

CHAPTER 2. ALTERNATIVES, INCLUDING THE PROPOSED ACTION

Introduction

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. Figures that compare action alternatives were organized consecutively to make visual comparisons easy.

The Easy 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 seven sections:

- Changes from the Draft to Final EIS for this Chapter
- 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

Existing Condition and environmental consequences of implementing alternatives for the Easy Fire Recovery Project analysis area can be found in Chapter III. The analysis file is referenced throughout this document and contains additional documentation and analysis.

Changes from the Draft to Final EIS for this Chapter

The following changes were made between the Draft and Final EIS. This listing does not include corrections, explanations, or edits to grammar and spelling. Some of changes resulted from comments made to the DEIS.

- Detailed consideration is now given to an Alternative Considered but Eliminated from Detailed Study in the DEIS (Alternative 5). There were numerous public comments on the DEIS requesting that this alternative be developed. This alternative does not include timber harvest activities. Alternative 5 is developed from the restoration only theme in the DEIS and is now fully analyzed in the FEIS.
- The alternatives were modified to reflect updated field information and incorporate reclassification of stand types used to determine snag levels. In Alternative 2, proposed action, this change resulted in a 52% reduction of the number of acres proposed for salvage harvest. This reduction was due to decreased tree mortality

(14%), deterioration of the dead trees (5%), and retention of snags in mixed conifer stands (33%). Timber harvest would be uneconomical in those stands where mortality levels are low and in areas where deterioration of the dead trees over the last two years was severe. A number of forested stands were reclassified as lodgepole pine due to effect of severe fire on mixed conifer stands. The remaining mixed conifer stands were dropped from planned harvest because their snag distribution does not meet DecAIDs recommendation, even in the existing condition. These mixed conifer stands were retained as snag habitat. A unit by unit summary of the changes can be found in the Project File (Changes DEIS to FEIS, 08/12/2004). For Alternative 3 the reduction in harvest would be 18% - low mortality; 6% - deterioration; and 30% - snags; totaling 54%. For Alternative 4 the reduction would be 15% - low mortality; 6% - deterioration; and 41% snags; totaling 62%. A unit by unit summary can be found in the Project File (Changes DEIS to FEIS, 08/12/2004).

- All the tables and maps at the end of chapter 3 of the FEIS were updated to reflect current alternative information.
- The FEIS updated open and closed road and the number of miles of road maintenance and temporary road construction information.
- The FEIS added Wildlife Mitigation for raptors.

Alternative Development Process

This chapter of the FEIS describes in detail five alternative ways to manage land and resources in the Easy Fire project area. The Proposed Action was developed using the District Ranger's specific direction detailed in the Project Initiation Letter, dated December 13, 2002. Public participation to review and comment on proposed activities in the Easy 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 and differences between alternatives is limited. The alternatives were designed to stay within the framework of ecological stewardship and the Malheur Forest Plan.

The action alternatives described in the FEIS (Alternatives 2, 3, 4, and 5) were developed with some common themes.

Alternatives 2, 3, and 4 would:

- Remove fire-killed trees or trees expected to die as a result of fire injury. Dead and dying trees would be removed through salvage harvest. Incidental green trees would only be removed to construct roads and landings and to eliminate safety hazards during logging operations.
- Retain forested areas classified in the mixed-conifer wildlife habitat type (DecAID) to improve the snag distribution.
- Minimize the construction of new roads.
- Apply site specific water quality Best Management Practices (BMPs) in the design and implementation of the alternatives to protect water quality.
- Avoid potential adverse effects to streams and riparian areas by not harvesting fire-killed trees in RHCAs and MA 3B.

- Avoid effects on sensitive areas such as heritage sites and sensitive plant sites by not proposing harvest in those areas.

Alternatives 2, 3, 4, and 5 would:

- Use planting to reforest the burn area.
- Relocate Dedicated Old Growth (DOG) and Replacement Old Growth (ROG) areas burned by the fire because they are no longer suitable habitat.
- Close Road 2600-391 to motorized traffic year-round.
- 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 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 dying trees, providing safe and adequate access, re-establishing upland and riparian 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

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 two alternatives were considered, but eliminated from detailed consideration for reasons summarized below.

Harvest of Live Trees (Considered initially in Alternative 2)

Harvest of live trees along with the salvage of the dead and dying trees was a feature considered early by the IDT in the development of Alternative 2. However, with approximately 86% of the fire area in moderate to high severity, the IDT decided to leave the live tree component standing to provide additional habitat diversity and a source of seed for natural regeneration.

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 wildlife biologist looked at opportunities to convert the burned DOGs to ROGs. DOG and ROG 364 did not have a sufficient number of live trees to provide for ROG habitat, so a new DOG and ROG 364 was designated outside the fire area (see Chapter 2, Alternatives 2-4, and

Chapter 3, Old Growth Forest). 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.

Harvest within Riparian Habitat Conservation Areas (RHCAs)

Harvest within RHCAs (and MA 3B) was considered early in the process but was dropped from further analysis. There was not a large area in RHCAs that was damaged by the fire. In addition, the degree of controversy associated with a small amount of commercial harvest in RHCAs could delay the entire project. Prompt removal of the dead material in the areas outside RHCAs in the project area while it still has commercial value is important to accomplish the resource objectives.

Alternatives Considered in Detail

The Forest Service developed five alternatives, including the No Action and Proposed Action alternatives, in response to the purpose and need to accelerate recovery of the resources burned and adversely affected by the 2002 Easy Fire, and issues raised by the public and Interdisciplinary Team. The basic purpose and design of each alternative is detailed in this section. Methods to avoid or mitigate possible undesired consequences of alternatives are described in the Management Requirements, Constraints, and Mitigation Measures section of this chapter. Tables 2-8, 2-9, and 2-10 at the end of this chapter provide a tabular comparison of alternatives by activity and issue.

Alternative 1 - No Action

Purpose and Design

The purpose of this alternative is to allow current processes to continue, along with associated risks and benefits, in the Easy 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 Easy 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 whether monitoring shows that the range resource is ready after the two growing seasons or not. Grazing may be delayed for a longer period if necessary to meet other resource objectives (USDA Forest Service 2003).

Description of Specific Features

Forest Vegetation/Structure

There would be no commercial timber harvest in Alternative 1. There would be no planting under this alternative. For the purpose of comparison of alternatives, this alternative would analyze the effect of natural regeneration. However, the Regional Forester has directed National Forests to reforest burned areas that are not salvaged as soon as possible (Regional Forester Letter 2002). Reforestation would need to be addressed in a subsequent analysis.

Wildlife Habitat

All snags would be retained under the No Action Alternative with the exception of hazard trees.

Alternative 1 would not identify new Dedicated Old Growth (DOG) or Replacement Old Growth (ROG) areas in this analysis. DOGs burned by the Easy Fire would remain as Management Area-13. All snags would be left standing.

Fuel Condition

No fuels treatments are proposed in the No Action Alternative. There would be approximately 5,682 acres of standing dead trees. More acres would transition toward a Fuel Model 10, 11, and 12 than in the action alternatives.

Roads/Access

No road construction, reconstruction, decommissioning, or closures would occur in Alternative 1 (Figure 27, 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. Approximately 32.1 miles of road within the project area would remain open year-round to public motorized access (Appendix B, FEIS).

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 Easy 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 dying trees and to minimize the severity of future large-scale fire events, while meeting Forest

Plan direction. The economic return would be further enhanced by providing local jobs. By intensively treating the burned acres, future fire severity will be moved toward its historical range, which would help reduce the impacts of future wildfires on the environment and restore health to fire-adapted ecosystems.

This alternative meets the other identified needs, including capturing economic value of the killed and dying trees, providing safe and adequate access, re-establishing upland and riparian 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 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. This policy would allow grazing to resume at current levels after two or more years, depending on fire severity and whether monitoring shows that the range resource is ready after two growing seasons. Grazing may be delayed for a longer period if necessary to meet other resource objectives (USDA Forest Service, 2003).

