantability standards from previous fire salvage projects.

Roadside hazard trees along open roads and along any roads used for implementation of this project would be felled to provide safe and adequate road access in the fire area. Felled hazard trees in RHCAs would be left on site or used as in-channel wood; felled hazard trees outside of RHCAs would be removed as a commercial product. Roadside hazard trees may or may not be associated with a unit; those that are outside of units would only be removed without equipment leaving the road surface. Commercial timber harvested through roadside hazard tree removal is included in the acres and volumes listed above.

Non-commercial sized trees determined to be hazard trees would also be felled. Many of these hazard trees occur within fuel reduction units or in areas planned for riparian fuel reduction; fuels would be reduced as described below under Fuel Loads or as described in Chapter 1 under Actions Outside of this EIS to Address Recovery Needs. In the visual corridor along County Road 63 and part of Forest Road 24 (mostly in RHCAs) wood from non-commercial sized hazard tree felling (trees averaging 2-7 inches DBH) would be left on site, used for planned riparian enhancement projects (in-channel wood or aspen fencing as described in Chapter 1, Additional Fire Recovery Projects Ongoing or Completed, and Actions Outside of this EIS to Address Recovery Needs) or, where needed to meet visual quality objectives or to reduce the likelihood of ditch failure, reduced through handpiling and burning; no commercial removal of these small diameter trees would occur, these trees would be moved by hand, and burning would be done above the road and/or outside the riparian vegetation zone. This treatment would also meet visual quality objectives in the visual corridor.

Approximately 2,550 acres within the harvest units and 1,740 acres outside of the harvest units would be planted to reforest areas that sustained high tree mortality. Planting would be done to accelerate recovery of forest habitats. The species and spacing for planting in each area will vary depending on the Plant Association Group. Spacings are wider than normal and are to be varied to duplicate the irregular patterns of natural reforestation. Non-forested openings up to an acre are permissible to provide vegetation diversity and wildlife forage. One hundred ninety acres of uplands have been planted through a CE (Background, Chapter 1). Natural regeneration would occur on approximately 300 acres within the project area in areas that are expected to successfully reforest within 5 years due to the availability of a seed source. The remaining acres of the burned area are adequately stocked and would not require reforestation.

## **Fuel Loads**

Fuels, including those created by the fire and by salvage activity, would be reduced to be within the range of historical levels on 2,060 acres within the harvest units. Fuel reduction would occur as part of the salvage harvest and as additional post harvest activities. After all fuel treatment is complete on the salvaged acres, fuel loadings, including standing dead, in these units will be within historical ranges varying from 5-25 tons per acre, depending on plant association group (Figure 19, Map Section and Appendix A). Fuel loading in most units adjacent to private lands will be reduced to be within the historical range to provide

protection from wildfire. When desired fuel loadings of 5-25 tons per acre would be achieved through harvest, no post harvest treatment was proposed. Post harvest treatments were proposed when needed to further reduce fuels to the desired range. Fuel loading on remaining harvested acres would be moved toward historical levels. Because snag retention levels are increased under this alternative, additional post harvest treatment of the fuels 8 inches and less, as compared to Alternative 2, would be needed to reduce fuel loadings. After treatment, down woody material is expected to meet Forest Plan standards as described in Chapter 2, Management Requirements, Constraints, and Mitigation Measures.

Fuel treatment methods on 2,840 acres salvage harvested would include yarding with tops attached, felling dead and dying trees 8-inch DBH and less, grapple piling and burning or post and pole removal, and handpiling and burning (see Glossary). At this time it's expected that approximately 850 acres would have yarding with tops attached during harvest; 1,150 acres would have yarding with tops attached during harvest, with a post harvest treatment of felling the small diameter trees, grapple piling and burning piles; 130 acres in 4 units (124, 134, 148, and 152) would have yarding with tops attached, with felling the small diameter trees and removing them commercially as posts and poles during harvest; 260 acres would have yarding with tops attached during harvest, with a post harvest treatment of felling the small diameter trees, handpiling and burning piles; and helicopter units (450 acres) would have a post harvest treatment of felling the small diameter trees, handpiling and burning piles only (Figure 28, Map Section). Utilization of the biomass in landing piles could occur if there is a market or the piles would be burned. Acres of post-harvest treatment will be verified after harvest. No fuel treatment would be necessary on about 30 acres because post harvest levels would be within Forest Plan standards and guidelines.

Fuel reduction would occur on an additional 590 acres where no harvest is occurring (Figure 28, Map Section). Treatments would reduce fuels 8 inches DBH and smaller. Fuel reduction would occur in units with smaller tree fuel levels that, if treated, would move units to be within the range of historical levels or move them closer to historical levels. Post treatment loadings, including standing dead, in these units would vary from 7-51 tons per acre, depending on plant association group. The upper end of this range is represented by a unit in the warm dry plant association group and treatment would reduce the fuel loading from 61 to 51 tons per acre. The remainder of the units are in the warm dry plant association group and average 16 tons per acre after treatment. Treatment would include felling the small diameter trees, grapple piling and burning piles on approximately 360 acres and handpiling and burning piles on 230 acres (Appendix A).

No fuel treatment would occur on about 890 acres; about 430 acres (in four blocks, see snag discussion below) of this would not be treated in black backed woodpecker habitat and 460 acres did not have the fuel levels in trees 8 inches and less that would affect the total fuel loading enough to make it worth treating.

## **Roads/Access**

Based on roads analysis (USDA Forest Service 2003), the following proposed actions for roads and access were developed. Alternative 3 would construct 0.3 miles of new system road to replace about 1 mile in the Snow Creek RHCA (Figure 11, Map Section). The

segment in the RHCA would be decommissioned. The new road location is designed to improve watershed conditions while still providing access.

Alternative 3 would construct 2.9 miles of temporary road to allow access for harvest (Figure 11). All miles of temporary road would be stabilized and decommissioned after harvest activities (as described in Chapter 2, Management Requirements, Constraints, and Mitigation Measures). Approximately 0.3 miles of road would be reconstructed, including 1 culvert replacement for fish passage and water quality improvement.

Approximately 13.1 miles of classified and 2.9 miles of temporary road would be decommissioned, and 6.6 miles of classified road in the fire boundary (plus an additional 1.7 miles of road outside the boundary to the roads' terminus) would be closed year-round to all motorized vehicles to reduce the effects of roads on wildlife and water quality. About 2 miles of unclassified road extensions would also be decommissioned. Decommission activities would include removal of 15 metal and 2 log culverts and replacement with self-maintaining natural stream channel drainage to improve water quality.

Following post sale activities, about 29.2 miles of road in the fire area would remain open year-round for public motorized access (Figure 11, Map Section).

## **Wildlife Habitat**

### *Snag Management*

Alternative 3 would provide a range of habitats (no-snag removal areas and partial snag removal areas) for woodpeckers and other cavity excavators that use burned forests. Snag retention levels are increased over those proposed in Alternative 2 to better meet the habitat needs of cavity excavators while still reducing fuel loads to their historical levels. Snag prescriptions were established primarily to meet prescribed use levels for Management Indicator Species that are strongly associated with post-fire habitats: Lewis' woodpecker, hairy woodpecker, northern flicker, black-backed woodpeckers, and three-toed woodpeckers.

In salvage units, an average 13 snags per acre would be randomly distributed across harvest areas using the following snag size classes (Figure 33, Map Section):

- 2.5 snags > 21-inch DBH;
- 7 snags 14-inch to 20.9-inch DBH;
- and 3.5 snags 10-inch to 13.9-inch DBH.

These snag levels were established primarily to meet prescribed use levels for Lewis' woodpecker, hairy woodpecker, and northern flicker. If sufficient snags do not exist at a specified diameter class, then additional snags would be retained in the next lower diameter class.

Where possible, snags would be retained in untreated patches 2 to 15 acres in size, because cavity nesters as a group prefer patches as opposed to single snags retained in uniform, even spaced distribution (Rose et al, 2001, Saab et al, 2002, Kotliar 2002). Untreated patches would be retained on about 10% of each unit with location determined primarily by operational considerations. Snags located outside these patches would be clustered as natural snag patterns allow. Untreated patches would not be required in small units or units that

have snags mixed with live trees; in these units better snag distribution will be achieved without the untreated patches.

Although this snag strategy prescribes 13 snags/acre, helicopter units will actually retain all 10-12-inch DBH snags because of utilization standard limitations described under Alt. 3, Forest Vegetation/Structure. These snags, ranging from about 5-30 snags per acre, provide additional benefit to wildlife.

Black-backed woodpeckers are also strongly associated with post-fire habitats; however, they prefer high densities of unlogged snags. To provide preferred habitat, four areas at least 75 acres in size with high snag densities would be designated for no treatment (Figure 32, Map Section ). These designated areas would be used in combination with other untreated areas to provide preferred habitat for this species.

Outside salvage units, all snags would be retained except those felled along open roads to reduce safety hazards and those felled to provide coarse woody material for streams, draws, and uplands (Chapter 1, Additional Fire Recovery Projects Ongoing or Completed, Actions Outside of this EIS to Address Recovery Needs).

Alternative 3 creates high snag variability across each unit. Some snag patches would have snag densities up to 75 snags per acre leaving areas in units between patches with an average of 6 to 11 snags per acre 10 inches DBH and larger. Because of the mosaic pattern of the burn and the desire to retain snags in patches, snags may not be distributed at the 40-acre basis as required by the Forest Plan, which will require a non-significant Forest Plan amendment.

