

# **CHAPTER 2**

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## **ALTERNATIVES**

## CHAPTER 2 - ALTERNATIVES

### 2.1 Introduction

This chapter describes and compares the action alternatives that fully or partially meet the purpose and need identified in Chapter 1, and a No Action Alternative (Alternative A). Each alternative reflects a different response to the significant issues identified through the scoping and analysis process, and each alternative would result in different environmental effects. This chapter concludes with a comparative summary of the alternatives considered in detail. This comparison, combined with the more detailed disclosure of impacts in Chapter 3, provides the information necessary for the decision-maker to make an informed choice between alternatives.

### 2.2 Development of Alternatives

The Proposed Action was developed by the Interdisciplinary Team and was reviewed and approved by the Responsible Official prior to scoping. The development of alternatives to the Proposed Action began in the fall/winter of 2006. The Interdisciplinary Team developed alternatives to the Proposed Action in response to issues and/or concerns identified through internal and external scoping. To the extent possible, all action alternatives were designed to fully or partially meet the purpose and need for which the project was proposed.

#### 2.2.1 Issues Used in Alternative Development

Two issues related to flammulated owl and pileated woodpecker modeled home ranges served as the focus of individual alternative development. These issues could not be resolved without substantial changes in the types or locations of activities in the Proposed Action (Alternative B), nor could the anticipated impacts be mitigated.

#### 2.2.2 Concerns Not Used in Alternative Development

Concerns relating to other resource components were evaluated in the analysis. Net effects to these concerns were limited or would be relatively the same for all action alternatives. These issues are generally protected by specific laws, Best Management Practices, agency policy, and/or Forest Plan standards.

### 2.3 Alternatives Eliminated from Detailed Study

In addition to the alternatives fully evaluated in this document, other management approaches were considered by the Interdisciplinary Team in response to preliminary concerns generated from internal and external scoping of the Proposed Action. These alternatives, which were not studied in detail, are described in this section along with an explanation of why the alternatives were not considered further.

**2.3.1 Prescribed Fire to Enhance Aspen and Whitebark Pine** – It was suggested that an alternative that would use prescribed fire to enhance aspen and whitebark pine should be considered in detail. Such an alternative was discussed but eliminated from detailed study for a number of reasons. Given the objective to enhance immature whitebark pine trees in the 2 to 3 inch diameter range, the Interdisciplinary Team concluded that using prescribed fire would not be practical. While fire would eliminate many of the competing conifers, it would also be expected to result in the mortality of a similar number of immature whitebark pine trees.

Field reconnaissance indicates that mature stands of aspen are relatively healthy and vigorous, but limited to small pockets within stands otherwise dominated by conifer species. Aspen regeneration is prevalent in and around these stands of mature aspen but the encroachment of adjacent conifers is inhibiting the growth and development of these younger trees. In this case the use of prescribed fire was considered impractical because it would likely result in mortality of many of the healthy, vigorous

mature aspen as well as the existing aspen regeneration. In addition, conifers currently competing or encroaching on these sites include larger diameter Douglas-fir which would likely survive a prescribed fire of low to moderate intensity. In addition, the cost of enhancing aspen through mechanical means would be considerably less expensive and not include the inherent risk associated with prescribed fire.

**2.3.2 Watershed Restoration Emphasis** – Another alternative suggested by the public would have eliminated all road construction and would have included more activities directed toward reducing road-related sedimentation, such as more road decommissioning and/or graveling road surfaces. As explained in Chapter 3 of this document, none of the alternatives include any construction of classified roads and constructed temporary roads would be decommissioned following use. Chapter 3 also discloses that proposed temporary roads would not occur within any known riparian conservation areas and therefore would have negligible effects on water quality.

The majority of the project area is guided by Management Prescription Category 5.2 which emphasizes commodity production. Decommissioning additional roads in this area would hinder meeting Forest Plan objectives by reducing access for long term vegetation management. The existing transportation system was reviewed during completion of the *Roads Analysis Report for the Spruce Creek Project* and those roads identified as not needed for the long term management of the area, or a major concern relative to sedimentation, were recommended for decommissioning. However, many of these concerns have been previously addressed. As noted in Chapter 3, the entire length of the #498 road within the analysis area and within a streamside RCA has had gravel previously applied to its surface. Similarly, the majority of the stream crossings on the #402 road have aggregate surfaces, and all of the stream crossings on the #402F1, #402F3, #402F4, #497M, #497M1, and #497M2 roads have aggregate surfaces where sedimentation was previously identified as a concern.