Description of Specific Features

Forest Vegetation/Structure

Alternative 2 would harvest approximately 1,777 acres of dead and dying trees in 44 units to reduce future fuel loadings and capture the economic value of fire-killed and dying trees (Figure 18, Map Section). Total volume of commercial timber harvested is expected to be about 8 million board feet (MMBF). Only fire-killed trees and trees expected to die as a result of fire injury would be removed. Live trees that would jeopardize the safety of the harvest operation would also be harvested. Incidental live trees may be removed during road building and landing construction.

Harvest would be accomplished with tractor yarding on about 979 acres, skyline yarding on about 253 acres, and helicopter yarding on about 545 acres. Skyline and tractor unit landings are included in these acreages. The purchaser would subsoil skid trails on about 117 acres.

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.

Approximately 1,721 acres inside of units and about 2,197 acres outside of units would be planted with western larch, ponderosa pine, western white pine, and Douglas-fir to reforest areas that sustained high tree mortality. Douglas-fir would not be planted in areas where Armillaria root rot is prevalent. All areas proposed for planting would be treated with big game repellent (BGR). Planting of about 682 acres of existing plantations, including two harvested units that have not yet been planted, would also occur but are covered by existing NEPA decisions and are not part of this project proposal. Planting would be done to accelerate recovery of forest habitats. Site conditions would determine the species for

planting in each area. Natural regeneration would occur on approximately 56 acres of lodgepole pine sites within the post and pole harvest units and on about 490 acres outside proposed and existing harvest units.

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. 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. Outside salvage units, all snags would be retained except those felled along open roads to reduce safety hazards. These areas outside the units include approximately 1,199 acres of forested areas classified in the mixed-conifer habitat type (DecAID) that would improve the snag distribution. In harvest units snags would generally not be retained within 150' of open roads or within one tree height of improvements such as fences; nor would snags be retained where they are likely to be felled because their accessibility makes them prone to felling for other reasons such as firewood cutting.

Snags marked for retention should be hard snags. Hard snags will last longer and provide habitat for a longer period of time. Soft snags are available currently to provide nesting habitat. Snags with broken tops are preferred, since shorter snags tend to stand longer. Snags that already have woodpecker cavities would be retained if found.

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

Alternative 2 would designate old growth areas to replace those lost to the fire (see Figure 9, 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.

DOG/ROG 364 is located within the burn area (see Figure 9, Map Section). Prior to the fire, DOG/ROG 364 contributed towards pileated woodpecker and pine marten management requirements. The fire burned through both old growth areas; fire intensities ranged from moderate intensity or mosaic burns to severe intensity or total burns. There were several small areas that were unburned.

Dedicated Old Growth (DOG) 364 would be relocated outside the fire perimeter since most of it burned in the Easy Fire. Areas outside the fire perimeter in the Reynolds Creek subwatershed, Mossy Gulch and North Reynolds Creek provide large sized blocks of mature and old growth habitat.

Post-fire, there is essentially no mature or old growth habitat remaining in the project area that meets pileated woodpecker, pine marten or three-toed woodpecker habitat requirements based on the current Forest Plan guidelines. The Dedicated and Replacement Old Growth areas are no longer functioning as old growth. Stands have been converted to understory re-initiation (UR) and stand initiation (SI) structural stages. Canopy cover has been reduced below 20%

and in many places eliminated all together. Snags resulting from the fire will provide nesting and foraging habitat for northern three-toed woodpeckers though.

The fire also destroyed old growth habitat outside of the Dedicated and Replacement Old Growth areas. Post-fire, there are no (0) acres of old growth remaining in the project area (see Forest Vegetation Section). What little habitat remains is small and highly fragmented, and although vegetation conditions may classify these areas as old growth, they likely provide for few old-growth dependent species. These old growth conditions may be important as legacy structures in future stands.

A nonsignificant Forest Plan Amendment would be required to change the designation of the DOG and ROG from MA-13 – Old Growth to MA-1 – General Forest; and designate a new DOG and ROG, changing them from MA-1 to MA-13.

Proposed Treatments within Dedicated (DOG) and Replacement Old Growth (ROG)

Existing DOG/ROG 364 would be converted to general forest (MA-1). Harvest and fuel reduction would occur as described under Forest Vegetation/Structure, Fuels Condition, Roads/Access, and Wildlife Habitat.

Fuel Condition

Fuels, including those created by the fire and by salvage activity, would be reduced on about 1,777 acres within the harvest units (Figure 21, Map Section). Fuel models after harvest and post harvest treatments, including standing dead, will vary from FM 8 to 11 to 12 depending on harvest method and limb breakage. It is not the intent of this proposal to reduce severity on every acre. The intent is to reduce fuels where feasible and economically viable to break up the fuels continuity before the next wildland fire event.

Fuel treatment methods would include whole tree yarding, yarding with limbs attached to logs, grapple piling and burning, yarding with tops attached, and lop and scatter (see Glossary). Approximately 513 acres would have whole tree yarding during harvest; 206 acres would have yarding with limbs attached to logs during harvest; 456 acres would have grapple piling and burning of piles; 57 acres would have yarding with tops attached; and 545 acres would only have lop and scatter. 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 reduction would occur on 4,062 acres within the Easy fire area.

Roads/Access

Alternative 2 would construct about 0.7 miles of temporary road to allow access to harvest. (Figure 28, Map Section). Of these temporary road miles, about 0.2 miles are existing rehabilitated temporary road and about 0.5 miles are decommissioned roads that would be re-opened as temporary roads. All miles of temporary road would be stabilized and decommissioned after harvest activities.

A year-round road closure is proposed for Rd. 2600391. All 5.2 miles of this road (4.6 miles inside the project area and 0.6 miles outside) would be closed year-round to public use.

Approximately 0.3 miles of the 2600026 road would have grid-rolled material added to bridge over an existing wet spot to eliminate rutting and soil movement. About 59.4 miles (34.0

miles of road within the project area and about 25.4 miles outside the project area) would have maintenance performed to allow for access to harvest and to reduce impact to other resources. Alternative 2 would use rock on roads for spot rocking as well as water for dust abatement and other road maintenance. See Figure 32, Map Section for location of planned road maintenance, rock sources, and water sources.

Forest Plan Amendments

Alternative 2 was designed, in part, to replace Dedicated Old Growth that is now unsuitable due to the fire. Selecting *Alternative 2 would include a site-specific, amendment* (Management Area designations) to the Malheur National Forest Plan, as amended. The amendment would relocate DOG and ROG 364 outside the fire perimeter and convert the original acres from MA-13 to MA-1. A second part of the amendment would relocate DOG and ROG 364 and convert the new areas from MA-1 to MA-13.

Selection of this alternative would meet Forest Plan Standards and Guidelines (36 CFR 219.10 (c)).

Alternative 3 – Preferred Alternative

Purpose and Design

This alternative was designed to minimize sediment delivery to Clear Creek and Easy Creek, which contain habitat for threatened fish species by avoiding salvage harvest on steeper slopes that burned severely (as mapped by the BAER team) on the uplands above Clear Creek and Easy Creek.

Alternative 3 was also designed to leave snags in patches of significant size (larger than 75 acres) in order to better meet the needs of primary cavity excavators and does not leave snags within harvest units other than the one tree per acre to meet down wood Forest standards as well as incidental cull trees. The significant snag patches are located in areas that burned severely on steeper slopes, and on three additional areas that are all larger than 75 acres.

Implementation of this strategy will reduce fuel loadings and move future fire severity toward its historical range, which would help reduce the impacts of future wildfires on the environment and restore health to fire-adapted ecosystems and reduce fuels to allow for low intensity prescribed fire.