#### *Forest Plan Management Area 13 (MA-13) - Dedicated Old Growth (DOG) and Replacement Old Growth (ROG)*

Alternative 3 would modify DOG and ROG areas as described in Alternative 2.

#### *Proposed Treatments within Replacement Old Growth (ROG)*

Existing Dedicated Old Growth 220 would be converted to Replacement Old Growth 220. In ROG 220 all dead and dying trees greater than 8-inch DBH would be retained to provide additional snag habitat for woodpecker species and future large downed logs for species such as pine marten. By retaining large dead wood, more structural components will be available for foraging, roosting and denning habitat once vegetation recovers. Fuels treatment would remove trees less than 8-inch DBH on 192 acres of the 325-acre area. Coniferous trees would be planted on 277 acres.

Existing DOG/ROG 221 would be converted to general forest (MA-1). These MA-1 acres would be treated as described under Forest Vegetation/Structure, Fuels Load, Roads/Access, and Wildlife Habitat.

### **Forest Plan Amendments**

Two non-significant Forest Plan amendments would be required to implement Alternative 3.

Alternative 3 was designed specifically to leave higher levels of snag habitat and in a distribution pattern designed to increase cavity excavator habitat for species such as the black-backed woodpecker. By distributing the snag patches on a unit basis for better

utilization by the species, and not a 40-acre block basis, we may not meet Forest Wide Standard and Guideline #39. Alternative 3 would include a site-specific, non-significant amendment to Forest Wide Standard and Guideline #39.

Alternative 3 was designed, in part, to replace Dedicated Old Growth that is now unsuitable due to the fire. Selecting Alternative 3 would include a second site-specific, non-significant amendment (Management Area designations) to the Malheur National Forest Plan, as amended. The amendment would create a new DOG 220 and convert the old DOG to a ROG. A second part of the amendment would relocate DOG and ROG 221 and convert the original acres to MA-1.

Selection of this alternative, including these two amendments, would be consistent with the Forest Plan, as amended (36 CFR 219.10 (c)).

## **Alternative 4**

### **Purpose and Design:**

Alternative 4 was developed to reduce fuel loadings and provide local employment without commercial timber harvest, in response to comments generated during the scoping process that advocated natural recovery processes. Alternative 4 does not propose commercial timber harvest, but does propose treatment of trees 8-inch DBH and smaller to reduce future fuel loadings. Grapple piling would occur but no ground-based yarding would be necessary. Alternative 4 provides no timber to the economy, but fuels treatment would generate employment and revenue. All snags greater than 8-inch DBH would be retained under Alternative 4 to provide primary cavity excavator species. Grazing would be the same as under Alternative 1. This alternative also meets the other identified needs, including providing safe and adequate access, reducing the effects of roads on wildlife habitat and water quality, re-establishing upland vegetation, and designating suitable Dedicated and Replacement Old Growth areas to replace those degraded by the fire.

Current management activities taking place in the area would continue if Alternative 4 were selected. Activities such as motorized access travel management, road maintenance, dispersed recreation, noxious weed management, fire protection, and livestock grazing would still occur in the project area. However, resumption of livestock grazing would be subject to the Forest's post burn grazing guidelines. These guidelines would allow grazing to resume at current levels after two or more growing seasons depending on fire severity and the results of range monitoring. Grazing may be delayed for a longer period if necessary to meet other resource objectives (USDA Forest Service 2003-Appendix H).

### **Description of Specific Features:**

#### **Forest Vegetation/Structure**

There would be no commercial timber harvest in Alternative 4.

Approximately 4,290 acres would be planted to reforest areas that sustained high tree mortality. Planting would be done to accelerate recovery of forest habitats. The species and spacing for planting in each area will vary depending on the Plant Association Group.

Spacings are wider than normal and are to be varied to duplicate the irregular patterns of natural reforestation. Non-forested openings up to an acre are permissible to provide vegetation diversity and wildlife forage. One hundred ninety acres of uplands have been planted through a CE (Background, Chapter 1). Natural regeneration would occur on approximately 300 acres within the project area in areas that are expected to successfully reforest within 5 years due to the availability of a seed source. The remaining acres of the burned area are adequately stocked and would not require reforestation.

## **Fuel Loads**

Ground fuels and non-commercial size trees 8 inches DBH and smaller would be treated on 4,780 acres including ROG 220 to reduce fuel loadings (Figure 29, Map Section). Following treatment, fuels would be reduced to within historical range on 370 acres in the project area; the remainder would move them closer to historical levels. Post treatment fuel loadings, including standing dead, will vary from 6 to 60 tons per acre (Figure 20, Map Section and Appendix A). Fuel loading in units adjacent to private lands will not be reduced to the historical range, which will leave these areas at high risk to the effects of future wildfires. Approximately 3,000 acres would be grapple piled and burned and 1,780 acres would be hand piled and burned.

## **Roads/Access**

No new or temporary road construction or reconstruction would occur in Alternative 4 (Figure 12, Map Section). Based on roads analysis (USDA Forest Service 2003), the following proposed actions for roads and access were developed. Approximately 11.9 miles of road would be decommissioned and 6.6 miles of classified road in the fire boundary (plus an additional 1.7 miles of road outside the boundary to the roads' terminus) would be closed year-round to all motorized vehicles to reduce the effects of roads on wildlife and water quality. This would include removal of 14 metal and 2 log culverts and replacement with self-maintaining natural stream channel drainage to improve water quality.

Roadside hazard trees along open roads and along any roads used for implementation of this project would be felled to provide safe and adequate roaded access in the fire area. All felled hazard trees would be left on site or used in future projects identified in Chapter 1, Actions Outside of this EIS to Address Recovery Needs.

Non-commercial sized trees determined to be hazard trees would also be felled. Many of these hazard trees occur within fuel reduction units or in areas planned for riparian fuel reduction; fuels would be reduced as described below under Fuel Loads or as described in Chapter 1 under Actions Outside of this EIS to Address Recovery Needs. In the visual corridor along County Road 63 and part of Forest Road 24 (mostly in RHCAs) wood from non-commercial sized hazard tree felling (trees averaging 2-7 inches DBH) would be left on site, used for planned riparian enhancement projects (in-channel wood or aspen fencing as described in Chapter 1, Additional Fire Recovery Projects Ongoing or Completed, and Actions Outside of this EIS to Address Recovery Needs) or, where needed to meet visual quality objectives or to reduce the likelihood of ditch failure, reduced through handpiling and burning; no commercial removal of these small diameter trees would occur, these trees would be moved by hand, and burning would be done above the road and/or outside the riparian

vegetation zone. This treatment would also meet visual quality objectives in the visual corridor.

Following post fuel treatment activities, about 30.1 miles of road in the fire area would remain open year-round to the public motorized access (Figure 12, Map Section). Open road miles differ from Alternatives 2 and 3 because the Snow Creek decommissioning would not occur under Alternative 4. About 2 miles of unclassified road extensions would also be decommissioned.

## **Wildlife Habitat**

### *Snag Management*

All snags greater than 8-inch DBH would be retained under this proposal except those felled along open roads to reduce safety hazards and those covered under future analyses identified in Chapter 1, Actions Outside of this EIS to Address Recovery Needs. Snag levels throughout the area would be about 25-80 snags per acre 10 inches DBH and greater; primary cavity species generally prefer larger diameter snags, so the 8-10-inch DBH snags are not calculated here. In fuels reduction units, dead trees up to 8-inch DBH would be felled. Large diameter snags greater than 10-inch DBH would be retained.

### *Forest Plan Management Area 13 (MA-13) - Dedicated Old Growth (DOG) and Replacement Old Growth (ROG)*

Alternative 4 would modify DOG and ROG areas as described in Alternative 2.

Proposed Treatments within Replacement Old Growth (ROG)

Existing DOG 220 would be converted to ROG 220. Fuels treatment would remove trees less than 8-inch DBH on 277 acres of the 325-acre area. Coniferous trees would be planted on 277 acres. The remaining acres are already adequately stocked.

Existing DOG/ROG 221 would be converted to general forest (MA-1). Acres would be treated as described under Forest Vegetation/Structure, Fuel Loads, Roads/Access, and Wildlife Habitat.

## **Forest Plan Amendments**

A non-significant Forest Plan amendment would be required to implement Alternative 4. Alternative 4 was designed, in part, to replace Dedicated Old Growth that is now unsuitable due to the fire. Selecting Alternative 4 would include a site-specific, non-significant amendment (Management Area designations) to the Malheur National Forest Plan, as amended. The amendment would create a new DOG 220 and convert the old DOG to a ROG. A second part of the amendment would relocate DOG and ROG 221 and convert the original acres to MA-1.

Selection of this alternative, including this amendment, would be consistent with the Forest Plan, as amended (36 CFR 219.10 (c)).

## Alternative 5

### Purpose and Design:

Alternative 5 was designed to more closely mimic snag distributions expected at the landscape level. This snag distribution was derived from the Regional snag inventory data in DecAID (Mellen et al. 2002). This data indicates that dry forests typically supported lower snag levels than those created by the Flagtail Fire. In addition, snag inventory data suggests that snag levels (snag density and size) varied greatly across the landscape based on natural site conditions. Some areas likely had high concentrations of snags and other areas had few or no snags. Snag level prescriptions varied between salvage units based on a variety of criteria including forest type, aspect and slope, visual quality in the County Highway 63 visual corridor, proximity to the Wildland Urban Interface, and economics.

Implementation of this strategy will reduce future fuel loadings. This alternative also meets the other identified needs, including capturing economic value of the killed and damaged trees, providing safe and adequate access, reducing the effects of roads on wildlife habitat and water quality, re-establishing upland vegetation, and designating suitable Dedicated and Replacement Old Growth areas to replace those degraded by the fire.

Current management activities taking place in the area would continue if Alternative 5 were selected. Activities such as motorized access travel management, road maintenance, dispersed recreation, noxious weed management, fire protection, and livestock grazing would still occur in the project area. However, resumption of livestock grazing would be subject to the Forest's post burn grazing guidelines. These guidelines would allow grazing to resume at current levels after two or more growing seasons depending on fire severity and the results of range monitoring. Grazing may be delayed for a longer period if necessary to meet other resource objectives (USDA Forest Service 2003-Appendix H).

### Description of Specific Features:

#### Forest Vegetation/Structure

Because some areas would be set aside for black-backed woodpeckers, and for snag retention (though to a lesser degree than for Alternative 3), the number of acres treated under this alternative lies between Alternative 2 and 3.

In Alternative 5, of the 3,920 acres in units, approximately 3,740 acres of timber burned by the Flagtail Fire would be harvested on 100 units (including 10 helicopter landings) to reduce future fuel loadings and capture the economic value of killed and damaged trees (Table 2-1, Figure 26, Map Section and Appendix A). Total net volume of commercial timber harvested is expected to be about 15 million board feet (MMBF). In 4 units (units 124, 134, 148, and 152 totaling 140 acres) small diameter trees (3-9 inches DBH) in addition to commercial size trees, would be removed commercially as posts and poles during harvest. As in Alternative 2, only fire killed or trees expected to die as a result of fire, insect, or drought stress would be removed, or live trees that would jeopardize the safety of the harvest operation, would be harvested (see glossary). Incidental live trees may be removed during road building and landing construction.

Harvest would be accomplished with helicopter yarding on 730 acres, skyline yarding on 540 acres, and tractor yarding on 2,470 acres; helicopter, skyline, and tractor unit landings are included in these acreages. The purchaser would subsoil about 40 acres of skid trails; landings (approximately 150 acres) would be subsoiled by the purchaser and planted with trees. Fourteen helicopter landings would be constructed and then rehabilitated after use (Figure 26, Map Section and Management Requirements, Constraints, and Mitigation Measures). Four of these helicopter landings, totaling 7 acres, are outside of harvest units. Four landings (H01, H07, H08, and H09) would be used as fueling sites as well as landings for timber. One landing site, H13, would only be used for helicopter service/fueling. All helicopter landings will be located outside of RHCAs.

For analysis purposes, the utilization standards: in helicopter units for all saw-log dead trees is 12 inches DBH; in tractor and skyline harvest units is 8 inches DBH for all species of saw-logs except ponderosa pine which is 10 inches DBH; top diameter for all species is 6 inches in diameter. These utilization standards are based on merchantability standards from previous fire salvage projects.

Roadside hazard trees along open roads and along any roads used for implementation of this project would be felled to provide safe and adequate road access in the fire area. Felled hazard trees in RHCAs would be left on site or used as in-channel wood; felled hazard trees outside of RHCAs would be removed as a commercial product. Roadside hazard trees may or may not be associated with a unit; those that are outside of units would only be removed without equipment leaving the road surface. Commercial timber harvested through roadside hazard tree removal is included in the acres and volumes listed above.

Non-commercial sized trees determined to be hazard trees would also be felled. Many of these hazard trees occur within fuel reduction units or in areas planned for riparian fuel reduction; fuels would be reduced as described below under Fuel Loads or as described in Chapter 1 under Actions Outside of this EIS to Address Recovery Needs. In the visual corridor along County Road 63 and part of Forest Road 24 (mostly in RHCAs) wood from non-commercial sized hazard tree felling (trees averaging 2-7 inches DBH) would be left on site, used for planned riparian enhancement projects (in-channel wood or aspen fencing as described in Chapter 1, Additional Fire Recovery Projects Ongoing or Completed, and Actions Outside of this EIS to Address Recovery Needs) or, where needed to meet visual quality objectives or to reduce the likelihood of ditch failure, reduced through handpiling and burning; no commercial removal of these small diameter trees would occur, these trees would be moved by hand, and burning would be done above the road and/or outside the riparian vegetation zone. This treatment would also meet visual quality objectives in the visual corridor.

Approximately 3,420 acres within the harvest units and 870 acres outside of the harvest units would be planted to reforest areas that sustained high tree mortality. Planting would be done to accelerate recovery of forest habitats. The species and spacing for planting in each area will vary depending on the Plant Association Group. Spacings are wider than normal and are to be varied to duplicate the irregular patterns of natural reforestation. Non-forested openings up to an acre are permissible to provide vegetation diversity and wildlife forage. One hundred ninety acres of uplands have been planted through a CE (Background, Chapter 1). Natural regeneration would occur on approximately 300 acres within the project area in areas that are expected to successfully reforest within 5 years due to the availability of a seed

source. The remaining acres of the burned area are adequately stocked and would not require reforestation.

## Fuel Loads

Fuels, including those created by the fire and by salvage activity, would be reduced to within the range of historical levels on 2,180 acres within the harvest units. Fuel loadings after harvest and post harvest treatments, including standing dead, will be within historical range varying from 5-25 tons per acre (Figure 21, Map Section and Appendix A), depending on plant association group. Fuel loading in units adjacent to private lands will be reduced to the lower end of the historical range to provide additional protection from wildfire. When desired fuel loadings of 5-25 tons per acre would be achieved through harvest, no post harvest treatment was proposed. Post harvest treatments were generally proposed when needed to further reduce fuels to the desired range; except in small acre units or in units that the trees less than 8 inches in diameter were a minor component of the stand. Fuel loading on remaining harvested acres would be moved toward historical levels. After treatment, down woody material is expected to meet Forest Plan standards as described in Chapter 2, Management Requirements, Constraints, and Mitigation Measures.

Fuel treatment methods on 3,630 acres salvage harvested would include yarding with tops attached, felling dead and dying trees 8-inch DBH and less, grapple piling and burning or post and pole removal, and handpiling and burning (see Glossary). Approximately 1,300 acres would have yarding with tops attached during harvest; 1,160 acres would have yarding with tops attached during harvest, with a post harvest treatment of felling the small diameter trees, grapple piling and burning piles; 140 acres in 4 units (124, 134, 148, and 152) would have yarding with tops attached, with felling the small diameter trees and removing them commercially as posts and poles during harvest; 380 acres would have yarding with tops attached during harvest, with a post harvest treatment of felling the small diameter trees, handpiling and burning piles; and helicopter units (650 acres) would only have a post harvest treatment of felling the small diameter trees, handpiling and burning piles (see Figure 30, Map Section). Utilization of the biomass in landing piles could occur if there is a market, or the piles would be burned. Acres of post-harvest treatment will be verified after harvest. No fuel treatment would be done on about 110 harvested acres because on 100 acres post harvest levels would be within Forest Plan standards and guidelines and on remaining acres fuels treatment would not provide cost-effective reduction in fuel loading.

Fuel reduction would occur on an additional 70 acres where no harvest is occurring (Figure 30, Map Section). Treatments would reduce fuels 8 inches DBH and smaller. Fuel reduction would occur in units with smaller tree fuel levels that, if treated, would move units to be within the range of historical levels or move them closer to historical levels. Post treatment loadings, including standing dead, in these units would vary from 8 to 39 tons per acre, depending on plant association group. The upper end of this range is represented by a unit in the warm dry plant association group and treatment would reduce the fuel loading from 59 to 39 tons per acre. The remainder of the acres are in the warm dry plant association group and average 23 tons per acre after treatment. Treatment would include felling the small diameter trees, grapple piling and burning piles on approximately 20 acres and handpiling and burning piles on 50 acres (Appendix A).

No fuel treatment would occur on about 920 acres (of the original units described in Alt. 1, Appendix A). About 430 acres (four blocks, see snag discussion below) of this would not be treated to provide additional black-backed woodpecker habitat, 110 acres are salvaged but do not have a post-harvest treatment (as described above), and 380 acres did not have the fuel levels in trees 8 inches and less that would affect the total fuel loading enough to make it worth treating.

## **Roads/Access**

Based on roads analysis (USDA Forest Service 2003), the following proposed actions for roads and access were developed. Alternative 5 would construct 0.3 miles of new system road to replace about 1 mile in the Snow Creek RHCA (see Figure 13, Map Section). The segment in the RHCA would be decommissioned. The new road location is designed to improve water quality in Snow Creek while still providing access.

Alternative 5 would construct 3.3 miles of temporary road to allow access for harvest (Figure 13, Map Section). Temporary roads would consist of 18 short spur roads, ranging from 0.1 to 0.5 miles each. Temporary roads would be stabilized and decommissioned after harvest activities (as described in Chapter 2, Management Requirements, Constraints, and Mitigation Measures). Approximately 0.3 miles of road would be reconstructed, including 1 culvert replacement for improvement of fish passage and water quality. Sixty miles of road (includes haul routes outside the fire area) would have maintenance performed to allow for access to harvest and to reduce impact to other resources.

Approximately 13.1 miles of classified road and 3.3 miles of temporary road would be decommissioned, (see Chapter 6, Glossary) and 6.6 miles of classified road in the fire boundary (plus an additional 1.7 miles of road outside the boundary to the roads' terminus) would be closed year-round to all motorized vehicles to reduce the effects of roads on wildlife and water quality. About 2 miles of unclassified road extensions would also be decommissioned. Decommission activities would include removal of 15 metal and 2 log culverts and replacement with self-maintaining natural stream channel drainage to improve water quality.