This alternative meets the other identified needs, including capturing economic value of the killed and dying trees, providing safe and adequate access, re-establishing upland and riparian 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 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 whether monitoring shows that the range resource is ready after two growing seasons. Grazing may be delayed for a longer period if necessary to meet other resource objectives (USDA Forest Service, 2003).

Description of Specific Features

Forest Vegetation/Structure

Avoiding harvest on steeper, severely burned slopes and leaving large patches for snag habitat would reduce the acres treated under this alternative. Alternative 3 would harvest approximately 1,298 acres of dead and dying trees in 35 units to reduce future fuel loadings and capture the economic value of fire-killed and dying trees (Figure 19, Map Section). Total volume of commercial timber harvested is expected to be about 6 million board feet (MMBF). As in Alternative 2, only fire-killed trees and trees expected to die as a result of fire injury would be removed. Live trees that would jeopardize the safety of the harvest operation would also be harvested. Incidental live trees may be removed during road building and landing construction.

Harvest would be accomplished with tractor yarding on 837 acres, skyline yarding on 153 acres, and helicopter yarding on 308 acres. Skyline and tractor unit landings are included in these acreages. The purchaser would subsoil skid trails on about 100 acres.

Roadside hazard trees would be felled to provide safe and adequate roaded access in the fire area. Hazard trees would be felled along open roads and along any roads used for implementation of this project. 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.

Approximately 1,242 acres within the harvest units would be planted and about 2,676 acres outside of the harvest units would be planted with western larch, ponderosa pine, Douglas fir, and western white pine to reforest areas that sustained high tree mortality. Douglas-fir would not be planted in areas where *Armillaria* root disease is prevalent. All areas proposed for planting would be treated with big game repellent (BGR). Planting of 682 acres of existing plantations, including two harvest units that had not yet been planted, would also occur but are covered by existing NEPA decisions and are not part of this project proposal. Planting would be done to accelerate recovery of forest habitats. Site conditions would determine the species for planting in each area. Natural regeneration would occur on approximately 56 acres of lodgepole pine sites within the post and pole harvest units and on about 490 acres outside proposed and existing harvest units. The remaining acres would remain fully stocked following harvest of the dead and dying material and would not require reforestation.

Wildlife Habitat

Snags

Large patches of snags were delineated ranging from 100 acres to 570, totaling 1524 acres, not including RHCAs, which would add another 418 acres. Another 1,199 acres was added by retaining forested areas classified in the mixed-conifer habitat type (DecAID) to improve the snag distribution. Other additional acres that provide snag areas are uneconomical areas due to low volume or deterioration. Overall snag distribution differs from that proposed in Alternative 2 to better meet primary cavity excavator habitat needs while still reducing fuel loads near to those that occurred under historical conditions. Because the snags would be

located outside proposed salvage units, it is also less likely that they would be felled for safety reasons during logging, especially in helicopter and skyline units.

The largest snag patch was created primarily as a buffer to provide additional protection from sedimentation of Clear Creek. Clear Creek provides habitat for bull trout and steelhead. The other four patches were created by dropping units specifically for this purpose and combining them with units that would be dropped for economic purposes. These patches are significantly larger than Forest Plan Management Area 13 (MA-13) recommendations for three-toed woodpeckers. Minimum management requirements suggest establishing habitat acres of 75 acres for every 2,000 to 2,500 acres (USDA 1986) which for this area, would require 150-200 acres. The 75-acre patch size also matches recommendations for black-backed woodpeckers made in several Idaho post-fire studies (Saab and Dudley 1997, Saab et al. 2002). No salvage harvest or fuels reduction activities would be conducted in these snag patch areas, as these species prefer unlogged conditions.

Outside salvage units, all snags would be retained except those felled along open roads to reduce safety hazards. Snags would generally not be retained within 150' of open roads or within one tree height of improvements such as fences; nor would snags be retained where they are likely to be felled because their accessibility makes them prone to felling for other reasons such as firewood cutting

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

Alternative 3 would designate old growth areas to replace those lost to the fire (see Figure 9, 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.

DOG/ROG 364 is located within the burn area (see Figure 9, Map Section). Prior to the fire, DOG/ROG 364 and contributed towards pileated woodpecker and pine marten management requirements. The fire burned through both old growth areas; fire intensities ranged from moderate intensity or mosaic burns to severe intensity or total burns. There were several small areas that were unburned.

Dedicated Old Growth (DOG) 364 would be relocated outside the fire perimeter since most of it burned in the Easy Fire. Areas outside the fire perimeter in the Reynolds Creek subwatershed, Mossy Gulch and North Reynolds Creek provide large sized suitable blocks of mature and old growth habitat.

Post-fire, there is essentially no mature or old growth habitat remaining in the project area that meets pileated woodpecker, pine marten or three-toed woodpecker habitat requirements based on the current Forest Plan guidelines. The Dedicated and Replacement Old Growth areas are no longer functioning as old growth habitat. Stands have been converted to understory re-initiation (UR) and stand initiation (SI) structural stages. Canopy cover has been reduced below 20% and in many places eliminated all together. Snags resulting from the fire will provide nesting and foraging habitat for northern three-toed woodpeckers though.

The fire also destroyed old growth habitat outside of the Dedicated and Replacement Old Growth areas. Post-fire, there are no (0) acres of old growth remaining in the project area (see Forest Vegetation Section). What little habitat remains is small and highly fragmented, and although vegetation conditions may classify these areas as old growth, they likely provide for

few old-growth dependent species. These old growth stands are important as legacy structures in future stands.

A nonsignificant Forest Plan Amendment would be required to change the designation of the DOG and ROG from MA-13 – Old Growth to MA-1 – General Forest; and designate a new DOG and ROG, changing them from MA-1 to MA-13.

Proposed Treatments within Dedicated (DOG) and Replacement Old Growth (ROG)

Existing DOG/ROG 364 would be converted to general forest (MA-1). Harvest and fuel reduction would occur as described under Forest Vegetation/Structure, Fuels Condition, Roads/Access, and Wildlife Habitat.

Fuel Condition

Fuels, including those created by the fire and by salvage activity, would be reduced on about 1,298 acres within the harvest units (Figure 22, Map Section). Fuel models after harvest and post harvest treatments, including standing dead, will vary from FM 8 to 11 to 12, depending on harvest method and limb breakage. It is not the intent of this proposal to reduce severity on every acre. The intent is to reduce fuels where feasible and economically viable to break up the fuels continuity before the next wildland fire event and to allow for low intensity prescribed fire.

Fuel treatment methods would include whole tree yarding, yarding with limbs attached to logs, grapple piling and burning, yarding with tops non-merchantable attached, and lop and scatter (see Glossary). Approximately 381 acres would have whole tree yarding during harvest; 153 acres would have yarding with limbs attached to logs during harvest; 456 acres would have grapple piling and burning of piles; and 308 acres would only have lop and scatter. 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 reduction would occur on 4,541 acres within the Easy fire area.

Roads/Access

Alternative 3 would construct about 0.5 miles of temporary road to allow access to harvest. (Figure 29, Map Section). Of these temporary road miles, all are decommissioned roads that would be re-opened as temporary roads. All miles of temporary road would be stabilized and decommissioned after harvest activities.

A year-round road closure is proposed for Rd. 2600391. All 5.2 miles of this road (4.6 miles inside the project area and 0.6 miles outside) would be closed year-round to public use.

Approximately 0.3 miles of the 2600026 road would be having grid-rolled material added to bridge over an existing wet spot to eliminate rutting and soil movement. About 56.0 miles (30.9 miles of road within the project area and about 25.1 miles outside the project area) would have maintenance performed to allow for access to harvest and to reduce soil and water impacts. Sources for spot rock and water for dust abatement/other maintenance would be the same as for Alternative 2 (See Figure 33, Map Section).