Following post sale activities, about 29.2 miles of road in the fire area would remain open year-round for public motorized access (Figure 13, Map Section).

## **Wildlife Habitat**

### *Snag Management*

Snag inventory data and wildlife use data from DecAID (Mellen et al. 2003) were both considered when prescribing snag levels in Alternative 5. In Alternatives 2 and 3, snag prescriptions are nearly identical in every unit; in this alternative, snag prescriptions vary by unit in an attempt to mimic snag distributions at a landscape level.

In salvage units, generally, one of three snag prescriptions would be applied. Units would retain either 13 snags per acre, 7 snags per acre, or 2.39 snags per acre. Figure 34 in the Map Section displays snag prescriptions by unit.

Under the 13-s snag prescription, an average 13 snags per acre would be randomly distributed across harvest areas using the following snag size classes:

- 2.5 snags > 21-inch DBH;
- 7 snags 14-inch to 20.9-inch DBH;
- and 3.5 snags 10-inch to 13.9-inch DBH.

Under the 7-s snag prescription, an average 7 snags per acre would be randomly distributed across harvest areas using the following snag size classes:

- 2.5 snags > 21-inch DBH;
- 2.5 snags 14-inch to 20.9-inch DBH;
- and 2 snags 10-inch to 13.9-inch DBH.

Under the 2.39-s snag prescription, the Forest Plan standard for snags would be applied;

- an average 2.39 snags > 21-inch DBH would be randomly distributed across each unit.

A large-scale fire such as Flagtail provides nearly unlimited options to vary snag densities at a landscape level. Generally, the 13-s snag, 7-s snag and 2.39 snag prescriptions were applied to salvage units using the following criteria. The 13-s snag prescription was applied in the visual corridor along County Highway 63 to maintain visual quality and to meet moderate snag distribution levels. The 7-s snag prescription was applied on steeper north and east slopes, aspects that typically have higher tree densities and support conditions that often sustain snags for longer periods of time. In addition, fire frequency on north slopes tends to be lower, and therefore when fires do occur, they tend to be of mixed severity causing higher tree mortality. The 2.39 snag prescription was applied to south and west aspects that typically support drier, less productive conditions and lower tree densities and along the wildland urban interface where lower fuel loads will reduce fire risk to private lands. In addition, consideration was given to applying lower snag prescriptions to helicopter and skyline units where retaining higher snag densities can make salvage more cost-prohibitive.

Under the 13-s snag prescription, snags would be retained in untreated patched 2 to 15 acres in size, because cavity nesters as a group prefer patches as opposed to single snags retained in uniform, even spaced distribution (Rose et al, 2001, Saab et al, 2002, Kotliar 2002).

Untreated patches would be retained on about 10% of each unit with location determined primarily by operational considerations. Snags located outside these patches would be clustered as natural snag patterns allow. Untreated patches would not be required in small units or units that have snags mixed with live trees; in these units better snag distribution will be achieved without the untreated patches.

Under the 7-s snag and 2.39-s snag prescriptions, untreated patches would not be required, because at these lower snag levels, concentrating snags in untreated patches would result in large areas between the patches being devoid of snags. Better snag distribution will be achieved without the untreated patches. Snags will be clustered as natural snag patterns allow.

Although this snag strategy prescribes 2.39 to 13 snags/acre, helicopter units will actually retain all 10-12-inch DBH snags because of utilization standard limitations described under

Alt. 5, Forest Vegetation/Structure. These snags, ranging from about 5-30 snags per acre, provide additional benefit to wildlife.

Black-backed woodpeckers are strongly associated with post-fire habitats; however, they prefer high densities of unlogged snags. To provide preferred habitat, four areas at least 75 acres in size with high snag densities would be designated for no treatment (Figure 34, Map Section). These designated areas would be used in combination with other untreated areas to provide preferred habitat for this species.

Outside salvage units, all snags would be retained except those felled along open roads to reduce safety hazards and those felled to provide coarse woody material for streams, draws, and uplands (Chapter 1, Additional Fire Recovery Projects Ongoing or Completed, Actions Outside of this EIS to Address Recovery Needs).

Alternative 5 creates higher snag variability than Alternatives 2 and 3. Variability is greater at both the landscape and unit level. Units in the visual corridor along County Road 63 with 13 snags per acre would have some snag patches with snag densities up to 75 snags per acre leaving areas in units between patches with an average of 6 to 11 snags per acre 10 inches DBH and larger. Units with a 7- or 2.39-snag per acre prescription do not include untreated patches. These units would generally average 2 to 7 snags per acre 10 inches DBH and larger, as prescribed, with snags distributed as natural patterns allow. Because of the mosaic pattern of the burn and the desire to retain snags in patches, snags may not be distributed at the 40-acre basis as required by the Forest Plan, which will require a non-significant Forest Plan amendment.

#### *Forest Plan Management Area 13 (MA-13) - Dedicated Old Growth (DOG) and Replacement Old Growth (ROG)*

Alternative 5 would modify DOG and ROG areas as described in Alternative 2.

#### *Proposed Treatments within Replacement Old Growth (ROG)*

Treatment would be the same as Alternative 2, except that 7 snags per acre would be retained in ROG 220. The > 21-inch DBH snag class and the 14-inch DBH to 20.9-inch DBH class would be combined. On average, the 5 largest snags per acre would be retained. An additional 2 snags would be retained in the 10 to 13.9-inch DBH class.

### **Forest Plan Amendments**

Two non-significant Forest Plan amendments would be required to implement Alternative 5.

In Alternative 5 snag prescriptions vary by unit in an attempt to mimic snag distributions at a landscape level. Because of the mosaic pattern of the burn and the desire to retain snags in patches, snags may not be distributed at the 40-acre block basis as required by the Forest Plan. Thus, this alternative may not meet Forest Wide Standard and Guideline #39.

Alternative 5 would include a site-specific, non-significant amendment to Forest Wide Standard and Guideline #39.

Alternative 5 was designed, in part, to replace Dedicated Old Growth that is now unsuitable due to the fire. Selecting Alternative 5 would include a second site-specific, non-significant amendment (Management Area designations) to the Malheur National Forest Plan, as amended. The amendment would create a new DOG 220 and convert the old DOG to a

ROG. A second part of the amendment would relocate DOG and ROG 221 and convert the original acres to MA-1.

Selection of this alternative, including these two amendments, would be consistent with the Forest Plan, as amended (36 CFR 219.10 (c)).

## Management Requirements, Constraints, and Mitigation Measures

The Forest Service developed the following management requirements, constraints, and mitigation measures to be used as part of the action alternatives. Throughout the project, all applicable Timber Management, Road Systems, Fuels Management, Watershed Management, and Vegetative Management BMPs (General Water Quality Best Management Practices, Pacific Northwest Region 1988) will be used to enable the achievement of water quality standards (see Appendix F for a complete description of BMPs).

Headings in the tables indicate which alternatives a mitigation measure relates to. Unless noted otherwise in the decision document, these management requirements, constraints, and mitigation measures are mandatory if the Responsible Official selects an action alternative for implementation.

### Roads/Access

Management Requirement/Mitigation Measure	Objective	Responsible Person
<b>Alternatives 2, 3, 4, and 5</b>		
Forest roads will be used and maintained commensurate with use and maintenance in accordance with the Malheur National Forest Road Rules dated 5/16/1991 (USDA Forest Service 1991).	Prevent resource damage; provide safety; protect roads and investment in road	Engineering Representative, Sale Administrator
Roads slated for closure would be closed with a CFR (Code of Federal Regulations) closure when activities associated with the Flagtail Project are completed. Limited access onto closed roads may be granted by the District Ranger following review and approval by affected resource specialists.	To assure legal closure of roads occurs.	Project Engineer, Sale Administrator, District Hydrologist, Fisheries Biologist, Wildlife Biologist

### Terrestrial Wildlife

Management Requirement/Mitigation Measure	Objective	Responsible Person
<b>Alternatives 2, 3, 4, and 5</b>		
Where available, maintain down logs at the following levels: in ponderosa pine 3-6 pieces/acre, 12-inch min. diameter at small end, >6 feet (20-40 total feet/acre); in mixed conifer 15-20 pieces/acre, 12-inch min. diameter at small end, >6 feet (100-140 total feet/acre); in lodgepole pine 15-20 pieces/acre, 8-inch min. diameter at small end, >8 feet (120-160 total feet/acre).	Provide wildlife habitat and long-term productivity.	Sale Administrator

Management Requirement/Mitigation Measure	Objective	Responsible Person
<b>Alternatives 2, 3, 4, and 5</b>		
<p>Portions of the project area are in the Murderer's Creek-Flagtail Cooperative Travel Management Area (also known as a green dot closure area). No log haul or other management-related access will be permitted on Roads 2195578, -590, -886, -887, -897, -898, and 6300663 and -661 during closure periods.</p> <p>Restriction periods occur in the fall and correspond to general deer hunting season and elk hunting season. Restrictions can be waived, but only after consultation with a District wildlife biologist and under approval of the District Ranger.</p>	<p>Protect wildlife habitat, minimize wildlife harassment, maintain adequate buck and bull escapement, and promote quality hunting.</p>	<p>Sale Administrator, District Wildlife Biologist</p>
<p>From November 1st to April 30<sup>th</sup>, log haul and other management-related traffic would be restricted (prohibited) on Forest Road 24 from Road 2400071 east to the Forest boundary to avoid the bald eagle winter roost area.</p>	<p>Reduce potential disturbance to perching and roosting eagles.</p>	<p>Sale Administrator, District Wildlife Biologist</p>
<p>New raptor nests discovered in or immediately adjacent to the project area during project implementation will have nest protection and disturbance standards adhered to (see Table below). To conduct activities during a prohibited date a waiver must be obtained from the District Biologist.</p>	<p>Protect new raptor nests from alteration and disturbance</p>	<p>Sale Administrator, District Wildlife Biologist</p>
<b>Alternatives 2, 3, and 5</b>		
<p>If available, select 25% of the snags from soft snags, the remainder would be hard. When available retain snags with broken tops. Retain snags that already have woodpecker cavities.</p>	<p>Provide immediate habitat for woodpecker nesting (soft snags, and snags with cavities) and long-term habitat</p>	<p>Marking crew, Sale Administrator</p>
<p>Avoid marking snags for retention within 150' of open roads or within one tree height of improvements such as fences.</p>	<p>Provide snags that are likely to be retained through harvest operations and future management</p>	<p>Marking crew, Sale Administrator</p>
<p>If a tree marked for snag retention is required to be felled for operational needs (i.e., hazard trees), a snag of equal or larger size planned for harvest will be left as a replacement where feasible.</p>	<p>Maintain desired snag levels and provide wildlife habitat and long-term productivity.</p>	<p>Sale Administrator</p>
<p>In the event that leave trees (live or dead) fall down via windthrow or other natural events, or are accidentally knocked down during harvest, these trees shall be left to provide large down logs for wildlife.</p>	<p>Provide wildlife habitat and long-term productivity.</p>	<p>Sale Administrator</p>
<p>In the event of trees falling due to windthrow or other natural events outside designated units, trees would not be removed under this NEPA analysis.</p>	<p>Assure effects of project remain within the scope of current analysis</p>	<p>Sale Administrator</p>

**Summary of Raptor Timing Restrictions, Alternatives 2, 3, 4, and 5**

Description*	Timing – Activities Permitted**	Timing – Activities Prohibited***	Notes
Occupied Goshawk nest sites (within Post Fledging Area or within ½ mile of nest sites)	Activities can occur: October 1 – March 31	Activities are prohibited: April 1 – September 30	Three goshawk territories existed in project area prior to fire.
Occupied Cooper’s Hawk nest sites (within ½ mile of nest sites)	Activities can occur: September 1 – March 31	Activities are prohibited: April 1 – August 30	Known nest sites in project area
Occupied red-tailed hawk nest sites (within 600 feet)	Activities can occur: August 1 - February 28	Activities are prohibited: March 1 – July 31	Known nest sites existing in project area prior to fire.
<p>* Restriction may be waived based on District Biologist’s recommendations and Responsible Official’s approval</p> <p>**Activities are permitted within the fire perimeter during these periods except within identified nesting areas, i.e., for goshawks, no activities within 30-acre nesting area; for all other raptors, no activities within 100 feet of nest trees.</p> <p>*** Activities are only prohibited within distances specified in Column 1 for each species.</p>			

**Soil**

Management Requirement/Mitigation Measure	Objective	Responsible Person
<b>Alternatives 2, 3, 4, and 5</b>		
Grapple piling shall be done with low ground pressure (≤ 8.5 psi) machinery on dry, frozen, or snow covered soil, and machinery will stay on existing skidtrails where possible. See below for the definition of dry, frozen, or snow covered soil.	Limit soil damage.	COR
<b>Alternatives 2, 3, and 5</b>		
Skidtrail locations shall be designated and approved prior to logging. On areas where existing skidtrails spaced 100-140 feet apart can be reused, reuse the old skidtrails. Otherwise, space skidtrails about 120 feet apart (except where they converge at landings and junctions), using existing skidtrails where possible and appropriate. Draw bottoms are not appropriate.	Limit soil damage.	Sale Administrator, Soil Scientist

Management Requirement/Mitigation Measure	Objective	Responsible Person
<b>Alternatives 2, 3, and 5</b>		
Avoid skidding on slopes steeper than 35%, where feasible, using directional felling and tractor winching. There shall be no skidding (including Crawler Mounted Skidding) on any slope (longer than 40 feet) steeper than 45% in low soil severity burn areas (parts of units 01, 06, 48, 86, 104, 120, 125, 158) or 40% in areas of moderately and severely burned soil (parts of units 04, 06, 26, 34, 40, 56, 75, 82, 86, 114, 130, 152). See Figure 2 of BAER severity in Map Section.	(1) Keep soil impacts as small as practical, especially long-lasting impacts; and (2) keep detrimental soil impacts from this harvest and past harvests to less than 20% of the area of each sub-unit. (Limit soil damage.)	Sale Administrator
No skidding will be done under wet soil conditions, when ruts six inches or deeper would form.	Limit soil damage	Sale Administrator
Re-use existing landings where feasible and where they are away from shallow soil areas and ephemeral draws unless approved by the hydrologist, soil scientist or fisheries biologist.	Limit soil damage	Sale Administrator
Skidders shall not be allowed off skidtrails. Directional felling and/or winching shall be used when necessary.  Low ground-pressure equipment ( $\leq 8.5$ psi) can be allowed off skidtrails under dry, frozen, or snow covered conditions.	Limit soil damage.	Sale Administrator, Soil Scientist
Establish 50-foot no-equipment zone around shallow soils (parts of units 56, 62, 63, 65, 67, 70, 72, 73, 74, 78, 82, 100, 144) (See glossary for description of "shallow soils").	Avoid concentrating water and causing erosion/sedimentation.	Sale Administrator, Soil Scientist
The purchaser shall subsoil skid trails in part of units 32 (9614A), 75 (VAT347), 78 (29605), and 120 (SNOW33 & SNOW37) where the soil is suitable and where subsoiling would not spread noxious weeds.	Keep detrimental soil impacts below 20%	Sale Administrator, Soil Scientist
Skidding on units 04 (subunit COLD52), and 154 (DIPPING VAT02A) is limited to conditions when the soil is dry, frozen, or snow covered. "Dry" means July through September, or less than 15% moisture during other months. "Frozen" means frozen to a depth of 4 inches or more. "Snow covered" means sufficient snow depth to prevent soil disturbance and compaction.	Keep detrimental soil impacts below 20%.	Sale Administrator, Soil Scientist

Management Requirement/Mitigation Measure	Objective	Responsible Person
<b>Alternatives 2, 3, and 5</b>		
<p>If the following units are logged when the soil is "moist" (not dry, frozen, or snow covered (see definitions above)), and where subsoiling would not spread noxious weeds, the purchaser shall subsoil skidtrails (where the soil is suitable) in parts of units 06 (COLD54), 34 (9614A), 56 (VAT201B, and in Alt 3 9607S02C), 59 (9607S02C), 73 (in Alt 3, VAT295), 74 (in Alt 3, VAT295), 75 (H75A-UNK), 77 (29606), 90 (9614D and H90-UNK), 118 (SNOW 34), 150 (JACK 08)*, 180 (JACK 01A &amp; B)*, and 182 (JACK01B)</p> <p>*Units 150 and 180 are not in Alt. 3.</p>	Keep detrimental soil impacts below 20%.	Sale Administrator, Soil Scientist
If subsoiling is required, sow grass seed after subsoiling to keep the seed from being buried too low for good germination.	Prevent erosion. Promote successful grass germination.	Sale administrator, Engineering representative
Subsoil all landings (helicopter, tractor, and skyline) and revegetate (plant trees or seed grass) except in Unit 62 aspen (see Watershed Mitigations).	Speed recovery of damaged soil	Sale Administrator
Erosion from subsoiling skid trails shall be controlled by subsoiling in a "J" pattern, by water bars, or by comparable measures. If runoff cannot be diverted out of the furrows (such as in draw bottoms), do not subsoil. Skidtrails on slopes steeper than 28% should not be subsoiled. Do not subsoil sections of skid trails where excessive rock will be pulled to the surface.	Limit soil damage.	Sale Administrator
Erosion from skidtrails, skyline corridors, and tractor-winch furrows shall be controlled by the use of cross drains or comparable measures. Outfalls of the cross drains shall be clear and located on soil where water will infiltrate, not on shallow or impermeable soil. Cross drains on skidtrails should be spaced appropriately for the terrain. General guidelines are provided in the Soils Specialist Report.	Limit long-lasting soil damage.	Sale Administrator
Skidtrails and disturbed soil shall be seeded as specified in Forest Plan Forest-Wide Standards 128 & 129. In addition, skidtrails, in areas with moderately or severely burned soil, and that are 1) steeper than 10%, or 2) on slopes steeper than 20%, shall be seeded. Skidtrails down slope from shallow soil areas shall be seeded (see below).	Limit long-lasting soil damage. Seeding is necessary to supplement other erosion control measures.	Sale Administrator, Soil Scientist

Management Requirement/Mitigation Measure	Objective	Responsible Person
<b>Alternatives 2, 3, and 5</b>		
Skidtrails located down-slope from shallow soils in the Bald Hills shall be seeded. If such a skidtrail goes across the slope, it shall be shaped (using waterbars if necessary) to ensure that water flows no further than fifty feet down the skidtrail (parts of units 56, 63, 67, 70, 72, 74)	Avoid concentrating runoff from shallow soils; reduce erosion and sediment transport.	Sale Administrator, Soil Scientist
Scatter material (slash) remaining after fuels treatment on skidtrails in the following tractor units – 4, 12, 28, 56, 57, 58, 59, 100, 110, 114, 116, 118, 120, 128, 130, 150	Control erosion	Fuels treatment COR, Fuels Specialist
Seed sites which require erosion control measures with local <sup>1</sup> native seed or non-persistent, certified weed-free seed mixture (Botany Specialist Report). Seed will be sown in the fall onto “loose” soil. If necessary disturb soil enough to allow seed to be secured by soil surface to assure seed remains on site. (Contract Provision CT 6.6) If the same areas are to be reforested, the botanist will specify an appropriate sowing density to assure conifer seedling survival.	Prevent erosion. Avoid retarding recovery of native plants.	Sale Administrator, Botanist, Soil Scientist, Silviculturist
<b>Alternatives 3 and 5</b>		
In tractor units containing soils steeper than 35%, snag clumps will be located on the steeper slopes, where these locations meet wildlife needs and are operationally feasible.	Limit soil damage	Forestry Technicians (Layout)