Forest Plan Amendments

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

Alternative 3 was designed 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. Snag distribution is aggregated in snag patches on a unit basis for better utilization by the species, and not a 40-acre block basis, we would not meet Forest Wide Standard and Guideline #39. Alternative 3 would include a site-specific, 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 site-specific, amendment* (Management Area designations) to the Malheur National Forest Plan, as amended. The amendment would relocate DOG and ROG 364 outside the fire perimeter and convert the original acres from MA-13 to MA-1. A second part of the amendment would relocate DOG and ROG 364 and convert the new areas from MA-1 to MA-13.

Selection of this alternative would meet Forest Plan Standards and Guidelines (36 CFR 219.10 (c)).

Alternative 4

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 4 was designed to leave higher levels of snag habitat distributed in a way that accommodates a broader range of cavity excavator species.

Implementation of this strategy will reduce fuel loadings, but to a lesser extent than alternatives 2 and 3. This alternative meets the other identified needs, including capturing economic value of the killed and dying trees, providing safe and adequate access, re-establishing upland and riparian 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 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. This policy would allow grazing to resume at current levels after two or more years, depending on fire severity and whether monitoring shows that the range resource is ready after two growing seasons. Grazing may be delayed for a longer period if necessary to meet other resource objectives (USDA Forest Service, 2003).

Description of Specific Features

Forest Vegetation/Structure

Leaving higher levels of snag habitat would limit the ability to economically treat some areas. This would reduce the acres treated under this alternative. Alternative 4 would harvest approximately 956 acres of dead and dying trees in 20 units to reduce future fuel loadings and capture the economic value of fire-killed and dying trees (Figure 20, Map Section). Total volume of commercial timber harvested is expected to be about 3 million board feet (MMBF). As in Alternative 2, only fire-killed trees and trees expected to die as a result of fire injury would be removed. Live trees that would jeopardize the safety of the harvest operation would also be harvested. Incidental live trees may be removed in the clearing limits during road building and landing construction.

Harvest would be accomplished with tractor yarding on 633 acres, skyline yarding on 58 acres, and helicopter yarding on 265 acres. Skyline and tractor unit landings are included in these acreages. The purchaser would subsoil skid trails on about 76 acres.

Roadside hazard trees would be felled to provide safe and adequate road access in the fire area. Hazard trees would be felled along open roads and along any roads used for implementation of this project. 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.

Approximately 900 acres within the harvest units would be planted and about 3,018 acres outside of the harvest units would be planted with western larch, ponderosa pine, Douglas fir, and western white pine to reforest areas that sustained high tree mortality. Douglas-fir would not be planted in areas where *Armillaria* root disease is prevalent. All areas proposed for planting would be treated with big game repellent (BGR). Planting of 682 acres of existing plantations, including two harvest units that have not yet been planted, would also occur but are covered by existing NEPA decisions and are not part of this project proposal. Planting would be done to accelerate recovery of forest habitats. Site conditions would determine the species for planting in each area. Natural regeneration would occur on approximately 56 acres of lodgepole pine sites within the post and pole harvest units and on about 490 acres outside proposed and existing harvest units. The remaining acres would remain fully stocked following harvest of the dead and dying material and would not require reforestation.

Wildlife Habitat

Snags

In all salvage harvest units, snags would be retained at the elevated level of 13 snags per acre to provide habitat for cavity dependent species. 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 (2–6 acres). Outside salvage units, all snags would be retained except those felled along open roads to reduce safety hazards. These areas outside the units include approximately 1,199 acres of forested areas classified in the mixed-conifer habitat type (DecAID) that would improve the snag distribution. In harvest units snags would generally not be retained within 150 feet of open roads or within one tree height of improvements such

as fences; nor would snags be retained where they are likely to be felled because their accessibility makes them prone to felling for other reasons such as firewood cutting.

Snags marked for retention within salvage units should be hard snags. Hard snags will last longer and provide habitat for a longer period of time. Soft snags are available currently to provide nesting habitat. Snags with broken tops are preferred, since shorter snags tend to stand longer. Snags that already have woodpecker cavities would be retained if found. In salvage units, an average 13 snags per acre would be clumped in 2-6 acre patches using the following distribution in size classes: 3 of the snags > 21 inches DBH; 7 of the snags 14 inches to 20.9 inches DBH; and 3 of the snags 10 inches to 13.9 inches DBH.

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

Alternative 4 would designate old growth areas to replace those lost to the fire (see Figure 9, 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.

DOG/ROG 364 is located within the burn area (see Figure 9, Map Section). Prior to the fire, DOG/ROG 364 contributed towards pileated woodpecker and pine marten management requirements. The fire burned through both old growth areas; fire intensities ranged from moderate intensity or mosaic burns to severe intensity or total burns. There were several small areas that were unburned.

Dedicated Old Growth (DOG) 364 would be relocated outside the fire perimeter since most of it burned in the Easy Fire. Areas outside the fire perimeter in the Reynolds Creek subwatershed, Mossy Gulch and North Reynolds Creek provide large sized blocks of mature and old growth habitat.

Post-fire, there is essentially no mature or old growth habitat remaining in the project area that meets pileated woodpecker, pine marten or three-toed woodpecker habitat requirements based on the current Forest Plan guidelines. The Dedicated and Replacement Old Growth areas are no longer functioning as old growth. Stands have been converted to understory re-initiation (UR) and stand initiation (SI) structural stages. Canopy cover has been reduced below 20% and in many places eliminated all together. Snags resulting from the fire will provide nesting and foraging habitat for northern three-toed woodpeckers though.

The fire also destroyed old growth habitat outside of the Dedicated and Replacement Old Growth areas. Post-fire, there are no (0) acres of old growth remaining in the project area (see Forest Vegetation Section). What little habitat remains is small and highly fragmented, and although vegetation conditions may classify these areas as old growth, they likely provide for few old-growth dependent species. These old growth conditions may be important as legacy structures in future stands.

A nonsignificant Forest Plan Amendment would be required to change the designation of the DOG and ROG from MA-13 – Old Growth to MA-1 – General Forest; and designate a new DOG and ROG, changing them from MA-1 to MA-13.

Proposed Treatments within Dedicated (DOG) and Replacement Old Growth (ROG)

Existing DOG/ROG 364 would be converted to general forest (MA-1). Harvest and fuel reduction would occur as described under Forest Vegetation/Structure, Fuels Condition, Roads/Access, and Wildlife Habitat.

Fuel Condition

Fuels, including those created by the fire and by salvage activity, would be reduced on about 956 acres within the harvest units (Figure 23, Map Section). Fuel models after harvest and post harvest treatments, including standing dead, will vary from FM 8 to 11 to 12, depending on harvest method and limb breakage. It is not the intent of this proposal to reduce severity on every acre. The intent is to reduce fuels where feasible and economically viable to break up the fuels continuity before the next wildland fire event and to reduce prescribed fire intensity.

Fuel treatment methods would include whole tree yarding, yarding with limbs attached to logs, grapple piling and burning, yarding with tops attached, and lop and scatter. (see Glossary). Approximately 288 acres would have whole tree yarding during harvest; 11 acres would have yarding with limbs attached to logs during harvest; 335 acres would have grapple piling and burning of piles; 57 acres would have yarding with non-merchantable tops attached, and 265 acres would only have lop and scatter. 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 reduction would occur on 4,883 acres within the Easy fire area.

Roads/Access

Alternative 4 would construct about 0.2 miles of temporary road to allow access to harvest. (Figure 30, Map Section). Of these temporary road miles, all are existing rehabilitated temporary road. All miles of temporary road would be stabilized and decommissioned after harvest activities.

A year-round road closure is proposed for Rd. 2600391. All 5.2 miles of this road (4.6 miles inside the project area and 0.6 miles outside) would be closed year-round to public use.