<sup>1</sup> Local seed is seed collected within the same watershed and the same elevation band as the project area

### **Watershed**

Management Requirement/Mitigation Measure	Objective	Responsible Person
<b>Alternatives 2, 3, 4, and 5</b>		
Riparian Habitat Conservation Areas (RHCA) for Category 1, 2, and 4 streams and for Category 3 and 4 wetlands shall be consistent with INFISH. (50-300')	Protect fishbearing perennial and intermittent streams with INFISH buffers.	Fisheries Biologist, Hydrologist
Ephemeral draws (Figure 16, Map Section) will have site specific, no-cut buffers (10-50' on each side).	Protect ephemeral draws	Timber Layout Forester, Sale Administrator
Equipment will be permitted in ephemeral draw buffers only at designated crossings	Protect ephemeral draws	Sale Administrator
Road activities on Category 1 & 2 streams associated with removal, replacement, or improvement of culverts will be done during low flow periods. Cease all work if storm events occur and increase stream flows.	Reduce sediments; protect perennial and fish-bearing streams.	Fisheries Biologist, Hydrologist

Management Requirement/Mitigation Measure	Objective	Responsible Person
<b>Alternatives 2, 3, 4, and 5</b>		
Install temporary structures to protect streams from construction sediment, where needed.	Reduce sediment transport to streams.	Sale Administrator, Project Engineer
For all high clearance roads, the recommended spacing of dips and other road surface drainage is $(400/\% \text{ grade}) + 150'$ (for example, a grade of 4% would have a spacing of $(400/4) + 150 = 250'$ ). Spacing can be adjusted, based on site-specific conditions.	Reduce erosion and sedimentation	Sale Administrator, Project Engineer
Sediment fences shall be used to reduce sediment transport into Snow Creek during roadwork on road 2400133 when filter strip is narrower than 65 feet.	Reduce erosion and sedimentation	Sale Administrator, Project Engineer
The Forest Service will require a Hazardous Substances Plan (contract provision C6.342) and Prevention of oil spill Plan (contract Provision C6.341) from contractor be reviewed and approved prior to implementation of activities.	Prevent petroleum products or other deleterious materials from entering stream systems	Sale Administrator, Project Engineer
Areas of streambank disturbance associated with roads will be seeded or planted.	Reduce erosion, sedimentation.	Fisheries Biologist, Silviculturist, Hydrologist
For roadwork, operate machinery only on road prism.	Reduce erosion/sedimentation potential	Sale Administrator, Project Engineer
<b>Alternatives 2, 3, and 5*</b>		
Landings, especially fueling sites, shall not be located in ephemeral draws or MA3 without approval of hydrologist, soil scientist or fisheries biologist. This includes both new and existing landing sites.	Reduce sediment transport or erosion.	Sale Administrator
If skidding across draw bottoms that show signs of water flow, skid only when the soil in the draw is dry or frozen, and place slash or other ground cover on the skidtrail after use.	Reduce erosion/sediment transport	Sale Administrator
If existing skid trails and the existing landing in the aspen stand in Unit 62 are used, slash shall be placed on these areas after use.	Reduce erosion/sediment transport	Sale Administrator

Management Requirement/Mitigation Measure	Objective	Responsible Person
<b>Alternatives 2, 3, and 5*</b>		
Decommission/obliterate system* and temporary roads by some combination of the following: recontouring slopes (removing cut and fill slopes); subsoiling (loosening) compacted soils to a depth of 16 inches (unless prevented by bedrock or rock content of soils-estimate 4-6 acres of total subsoiling); pulling berm; pulling slash (where available); planting or seeding disturbed areas to achieve a minimum of 35% ground cover; restoring natural drainage patterns (may include pulling waterbars) and waterbarring; as needed; and/or disguising the first hundred yards of travel way with large pieces of organic material such as cull logs and tops of trees. Methods will be determined in consultation with the District Hydrologist, Fisheries Biologist, or Soil Scientist	Reestablishment of natural drainage. Decompaction of travel way. Restoration of ground cover. Preventing access to decommissioned road. Prevent/reduce potential for erosion/sedimentation.	Sale Administrator, Hydrologist, Fisheries Biologist, Soil Scientist, Silviculturist,
No timber haul will occur on road 2400203 from the Unit 124 boundary south to road 2400133; nor north on 2400133 to the 2400137 road. In addition, no timber haul will occur on road 2400133 between 2400201 and 2400033 roads.	To minimize resource effects in Snow Creek by avoiding use of a road (2400133) in the RHCA	Sale Administrator

\*System road obliteration would follow the methods described herein Alternative 4.

### ***Fisheries***

Management Requirement/Mitigation Measure	Objective	Responsible Person
<b>Alternatives 2, 3, 4, and 5</b>		
Industrial camping permits will be required. Locations will be coordinated with a biologist before permits are issued.	Minimize resource damage.	Sale Administrator, District Ranger
No storage of fuels or fueling of equipment may occur within RHCAs	Prevent petroleum products or other deleterious materials from entering stream systems	Sale Administrator, Project Engineer
Dust abatement chemicals other than water shall not be used within 25 feet of Category 1-4 channels	Prevent deleterious chemicals from entering stream systems and affecting fish	Sale Administrator, Project Engineer

**Visual Corridors**

<b>Management Requirement/Mitigation Measure</b>	<b>Objective</b>	<b>Responsible Person</b>
<b>Alternatives 2, 3, 4, and 5</b>		
Areas of greater than 200 square feet of soil disturbance in the immediate foreground of County Road 63 shall be seeded or planted to replace disturbed vegetation or scatter debris to make the area similar in appearance to adjacent undisturbed areas.	Reduce evidence of management activity.	Sale Administrator or Contracting Officer's Representative, Silviculturist
Stumps of trees cut in the immediate foreground (300 ft from County Road 63) are to be cut to within 6 inches of the ground. Stumps should be cut at an angle away from the road to avoid the face of the stump being a contrasting color impact.	Reduce evidence of management and avoid contrasting color impact.	Sale Administrator or Contract. Offic. Rep.
<b>Alternatives 2, 3 and 5</b>		
Where paint can be seen from County Road 63, it is to be applied to the side of the tree facing away from the road. Ribbon and signs are to be removed upon completion of the harvest unit activities. Winter skyline logging over snow and frozen ground retains vegetation in the corridors and minimizes soil exposure is the preferred mitigating measure, especially for units 8 and 22. If winter logging is not possible and negative visual impacts of color or texture contrasts are present debris will need to be spread over disturbed corridors.	Reduce evidence of management and avoid contrasting color and form impact.	Marking Crew Leader  Sale Administrator
Winter tractor logging over snow and frozen ground is the preferred measure to avoid visual impacts. Units 4, 26, 28 and 104 are the most likely not to meet partial retention if not winter logged due to distance, slope, aspect and duration of view. If winter logging is not possible, debris will need to be spread over disturbed skid trails using a machine capable of picking up logs and boulders and smoothing berms.	Reduce evidence of management and avoid contrasting color and form impact.	Sale Administrator

**Range**

<b>Management Requirement/Mitigation Measure</b>	<b>Objective</b>	<b>Responsible Person</b>
<b>Alternatives 2, 3, 4, and 5</b>		
Coordinate repair of allotment facilities and resumption of grazing with proposed harvest treatment.	Ensure worker safety and provide control over livestock.	Timber Sale Officer, Rangeland Management Specialist

Management Requirement/Mitigation Measure	Objective	Responsible Person
<b>Alternatives 2, 3, 4, and 5</b>		
Any fences scheduled for maintenance that are damaged, removed, or altered during harvest or other proposed activities shall be repaired or replaced by the function that did the damage within one week of completing operations in that unit or sooner if required by Rangeland Mgmt. Specialist.	Provide control over livestock.	Sale Administrator, Rangeland Management Specialist

### **Noxious Weeds**

Management Requirement/Mitigation Measure	Objective	Responsible Person
<b>Alternatives 2, 3, 4, and 5</b>		
Off-road equipment will be washed prior to entering National Forest Service lands (Cont. Prov. CT6.35) Report new weed locations to the sale administrator Forest Service personnel will report new weed sightings to the District Weed Coordinator.	Preventive measure to limit noxious weed spread.	Sale Administrator Engineering Representative
If practical, avoid parking, creating landings, and designating skid trails through or within 10 feet of weed sites to prevent spreading the plants to new areas.	Preventive measure to limit noxious weed spread.	Sale Administrator
Inspect active gravel, fill, sand stockpiles, quarries, and borrow material for invasive plants before use and transport. Treat weed infested sources before using materials. Schedule road blading and pulling ditches along roads infested with invasive plants in coordination with the District Weed Coordinator.	Preventive measure to limit noxious weed spread.	Sale Administrator Engineering Representative
Sale administration personnel will notify the Supervisory Range Conservationist if ground disturbing treatments are planned in locations with noxious weed infestations to allow range personnel time to remove the weed seed source. Ground disturbing activities including road building, road closures, road decommissioning, fuel treatment, skidding, piling, and skyline corridors. Specific areas include: <ul style="list-style-type: none"> <li>• Treatment units 9, 10, 11, 14, 19, 52, 56, 58, 70, 75, 77, 78, 90, 110, 114, 118, 120, 124, 130, 180, 182;</li> <li>• Road corridors 2195, 2195579, 2400011, 2400017, 2400022, , 2400050, 2400067, 2400083, 2400086, 2400131, 2400134, 2400136, 2400865, 6300661, and</li> <li>• any new weed locations.</li> </ul>	Preventive measure to reduce noxious weed establishment and limit spread.	Sale Administrator, District Botanist, Supervisory Range Conservationist, Presale Technician

Management Requirement/Mitigation Measure	Objective	Responsible Person
<b>Alternatives 2, 3, 4, and 5</b>		
Equipment must be cleaned before moving to another unit if equipment has contact with weed seed in known weed locations. The sale administrator will determine washing areas after consulting district specialists. Wash equipment on a flat area with a ditch-line around the washing area to trap weed seed. Ground-disturbing activities may occur over snow cover in areas with existing weed populations, if the amount of snow is sufficient to keep equipment from disturbing soil.	Preventive measure to reduce noxious weed establishment and limit spread.	Sale Administrator, District Botanist, Supervisory Range Conservationist, Presale Technician
Seed disturbed sites within 25 feet of noxious weed populations that do not spread seed by wind, with local* native seed or non-persistent, certified weed-free seed mixture that is appropriate at the time of sowing (Botany Specialist Report). Sow seed in the fall onto “loose” soil. If necessary disturb soil enough to allow seed to be secured by soil surface to assure seed remains on site. (Targeted species may include dalmation toadflax, scotch thistle, knapweed, bindweed, teasel, whitetop)	Preventive measure to limit noxious weed spread.	Botanist, Range Conservationist

\* Local seed is seed collected within the same watershed and the same elevation band as the project area

**Heritage**

Management Requirement/Mitigation Measure	Objective	Responsible Person
<b>Alternatives 2, 3, 4, and 5</b>		
All activities involved with the implementation of any of the proposed actions will avoid all heritage sites, with the exceptions of hazard tree removal and the Hines Railroad grade (see additional mitigation measures below).	Limit impacts to historic and prehistoric sites.	Sale Administrator, District Archaeologist
If hazard trees are located in archeological or historic sites (as displayed on the Timber Sale map provided to the Sale administrator), these trees must be directionally felled with a chainsaw and removed with a boom-mounted log loader or grappling equipment; no winching, skidding, or other cable-based systems may be used for removal, and no heavy equipment of any type is permitted off existing roads or landings in these areas.	Limit ground disturbance and impact to historic and prehistoric sites	Sale Administrator
If an unknown archeological or historic site is found, stop ground-disturbing activities, until the District Archeologist assesses the situation and recommends appropriate action.	Limit risks to heritage resources.	Sale Administrator

Management Requirement/Mitigation Measure	Objective	Responsible Person
<b>Alternatives 2, 3, 4, and 5</b>		
<p>Skid trail crossings over railroad spurs in Units 4, 8, 15, 17, 34, 36, 85, 87, 88, 90 will adhere to the following criteria:</p> <ul style="list-style-type: none"> <li>-Skid trail crossings should be made as far as possible from points where the grade could be viewed by recreationists.</li> <li>-Crossings should be made at right angles to the longitudinal axis of the grade, rather than diagonally. Right angle crossings decrease the area of impact.</li> <li>-Skidding across the grade should be restricted to designated skid trails located at previously disrupted segments and crossings. If a skid trail crosses a grade in a previously undisturbed segment, the grade must be repaired to its pre-harvest configuration. The Sale Administrator will be responsible for photographic and GPS documentation of crossings to ensure mitigation measures reach pre-harvest configuration.</li> <li>-If features such as trestles, water tank towers, wyes, switches, major cuts and fills, and the remnants of logging camps, the grade should be left intact for at least 300 feet on either side of the feature.</li> </ul> <p>These mitigation measures were derived from the Programmatic Memorandum of Agreement (PMOA) for the Management of Historic Railroad Systems for the Wallowa-Whitman National Forest. The Malheur N.F. was provided authority to utilize this PMOA in the 1995 Programmatic Agreement with SHPO.</p> <p>In addition, if any such skid road(s) are to be placed across the railroad beds, a qualified Forest Service employee should be present during the initial ground disturbing action to monitor for the possibility that subsurface historic artifacts may be disturbed. If any such artifacts should be present, ground disturbing work must stop and the district archaeologist will be consulted.</p>	<p>Reduce or mitigate damage to visual appearance of sites that visually illustrate an association with important episodes of history.</p>	<p>District Archaeologist, Sale Administrator</p>

**Safety**

Management Requirement/Mitigation Measure	Objective	Responsible Person
<b>Alternatives 2, 3, and 5</b>		
<p>Due to the proximity of Grant County Road 63 (also called Izee County Road #63) to harvest units 8, 10, 13, 14, and 18 in Alternatives 2, 3, and 5, safety requirements apply. A "Project Agreement" between Grant County, Oregon, and Forest Service, U.S.</p>	<p>Provide for public safety for motorized or non-motorized uses on Izee County Road No. 63.</p>	<p>Sale Administrator</p>

Management Requirement/Mitigation Measure	Objective	Responsible Person
<b>Alternatives 2, 3, and 5</b>		
Department of Agriculture has been initiated (Project Record). Specific safety requirements will be identified in Timber Sale contract provisions C6.315#, C6.41#, and C6.42#. Provisions from the agreement include the use of flaggers, delaying traffic as needed, placement of signing.		
Required traffic signs relating to truck traffic shall be in place.	Provide for public safety.	Sale Administrator

## Monitoring Plans

### 1. Vegetation Monitoring (Silviculturist)

Tree marking will be monitored to ensure compliance with the silvicultural prescription and marking guide. Monitoring will check for correct selection and designation of trees expected to live and snags to be left for wildlife habitat and resource protection.

All areas planned for tree planting will be examined prior to planting. Exams will assess levels of competing vegetation, pocket gopher activity, and other environmental conditions. Seedling species and stock type will be prescribed as well as site preparation, planting, and protection methods. Any changes from methods prescribed in this document will require additional NEPA analysis.

Planted and natural regeneration areas will be monitored for seedling survival, growth, and damaging agents. Stocking surveys will occur periodically until planting areas are certified adequately stocked and "free to grow". Deficient areas will be replanted to at least minimum stocking. Protection measures may be implemented to increase tree survival; this would require additional NEPA analysis.

### 2. Soil Monitoring (Soils Specialist)

Detrimental soil impacts would be monitored to check how closely they were predicted. Sampling would be done by a method similar to the soil assessment method described in Appendix E. About 5-10 tractor units would be sampled before harvest, and then re-sampled within three years of completion of activities ("activities" includes harvest and grapple piling, where applicable. This would show the cumulative effects of harvest plus fuels treatment.).

### 3. Watershed and Fisheries (District Hydrologist and Fisheries Biologist)

**Monitor Best Management Practices (BMPs):** At least ten percent of tractor yarded units and smaller amounts of skyline and helicopter yarded units will be monitored to ensure BMP implementation and effectiveness. Monitoring would be done by the District hydrologist, fisheries biologist, soil scientist, or trained technicians, and the Sale Administrator and would occur during project implementation and after completion of the project.

**Monitor Unit Boundaries along RHCAs:** Monitor 10% of units adjacent to RHCAs to ensure adequate buffering of mechanized harvest/fuels reduction activities.

**Monitor Road Decommission, Reconstruction, and Closure Activities:** Implementation monitoring would be conducted to determine if decommission, reconstruction, or closure activities were completed. Following completion of road decommission, reconstruction, or closure activities, effectiveness monitoring would be completed at year 1 and 3. Monitoring would consist of ocular surveys completed by hydrology or fisheries personnel (including photographs) on decommissioned road prisms within 100 feet of streams and at stream crossings to check for erosion (rilling or sheet) and/or establishment of ground cover on the prism and sediment transport to streams. Effectiveness of closures and decommissioning would be determined through ocular observations of evidence of road use.

**Upland Sediment Transport Monitoring:** Monitoring would be conducted along unit boundaries with sensitive soils to determine if sediment is transported outside of units. Amount of sediment and distance traveled would be estimated and documented if observed.

**Stream Channel Monitoring:** Wolman Pebble Counts would be conducted at the stream cross sections (installed in 2002) on the Silvies River before and after harvest activities and again after road activities are implemented to determine changes in sediment load and stream channel morphology. Rosgen stream cross sections and longitudinal profiles would be completed if stream channel substrate composition changes by more than 20% or bankfull channel widths at the cross sections change by an observable amount.

#### **4. Scenery (Landscape or Recreation Specialist)**

During harvest or excess fuel removal projects, personnel with training in scenery management would review quantities of slash in the immediate foreground (300 ft) of County Road 63. If quantities were determined to be detrimental to the visual quality of the area, then a site-specific scenery restoration action plan would be designed and implemented to meet the design criteria in the EIS.