Approximately 0.3 miles of the 2600026 road would be having grid-rolled material added to bridge over an existing wet spot to eliminate rutting and soil movement. About 48.0 miles (23.7 miles of road within the project area and about 24.3 miles outside the project area) would have maintenance performed to allow for access to harvest and to reduce impact to other resources. See Figure 34 for location of planned road maintenance, sources for rock for spot rocking, and sources for water for dust abatement and other maintenance.

Forest Plan Amendments

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, nonsignificant amendment* (Management Area designations) to the Malheur National Forest Plan, as amended. The amendment would relocate DOG and ROG 364 outside the fire perimeter and convert the original acres from MA-13 to MA-1. A second part of the amendment would relocate DOG and ROG 364 and convert the new areas from MA-1 to MA-13.

Selection of this alternative would meet Forest Plan Standards and Guidelines (36 CFR 219.10 (c)).

Alternative 5

Purpose and Design

Detailed consideration is given to an alternative considered but not analyzed in the DEIS (Easy DEIS, p.45) and developed into Alternative 5. There were numerous public comments on the DEIS requesting that this alternative be fully analyzed in the FEIS and follow recommendations contained in the Beschta Report. This alternative includes many of the restoration activities included in Alternatives 2, 3, and 4. It does not include salvage of fire-killed or dying trees.

The alternative is based on recommendations contained in a publication known as the Beschta Report. The Beschta Report is a compilation of scientist recommendations for fire recovery projects and post-fire timber salvage. Recommendations in this report favor natural recovery, with little or no salvage, as the best method to maintain a variety of resource values.

This alternative does not meet the need of capturing economic value of the killed and dying trees. It does meet the other identified needs, providing safe and adequate access, re-establishing upland and riparian 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 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 whether monitoring shows that the range resource is ready after two growing seasons. Grazing may be delayed for a longer period if necessary to meet other resource objectives (USDA Forest Service, 2003).

Description of Specific Features

Forest Vegetation/Structure

As in Alternative 1, there would be no commercial timber harvest of the fire-killed or dying trees.

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 would be left on site.

Approximately 2,524 acres would be planted with western larch, ponderosa pine, western white pine, and Douglas-fir to reforest areas that sustained high tree mortality. The hand planting would be done only on areas that were severely burned (vegetation severity). Douglas-fir would not be planted in areas where Armillaria root rot is prevalent. All areas proposed for planting would be treated with big game repellent (BGR). Planting of 682 acres

of existing plantations, including two harvest units that have not yet been planted, would also occur but are covered by existing NEPA decisions and are not part of this project proposal. Planting would be done to accelerate recovery of forest habitats. Site conditions would determine the species for planting in each area. Natural regeneration would occur on approximately 1788 acres in those areas not severely burned and in lodgepole pine stands. The remaining acres would remain fully stocked.

Wildlife Habitat

Snags

As in the No Action Alternative, all snags would be retained with the exception of hazard trees.

Old Growth Habitat

Alternative 5 would designate old growth areas to replace those lost to the fire (see Figure 9, 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.

DOG/ROG 364 is located within the burn area (see Figure 9, Map Section). Prior to the fire, DOG/ROG 364 contributed towards pileated woodpecker and pine marten management requirements.

Fire intensities ranged from moderate intensity, mosaic burns or severe intensity in both dedicated old growth areas. There were several small areas that remain unburned.

Dedicated Old Growth 364 will be relocated outside the fire perimeter since most of it burned in the Easy Fire. Areas outside the fire perimeter in the Reynolds Creek subwatershed, Mossy Gulch and North Reynolds Creek provide large sized blocks of mature and old growth habitat.

Post-fire, there is essentially no mature or old growth habitat remaining that meets pileated woodpecker, pine marten or three-toed woodpecker habitat requirements based on the current Forest Plan guidelines. The Dedicated and Replacement Old Growth areas are no longer functioning as old growth. Stands have been converted to understory re-initiation (UR) and stand initiation (SI) structural stages. Canopy cover has been reduced below 20% and in many places eliminated all together. Snags resulting from the fire will provide nesting and foraging habitat for northern three-toed woodpeckers though.

The fire also destroyed old growth habitat outside of the Dedicated and Replacement Old Growth areas. Post-fire, there are no (0) acres of old growth remaining (see Forest Vegetation Section). What little habitat remains is small and highly fragmented, and although vegetation conditions may classify these areas as old growth, they likely provide for few old-growth dependent species. These old growth conditions are important as legacy structures in future stands.

A nonsignificant Forest Plan Amendment would be required to change the designation of the DOG and ROG from MA-13 – Old Growth to MA-1 – General Forest; and designate a new DOG and ROG, changing them from MA-1 to MA-13.

Proposed Treatments within Dedicated (DOG) and Replacement Old Growth (ROG)

Existing DOG/ROG 364 would be converted to general forest (MA-1). Fuel reduction would occur as described under Fuels Condition, and Wildlife Habitat.

Fuel Condition

Fuels, including those created by the fire and by salvage activity, would be reduced on about 3,652 acres (Figure 24, Map Section). Fuel models after harvest and post harvest treatments, including standing dead, will vary from FM 8 to 11 to 12 depending on harvest method and limb breakage. It is not the intent of this proposal to reduce severity on every acre. The intent is to reduce fuels where feasible and economically viable to break up the fuels continuity before the next wildland fire event.

Fuel treatment methods would include hand felling of dead fuels less than 7 inches dbh, grapple piling and burning, and hand piling and burning (see Glossary). Approximately 1,750 acres would have hand felling, grapple piling and burning of piles. About 1,902 acres would have hand felling, hand piling and burning of piles. No fuel reduction would occur on 2,187 acres within the Easy fire area.

Roads/Access

A year-round road closure is proposed for Rd. 2600391. All 5.2 miles of this road would be closed year-round to public use.

There would be no temporary road construction. Approximately 0.3 miles of the 2600026 road would be having grid-rolled material added to bridge over an existing wet spot to eliminate rutting and soil movement. About 69.5 miles (41.0 miles of road within the project area and about 28.5 miles outside the project area) would have maintenance performed to allow for access for fuel treatments and to reduce impact to other resources. Sources for rock for spot rocking and water for dust abatement and other maintenance activities would be the same as for Alternative 2. See Figure 35, Map Section, for location of planned road maintenance, rock sources, and water sources.

Forest Plan Amendments

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 site-specific, nonsignificant amendment (Management Area designations) to the Malheur National Forest Plan, as amended. The amendment would relocate DOG and ROG 364 outside the fire perimeter and convert the original acres from MA-13 to MA-1. A second part of the amendment would relocate DOG and ROG 364 and convert the new areas from MA-1 to MA-13.

Selection of this alternative would meet Forest Plan Standards and Guidelines (36 CFR 219.10 (c)).

Implementation Schedule for the Alternatives

Alternatives 2, 3, and 4

Winter 2004/2005 through summer 2005

- Salvage Harvest, temporary road construction, landing construction, and road maintenance, including the 0.3 miles of grid-rolled material added to FSR 2600026; and fuels treatment.

Spring 2007

- Gated closure of FSR 2600391

Spring 2005 through spring 2008 (this is just the planting covered by this FEIS)

- Conifer planting

Alternative 5

Spring 2005 through fall 2007

- Installation and closure of gate on FSR 2600031 and maintenance of roads (same as alternatives 2, 3, and 4).

Spring 2005 through spring 2008

- Conifer planting

Spring 2006 through fall 2010

- Fuels Treatments

Yearly 2004 through 2010

- Hazard tree removal along roads

Management Requirements, Constraints, and Mitigation Measures

The Forest Service developed the following 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.

Headings in the tables indicate which alternatives a mitigation measure relates to.