#### **5. Grazing (Team)**

For moderate to high intensity (intensity as described in Johnson 1998 or as mapped by the BAER Team) fire in all areas suitable for grazing, as defined by the Forest Plan, grazing may resume after the vegetation has recovered to the percent ground cover that existed prior to the fire as described for the appropriate plant association type in Plant Association of the Blue and Ochoco Mountains (Johnson and Clausnitzer 1992). A team consisting of at least two resource specialist, such as a range conservationist, botanist, ecologist, silviculturist, or hydrologist, will conduct the monitoring to determine if the percent ground cover has been reestablished. The method and results will be documented and submitted to the authorized official who will decide when to resume grazing. If monitoring is not done, grazing may resume after three full grazing seasons after the fire occurred, because research indicates that vegetation usually recovers within this timeframe (C. G. Johnson, pers. Comm., February 2003). However, grazing would not resume prior to two growing seasons after the fire, even if monitoring verified that the percent ground cover was the same as the pre-fire condition, to allow for plants to set seed (see Appendix H - USDA Forest Service, Malheur National Forest, March 24, 2003 Post-fire grazing guidelines).

## **6. Non-Native Seed Monitoring (Botanist)**

A sample of seeded areas will be inspected for at least 3 years after sowing to determine the duration of the grass plants and document whether these species are suitable for continued use.

## **7. Northern Goshawk Monitoring (Wildlife Biologist)**

Three northern goshawk territories, the Jack Creek, Dipping Vat, and Swamp Creek territories, burned in the Flagtail Fire. These territories or adjacent suitable habitat will be monitored annually from 2004 to 2009 to determine whether or not goshawks will return for nesting. Monitoring will be conducted by a District biologist or assigned to another individual with experience in surveying raptors. If goshawks are determined to be nesting in the area, seasonal restrictions would be applied as described in the Wildlife section of Management Requirements, Constraints, and Mitigation Measures (this chapter).

## **Comparison of Alternatives**

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This section provides a summary of the effects of implementing each alternative. Information in Tables 2-1, 2-2, and 2-3 is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives. Tables 2-2 and 2-3 summarize how the alternatives respond to the identified key issues. See Chapter 1 for background on the issues, and Chapter 3 for a complete description of effects and for the scientific basis for results in the comparison table. Acres and miles used in this analysis are approximations based on on-the-ground estimates and computer analysis. Actual figures may vary slightly from these planning numbers.

Table 2-1: Comparison of Alternatives by Activity

Activity	Unit of Measure	Alt. 1 (NA)	Alt. 2 (PA)	Alt. 3	Alt. 4	Alt. 5
<b>Harvest</b>						
Harvest Unit*	Acres	0	4,340	3,330	0	3,920
Salvage Harvest	Acres	0	4,340	2,870	0	3,740
Net Harvest Volume	MMBF	0	20.4	9.8	0	15.0
<b>Harvest Method</b>						
Tractor	Acres	0	2,670	1,990	0	2,470
Skyline	Acres	0	800	430	0	540
Helicopter	Acres	0	870	450	0	730
Leave Patches within Units*	Acres	0	0	460	0	180
<b>Post Harvest Treatment/Mitigation</b>						
Subsoiling	Acres	0	240	180	0	210
<b>Reforestation</b>						
Natural Regeneration	Acres	4,590	300	300	300	300
Planting	Acres	0	4,290	4,290	4,290	4,290
<b>Fuel Treatment (Acres may be treated with more than one method)</b>						
Hand Piling	Acres	0	1,180	940	1,780	1,080
Post and Pole Removal	Acres	0	140	130	0	140
Grapple Piling	Acres	0	1,250	1,380	3,000	1,180
Yard top Attached	Acres	0	3,480	2,390	0	2,980
<b>Roads</b>						
New Road Construction	Miles	0	0.3	0.3	0	0.3
New Temp. Roads	Miles	0	3.9	2.9	0	3.3
Roads Decommissioned within 100 feet of Cat. 1-4 streams	Miles	0	4.2	4.2	3.4	4.2
Culverts Removed	Each	0	17	17	16	17
Culverts Replaced	Each	0	1	1	0	1
<b>Access (Roads Decommissioned category includes roads formerly closed; Roads Closed category includes only roads newly closed)</b>						
Roads Open	Miles	46.5	29.2	29.2	30.1	29.2
Roads Decommissioned	Miles	0	13.1	13.1	11.9	13.1
Roads Closed	Miles	0	6.6**	6.6**	6.6**	6.6**
Unclassified Roads Decommissioned	Miles	0	2	2	2	2
<b>Wildlife/Old Growth</b>						
Relocates DOG/ROG	Qualitative	No	Yes	Yes	Yes	Yes
<b>Fisheries</b>						
Fish access improved by culvert replacement	Miles	0	2.0	2.0	0	2.0
<b>Economics</b>						
Timber Value	\$ million	0	3.0	1.3	0	2.0

\*Harvest unit acres consist of the entire unit including acres that would be untreated because they are designated as leave patches.

\*\*In closing roads 6300-660, -661, and -662 inside the fire area, an additional 1.7 miles of roads (6300-664 and -665, and part of -662) would be closed outside the fire boundary to these roads' terminus.

**Table 2-2: Comparison of Alternatives by Issue and Measurement**

Resource Issue	Unit of Measure	Alt. 1 (NA)	Alt. 2 (PA)	Alt. 3	Alt. 4	Alt. 5
<b>Fuels</b>						
Fire severity and fire intensity in 20 years as measured by fuel loading *	See Below	*	*	*	*	*
Fire intensity in 20 years as measured by flame length	Feet	7.1	2.0	2.0	7.1	2.0
<b>Wildlife</b>						
Snag Density in Salvage Units (Snags 10" DBH and greater)	Number Retained /Acre	All, 3-105**	2.39	>13	All, 3-105**	2.39 - >13
Cavity Excavator Use Level***	Tolerance Level (%)	50-80+	5-30	30-50	50-80+	5 - 50
Number of untreated acres providing natural, post-burn snag levels (% forested acres)	Acres (% of forested acres)	6,180 (100%)	1,795 (30%)	3,309 (53%)	6,180 (100%)	2,440 (40%)
<b>Soils</b>						
Tractor Harvest on Severely and Moderately Burned Soils	Acres	0	1,410	1,120	0	1,300
<b>Water</b>						
Sediment Input from Roads	Qualitative	No change	Reduce	Reduce	Reduce	Reduce
Roads within 100 ft of Cat 1-4 streams in the project area	Miles	9.1	4.8	4.8	5.7	4.8
Road/Stream crossings in the project area	Each	42	24	24	25	24
Temperature	Qualitative	No change	No change	No change	No change	No change
<b>Scenery</b>						
Snags 10 inches DBH and larger remaining in foreground units	Snags 10" +DBH/acre	All, 10-80**	2.39	≥13	All, 10-80**	≥13
Resultant VQO in visual corridor	VQO in short-term (less than 15 years)	Modification	Maximum Modification	Modification	Modification	Modification
<b>Economics</b>						
Commercial Harvest	Net Volume (MMBF)	0	20.4	9.8	0	15.0
Present Net Value	\$ millions	0	-0.4	-1.5	-2.6	-1.0
Jobs Provided	Number	0	355	170	0	260

\* The fuel loadings vary by fire regime and plant association group; see Table 2-3, below.

\*\* Alternatives 1 and 4 do not conduct commercial harvest. Data for these two alternatives are presented to show snag levels in the absence of commercial harvest of snags 10" DBH and greater. Alternative 4 conducts fuels treatment of dead tree 8" DBH or less.

\*\*\* Displaying cavity excavator use levels as an overall range for multiple species provides a relative difference between alternatives; however, a more accurate portrayal is displayed by individual species in Chapter 3, Tables WL-8 through WL-12.

**Table 2-3: Comparison of Alternatives - Fuels Issue and Measurement**

Fire Regime **/ Plant Association Group	Historical Tons/Acre	Alt. 1 *	Alt. 2 *	Alt. 3 *		Alt. 4 *	Alt. 5*	
				Salvage	No Salvage & Treat Small Fuels		Salvage	No Salvage & Treat Small Fuels
1/Hot Dry, Ponderosa Pine	5-7	42	8	12	15	34	12	N/A
1/ Warm Dry, Mixed Conifer	7-15	46	12	13	17	33	12	20
3/Cool Dry, Lodgepole Pine	15-25	48	21	19	22	28	21	N/A
3/Riparian Class 1 and 2	7-25	44	N/A	N/A	N/A	N/A	N/A	N/A

\* All values are tons per acre.

\*\* Fire Regimes, 1 - Fire Regime 1 is low severity fire with a fire return interval of 0 to 35 years.

3 - Fire Regime 3 is mixed severity fire with a fire return interval of 35 to 100+ years (See Chapter 3 Fire/Fuels).

## Project Schedule

Depending on which alternative is decided upon by the Responsible Official, activities included in the decision would occur in approximately the following timescale (Table 2-4).

**Table 2-4: Timeframe for Flagtail Fire Recovery Project Treatments**

Activity	2004	2005	2006	2007	2008	2009
Timber harvest	X					
Fuel treatment	X	X	X	X		
Temp./new road building	X					
Road reconstruction and maintenance	X*					
DOG/ROG relocation	X					
Tree planting	X	X	X			
Road closures	X	X	X	X	X	X
Road decommissioning	X	X	X	X	X	X
Management requirements/mitigation measures	X	X	X	X	X	X
Monitoring	X	X	X	X	X	X

\*Road maintenance would occur in subsequent years under other NEPA decisions, but maintenance associated with this project would occur in the first year.

## Identification of the Preferred Alternative

Alternative 5 has been identified as the preferred alternative for the Flagtail Fire Recovery Project. This alternative is described in detail in this chapter under Alternative 5 in Alternatives Considered in Detail and includes Tables 2-1, 2-2, and 2-3, as well as Management Requirements and Mitigation Measures described for Alternative 5.