Table 2-1: Wildlife Mitigation Measures

Management Requirement/Mitigation Measure	Objective	Responsible Person
Alternatives 2, 3, and 4		
Where available, maintain either down logs or standing dead/dying trees for wildlife habitat and long-term site productivity 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
No firewood cutting will occur in the project area until the spring of 2008. Minor exceptions may be approved by the District Ranger where removal will not impact snags or down wood retained for habitat.	This restriction will assure that the dead trees retained for snag habitat are not removed by firewood cutting.	District Ranger
Other roads with existing gated or bermed closures to motorized vehicles would be opened during periods of timber harvest and post harvest projects and closed during periods of inactive use.	Big game security.	Engineering and Sale Administrator
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 2.2). To conduct activities during a prohibited period, a waiver must be obtained from the District Biologist.	Protect new raptor nests from alteration and disturbance	Sale Administrator, District Wildlife Biologist, District Ranger
Alternative 2 and 4 only: Snags marked for retention should be hard snags. Hard snags will last longer and provide habitat for a longer period of time. Soft snags are available currently to provide nesting habitat. When available, retain snags with broken tops. Retain snags that already have woodpecker cavities.	Provide immediate habitat for woodpecker nesting (soft snags, and snags with cavities) and long-term habitat	Marking crew, Sale Administrator
Avoid designating snags for retention within 150 feet of open roads and existing landings or within one tree height of improvements such as fences.	Provide snags that are likely to be retained through harvest operations and future management	Marking crew, Sale Administrator
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.	Provide wildlife habitat and long-term productivity.	Sale Administrator

Table 2-2: Summary of Raptor Timing Restriction, Alternatives 2, 3, and 4.

Description	Timing – Activities Permitted	Timing – Activities Prohibited	Notes
Avoid management activities that could disturb known active nest site*.	Activities can occur: October 1 – March 31**	Activities are prohibited: April 1 – September 30***	One goshawk territory existed in project area prior to fire.
<p>* A survey of the known goshawk nest site would be conducted for northern goshawk prior to any harvest activities.</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.</p> <p>*** Restrictions would apply to felling and yarding for Units 18 and 20A and helicopter use of heli-landing #10. Restrictions would not apply to haul for any units on Rd. 2600036. Restriction may be waived based on District Biologist’s recommendations and Responsible Official’s approval.</p>			

Table 2-3a: Soils Mitigation

Management Requirement/Mitigation Measure	Objective	Responsible Person
Alternatives 2, 3, 4 and 5		
<i>Landing Locations</i>		
1) Re-use existing landings where feasible and where they are away from ephemeral draws and shallow areas, unless approved by the hydrologist, soil scientist or fisheries biologist.	Limit soil damage.	Sale Administrator/ Purchaser
<i>Heavy Equipment (Specifically feller buncher & skidders.)</i>		
1) Heavy, off-road equipment shall be operated only on dry, frozen, or snow-covered soil. “Dry” means July through September, or between 10% and 30% soil moisture on ash soils (most of the ground based harvest units), or less than 15% soil moisture on non-ash/ash mix soils (units 8 and 9). “Frozen” means frozen to a depth of 4 inches or more. “Snow-covered” means a thickness of snow after the skidder packs it down that is sufficient to prevent detrimental soil disturbance.	Limit soil damage.	Sale Administrator/ Purchaser/Soil Scientist
2) Low ground-pressure equipment (<8 psi) can be allowed off skid trails under dry, frozen or snow-covered conditions as described above.	Limit soil damage.	Sale Administrator/ Purchaser
3) Grapple piling shall be done with low ground pressure (<8 psi) machinery on dry soil, and machinery will stay on skid trails where possible.	Limit soil damage.	Sale Administrator/ Purchaser
<i>Tractor/Ground Skidding</i>		
1) Skid trail locations shall be designated and approved prior to logging. Space skid trails 100-120 feet apart (except where they converge at landings and junctions). On areas where existing skid trails spaced 80-120 feet apart can be reused and are in appropriate locations, reuse the old skid trails. Draw bottoms are not appropriate.	Limit soil damage.	Sale Administrator/ Purchaser/Soil Scientist
2) Avoid skidding on slopes steeper than 35%, where feasible. Use directional felling and tractor winching instead.	Limit soil damage.	Sale Administrator & Purchaser
3) Avoid skidding up or down draw bottoms (even if existing skid trails are in the draw bottom). If skidding across draw	Reduce erosion/sediment	Sale Administrator & Purchaser

Management Requirement/Mitigation Measure	Objective	Responsible Person
bottoms that show signs of water flow, skid only when the soil in the draw is dry or frozen, and not wet, and place slash or other ground cover on the skid trail after use.	transport.	
4) Skidding shall not be allowed on wet soil.	Limit soil damage.	Sale Administrator & Purchaser
5) Skidders shall not be allowed off skid trails except when the soil is frozen to a depth of 4 inches or more, or covered with packed-snow (one foot or more of snow after the skidder packs it down). Directional felling and/or winching shall be used when necessary. Low ground pressure equipment (<8 psi) can be allowed off skid trails under dry, frozen or snow-covered conditions.	Limit soil damage.	Sale Administrator/ Purchaser/Soil Scientist
<i>Snag Location</i>		
1) In tractor units containing slopes 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.	Timber Layout Forester
<i>Subsoiling</i>		
1) The purchaser shall subsoil skid trails in all ground based yarding units, where the soil is suitable.	Keep detrimental soil impacts below 20%.	Sale Administrator/ Purchaser/Soil Scientist
2) 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. Do not subsoil sections of skid trails where excessive rock will be pulled to the surface.	Limit soil damage.	Sale Administrator/ Purchaser
3) Subsoil all temporary roads, and landings on all tractor units. Subsoil helicopter landings where possible.	Limit soil damage.	Sale Administrator/ Purchaser
<i>Erosion Control Measures</i>		
1) Potential erosion from skid trails shall be controlled by the use of cross drains or comparable measures. The cross drains shall be spaced so that rills will not form between them, and located on soil where water will infiltrate, not on shallow or impermeable soil. Drainage off of skid trails shall be unobstructed.	Limit long-lasting soil damage.	Sale Administrator/ Purchaser
2) Skid trails and disturbed soil (including subsoiled landings and temporary roads) shall be seeded as specified in LRMP Forest-Wide Standards 128 & 129. FWS 128 – Seed all disturbed soil that occurs within 100-200 feet of a stream or areas further than 200 feet that could erode into a stream. FWS 129 – Seed all skid trails with slopes greater than 20%.	Limit long-lasting soil damage. Seeding is needed to supplement other erosion control measures.	Sale Administrator/ Purchaser/Soil Scientist
3) In addition, in areas with moderately or severely burned soil, skid trails shall be seeded that are steeper than 10%, or are located on slopes steeper than 20%.	Limit long-lasting soil damage.	Soil Scientist or Hydrologist
4) Seed disturbed sites with a native or non-persistent, certified weed-free seed mixture.	Avoid retarding recovery of native plants.	Sale Admin/ Botanist/Soil Scientist

Table 2-3b: Watershed and Fisheries Mitigation

Management Requirement/Mitigation Measure	Objective	Responsible Person
Alternatives 2, 3, 4, and 5		
<i>Riparian Habitat Conservation Areas (RHCAs)</i>		
1) Riparian Habitat Conservation Areas (RHCA) for Category 1, 2, and 4 streams and for Category 3 and 4 wetlands shall be established and protected according to PACFISH and Regional Foresters Eastside Forest Plan Amendment #2 management direction (100-300 feet slope distance from edge of stream channel on both sides of stream).	Protect fish-bearing and intermittent streams.	Fisheries biologist/ Hydrologist
2) No equipment (skidders) or landings will be located within 75 feet of a riparian buffer.	Reduce sediment transport.	Sale Administrator/ Timber Layout Forester
3) Industrial camping permits will be required. Locations will be coordinated with a fisheries biologist before permits are issued.	Minimize resource damage.	Sale Administrator
4) Alternatives 2, 4 and 5: Units 21, 22, 30 and 65 will have extended stream buffers of 150 feet from the edge of intermittent channels, instead of the standard 100 feet, for additional soil and slope protection. Also, the ephemeral channel C that burned at moderate to high burn severity in unit 21 will have a 15-20 foot buffer from the channel, for soil and slope protection.	Minimize erosion and sedimentation.	Timber Layout Forester/ Hydrologist/ Fisheries Biologist
<i>Road Activity</i>		
1) 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 stream flows increase.	Reduce sediments; protect fish-bearing and perennial streams.	Sale Administrator/ Purchaser
2) For roadwork, operate machinery on road prism.	Reduce sediments.	Sale Administrator/ Purchaser
3) Install temporary structures to protect streams from construction sediment, where needed. 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 to be reviewed and approved prior to implementation activities. Sediment fences shall be used to reduce sediment transport into South Fork of Bridge Creek during road work on road 2600-026 when filter strip is narrower than 65 feet.	Reduce erosion and sediment transport to streams, prevent petroleum or other hazardous materials from entering stream systems	Sale Administrator/ Project Engineer

Table 2-3b: Watershed and Fisheries Mitigation - Continued

Management Requirement/Mitigation Measure	Objective	Responsible Person
<i>Road Activity</i>		
4) Areas of stream bank disturbance associated with roads shall be seeded or planted.	Reduce erosion and sedimentation.	Sale Administrator Fisheries Bio Hydrologist/ Project Engineer
5) Hauling activities shall only take place when haul roads are dry or frozen. Use of native surfaced roads during wet periods for other purposes (such as mobilization of equipment) will be minimized or avoided when the road is located in proximity to a stream and there is a high potential for soil to be introduced to the stream.	Reduce sediment transport to streams.	Sale Administrator/ Purchaser/ Fisheries Biologist
<i>Road Maintenance</i>		
All road maintenance activities, including emergency repair of roads, dust abatement, road closures, material sources, snow removal, and snag and danger tree falling and removal shall follow the direction specified in the Malheur National Forest programmatic biological assessment “ Fisheries Biological Assessment for Road Maintenance, 2002”. Additionally:	Reduce sediment transport to streams.	Sale Administrator/ Purchaser/ Fisheries Biologist
1) Only approved water sources can be used. Generally, water utilization will be prioritized by using developed water sources first. When not using developed sources, water tenders will use a remote pumping system that will allow trucks to be filled at least 100 feet from streams. Overfilling will be avoided in order to keep overflow from causing sediment to be carried into streams, as well as, chemical agents, such as fuels, solvents and wetting agents. All foot valves used in pumping systems will have screens installed which will inhibit fish from being removed from streams.	Reduce sedimentation of streams. Protect fish species.	Sale Administrator/ Purchaser/ Fisheries Biologist
2) During periods of low flow in streams, any dams created to develop a temporary reservoir to provide adequate water resources, will be removed immediately after use. Dams will not be constructed on any stream with known Bull Trout or Summer Steelhead populations.	Reduce sedimentation of streams. Protect fish species.	Sale Administrator/ Purchaser/ Fisheries Biologist
3) During the summer months some roads will receive dust abatement treatment. Dust abatement is the application of a product which either bonds dust particles and fines to larger matter or makes them heavier so they tend not to rise with the passage of vehicles. These treatments may include the use of water, lignin sulfonate, or magnesium chloride. Lignin sulfonate or magnesium chloride treatment may be used inside RHCAs only with a 25-foot buffer protecting water and with adequate vegetation or other conditions to prevent chemical delivery to water. Lignin sulfonate or magnesium chloride treatment may be used outside RHCAs. The rate of application (amount per area) will vary depending upon the approved restrictions designed for the specific product used.	Reduce sedimentation of streams, protect fish species, enhance vehicle safety, and provide vehicle occupant comfort.	Sale Administrator/ Purchaser/ Fisheries Biologist
<i>Landing Locations</i>		
1) Landings, especially fueling sites, shall not be located in ephemeral draws or in RHCAs without approval of hydrologist, soil scientist or fisheries biologist. This includes new and existing landing sites.	Reduce erosion and sediment transport.	Sale Administrator/ Timber Layout Forester

Table 2-4: Range Mitigation

Management Requirement/Mitigation Measure – Alternatives 2, 3, and 4	Objective	Responsible Person
Encourage coordination between the Timber Sale Officer and the Rangeland Management Specialist to reduce conflicts and safety issues created when fence reconstruction, livestock, and harvesting activities occur at the same time.	Ensure worker safety.	Timber Sale Officer and Rangeland Management Specialist

Table 2-5: Noxious Weeds Mitigation

Management Requirement/Mitigation Measure	Objective	Responsible Person
Alternatives 2, 3, 4, and 5		
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.	Engineering Representative, District Botanist
Sale administration personnel will notify the 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: treatment units, road corridors, any new weed locations.	Preventive measure to reduce noxious weed establishment and limit spread.	Sale Administrator, District Botanist, Supervisory Range Conservationist, Presale Technician
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

Table 2-5: Noxious Weeds Mitigation - Continued

Management Requirement/Mitigation Measure	Objective	Responsible Person
Seed disturbed sites within 25 feet of noxious weed populations that do not spread seed by wind, with certified weed-free seed mixture that is appropriate at the time of sowing. 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, yellow toadflax, diffuse knapweed, hound’s-tongue, spotted knapweed and St. Johnswort)	Preventive measure to limit noxious weed spread.	Botanist, Range Conservationist

Table 2-6: Sensitive Plants

Management Requirement/Mitigation Measure	Objective	Responsible Person
Alternatives 2, 3, 4, and 5		
A 50-foot ATP (area to protect) will be established around the outer extent of all documented/mapped sensitive plant sites. Vehicles, equipment, and operations that would displace soils or damage plants will not be permitted in the ATP. All trees will be directionally felled away from the ATP. Activity created slash would not be piled in ATPs. Seeding of decommissioned road segments within documented ATP sites will not occur.	Limit impacts to sensitive plant sites.	Sale administrator/ District Botanist
To ensure that sensitive plant populations are not inadvertently impacted from road maintenance, a botanist prior to implementation will review the maintenance plan.	Limit impacts to sensitive plant sites.	Sale administrator/ District Botanist

Table 2-7a: Heritage Resources

Management Requirement/Mitigation Measure	Objective	Responsible Person
Alternatives 2, 3, 4, and 5		
All activities involved with the implementation of any of the proposed actions will avoid all heritage sites.	Avoid impacts to historic and prehistoric sites.	Sale administrator/ District Archaeologist
If an unknown archeological or historic site is found, stop ground-disturbing activities, until the District Archeologist assesses the situation and recommends appropriate action (Contract Provision CT6.24).	Avoid risks to heritage resources.	Sale administrator/ District Archeologist

Table 2-7b: Public Safety

Management Requirement/Mitigation Measure	Objective	Responsible Person
Alternatives 2, 3, and 4		
To ensure public safety, roads and trails within or adjacent to the sale area will be closed to public use during logging, yarding, and hauling activities.	Public safety.	Sale administrator

Monitoring Plans

There are core monitoring activities such as Land Management Planning (LMP) monitoring, Threatened and Endangered species (T&E) monitoring, and grazing and vegetation monitoring that the Forest Service is mandated to complete. In addition to those activities, a list of actions are included that are planned for the Easy Fire area. The level and intensity in which non-mandatory activities are performed will be dependent upon funding.

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 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.

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 C. 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.). The soil monitoring would focus on the tractor units containing moderate to high burn severity areas.

Watershed and Fisheries (District Hydrologist and Fisheries Biologist)

Monitor site-specific Best Management Practices (BMPs): Five to fifteen percent of activity areas by harvest system will be monitored to ensure site-specific BMP standards are being met. Monitoring would be done by the District hydrologist, fisheries biologist, soil scientist, or trained technicians after completion of the project.

Monitor Unit Boundaries along RHCAs: Monitor widths of Category 1, 2, and 4 RHCAs and those ephemeral streams designated for buffers prior to harvest to ensure they meet design criteria. Harvest operations will then be monitored to ensure activities do not occur within the RHCAs or ephemeral stream buffers.

Monitor Road Activities: A. Monitoring would be conducted to determine if the 0.3 miles of grid-rolled material applied to Road 2600026 was adequately completed and in a timely manner (i.e., prior to haul activities). B. Temporary and re-opened decommissioned roads for the project will be monitored to ensure they are scarified and seeded, with waterbars or other suitable drainage structures placed as needed to control runoff and that entrances are blocked. C. Haul roads will be monitored during hauling activities to ensure the roads are not driven

when conditions will result in resource damage. D. Post harvest monitoring of haul roads will be used to verify that those roads are in a condition to withstand public and administrative use. E. Roads to be closed (Rd. 2600391) will be monitored to verify closure.

Upland Sediment Transport Monitoring: Monitoring would be conducted along unit boundaries adjacent to Clear Creek, Easy Creek, and Mossy Gulch Creek 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 in Clear Creek at the locations surveyed in 2002 before and after harvest activities in a manner to determine if changes in sediment load and stream channel morphology occur from those activities versus what may naturally occur from the fire.

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 Associations of the Blue and Ochoco Mountains (Johnson and Clausnitzer 1992). A team consisting of at least two resource specialists, 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. 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 (Post-Fire Interim Grazing Guidelines, Malheur National Forest, December 2, 2003).

Noxious Weed Monitoring and Treatment (Range Conservationist)

Monitoring will occur for three years, 2004 through 2006, to determine whether noxious weeds were introduced into the burned area by any means or expanded from known locations (Burned Area Emergency Rehabilitation Team, Noxious Weeds Technical Specialist Report, August 9, 2002). Monitoring activities will include walking fire lines, landings, and other areas where soil disturbance could have deposited weed seed. These actions should reduce the risk that weeds could spread or existing populations could enlarge.

Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in the tables is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

Table 2-8: Comparison of Alternatives by Activity

Activity	Unit of Measure	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt.5
Harvest						
Salvage/ Regeneration	Acres	0	1,721	1,242	900	0
Post and Poles (Natural. Regeneration)	Acres	0	56	56	56	0
Total Harvest Area	Acres	0	1,777	1,298	956	0
Harvest Acres by Vegetation Severity						
--Light	Acres	0	87	77	15	0
--Moderate	Acres	0	588	392	116	0
--Severe	Acres	0	1,101	829	825	0
Management Areas Harvested						
--MA 1_2	Acres	0	1,538	1,133	812	0
--MA 14M	Acres	0	239	165	144	0
Harvest Method						
Tractor	Acres	0	979	837	633	0
Skyline	Acres	0	253	153	58	0
Helicopter	Acres	0	545	308	265	0
Reforestation						
Within Harvest Areas	Acres	0	1,721	1,242	900	0
Outside Harvest Areas:	Acres	0	2,197	2,676	3,018	2,524
Total to be Replanted	Acres	0	3,918	3,918	3,918	2,524
Animal Damage Control-BGR	Acres	0	3,918	3,918	3,918	2,524
Fuel Treatment						
Grapple Pile	Acres	0	456	456	335	1750*
Lop & Scatter	Acres	0	545	308	265	0
Whole Tree Yarding	Acres	0	513	381	288	0
Yard Limbs with Log	Acres	0	206	153	11	0
Hand Pile	Acres	0	0	0	0	1902*
Yard Tops Attached	Acres	0	57	0	57	0
Total Fuels Treatment	Acres	0	1,777	1,298	956	3,652
Roads						
Temporary Roads	Miles	0	0.7	0.5	0.2	0
**Maintenance of haul route roads	Miles	0	59.4	56.0	48.0	69.5
Landings						
Tractor Landings	Number	0	97	66	63	0
Skyline	Number	0	203	132	22	0
Helicopter Landings	Number	0	7	5	5	0
Access & Travel Management						
Roads closed with gates	Miles	0	5.2	5.2	5.2	5.2
Wildlife/Old Growth						
Relocates DOG/ROG	Qualitative	No	Yes	Yes	Yes	Yes

* Hand felling<7"dbh material

**Includes temporary roads and includes grid-rolled material to be added to 0.3 miles of Rd. 2600026.

Table 2-9: Comparison of Alternatives by Issue and Measurement

Resource Issue	Unit of Measure	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
Wildlife – Issue #1						
Snag Management		Meets Forest Plan Standards	Meets Forest Plan Standards	Forest Plan Amendment would be needed	Meets Forest Plan Standards.	Meets Forest Plan Standards
Snag Retention Areas (excludes acres in existing plantations)	Acres, Percent of Project Area	4,759 82%	2,701 46%	3,139 54%	3,536 61%	4,759 82%
Snag Levels within Harvest Treatment Areas.	Number of Snags/acre, >20” dbh.	5.2-8.2	2.39	1 or 2 as needed for down wood	13	5.2-8.2
Wildlife Use Level	Tolerance Level (%)	30-50	30	30-50	30-50	30-50
Down Wood Retained Within Harvest Treatment Areas	Lineal Feet Per Acre	All	Ponderosa 20-40	Same as Alt 2	Same as Alt 2	All
			Mixed Con. 100-140			
			Lodgepole 120-160			
Water Quality & Fish Habitat – Issue # 2						
Amt of harvest on high BAER severity, moderate slopes	Acres	0	136	22	92	0
Haul roads within RHCAs of Category 1 streams	Miles	0	10.0	10.0	10.0	0
Haul roads within RHCAs of Category 2 streams	Miles	0	2.0	2.0	1.8	0
Haul roads within RHCAs of Category 4 streams	Miles	0	2.0	2.1	1.9	0

Table 2-9: Comparison of Alternatives by Issue and Measurement - Continued

Resource Issue	Unit of Measure	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
Water Quality & Fish Habitat – Issue # 2 (continued)						
Avg. proximity of units to listed fish bearing streams on high BAER burn severity, moderate slopes	Miles	0	0.55	N/A*	0.8	0
Soils – Issue #3						
Ground based harvest by BAER burn severity						
High	Acres	0	162	151	138	0
Moderate	Acres	0	224	218	149	0
Low or Unburned	Acres	0	593	468	346	0
Fuel – Issue # 4						
Future Fire Severity to Soils and Vegetation (25 years)		Extreme	Moderate	Moderate to High	High	Extreme
Fuel Loading (25 years) (weighted average entire project area)						
< 9” diameter	Tons Per Acre	10	10	10	10	7
> 9” diameter	Tons Per Acre	31	22	24	28	31
Total	Tons Per Acre	41	32	34	38	38
Smoke Management (Future fire – 25 years)						
Smoke	Tons Per Acre (PM 2.5)***	.2-.4	.1-.2	.1-.2	.1-.2	.1-.2
Area	Acres	3,652	1,777	1,298	956	3,652
Smoke	Parts Per Million (PM 2.5)***	1,226	738	598	652	738
Economics – Issue # 5						
Commercial Harvest Net Volume	(MBF)	0	8,018	6,177	3,254	0
	(CCF)	0	14,101	10,864	5,722	0
Commercial Harvest Area	Acres	0	1,777	1,298	956	0
Harvest Value	Millions \$	0	.64	.46	.20	0
Present Net Value**	Millions \$	0	-2.42	-2.49	-2.59	-3.33
Jobs Provided (2 yr period)	Number	0	66	51	27	0

* There are no harvest units located predominately on mod. slopes that burned at predominately high BAER intensity in Alt. 3.

**includes reforestation costs for areas outside proposed harvest units, but not for replanting existing plantations.

***PM 2.5 = in the 2.5 micron size class.