The goal specified in the 1996 TMDL for the Gold Fork River was to attain a 30 percent reduction in total phosphorus. Sediment and phosphorus reduction projects completed in 2001 in order to meet the 30 percent reduction included paving 0.32 miles of road, graveling 2.8 miles of road, and obliterating 1.8 miles of road in the Gold Fork River watershed. With the completion of these projects in 2001, forestry non-point sources achieved 100 percent of their reduction goal for total phosphorus (IDEQ 2004 (draft)).

## 2.4 Alternatives Considered in Detail

This section of the document describes the proposed silvicultural treatments, design features common to all action alternatives, and those alternatives considered in detail including the No Action Alternative. The design of alternatives described in this document was based on the most current information and technology available at the time. Minor variations in the alternatives due to changed on-the-ground conditions or improved technology prior to implementation would be consistent with the intent of the original alternative.

### 2.4.1 Silvicultural Treatments

A variety of silvicultural treatments would be employed by the action alternative. Figures 2-1 through 2-6 display examples of typical stands before and after implementation of these prescriptions.

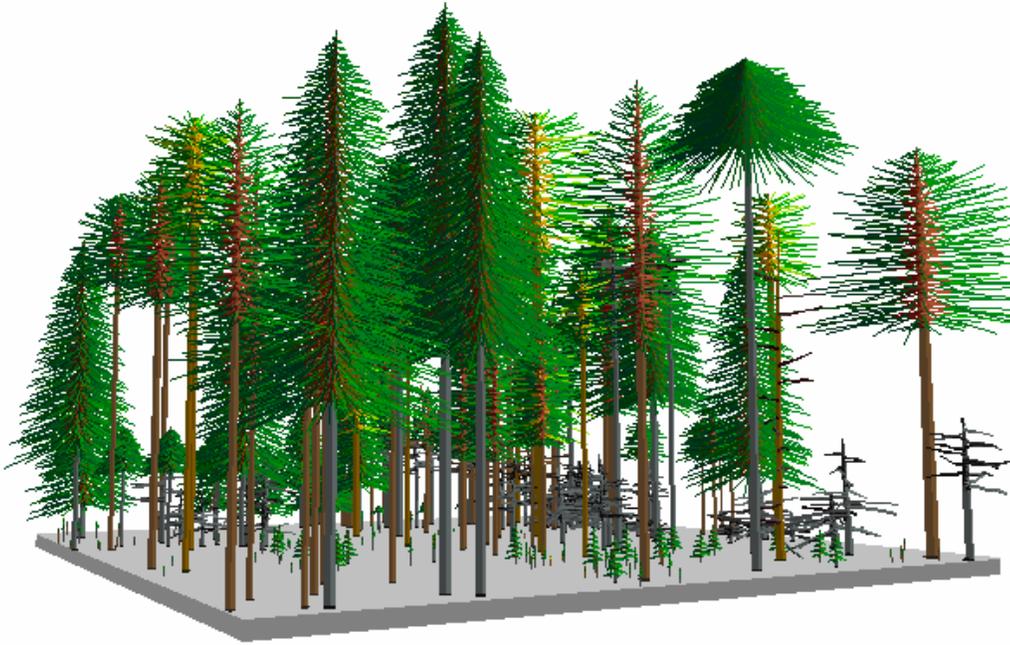
- ◆ **Clearcut w/Reserve Trees (Figure 2-1)** - This prescription has been proposed for those stands having few or no healthy, vigorous trees in the overstory. A range of 8 to 14 disease-free reserve trees would be retained per acre to meet desired conditions for snags and coarse woody debris.
- ◆ **Individual Tree Selection (Figure 2-2)** - This prescription would remove trees from all age and size classes and result in uneven-aged stand conditions. Approximately 30 percent of the merchantable trees would be removed.

- ◆ **Commercial Thin (Figure 2-3)** - This prescription has been proposed for immature, even-aged stands of Douglas-fir, western larch, ponderosa pine, lodgepole pine, or a combination thereof. Roughly 30 to 45 percent of the merchantable trees would be removed to reduce stand density, improve growth, enhance resilience to insects and disease, or to remove mistletoe infected trees. A range of 50 to 70 trees per acre would be retained.
- ◆ **Sanitation/Salvage (Figure 2-4)** - This prescription has been proposed for uneven-aged mixed conifer stands heavily infected with dwarf mistletoe. About 30 to 50 percent of the merchantable trees would be removed to improve the quality of the remaining trees, improve the species composition, and to remove mistletoe infected trees within the stands. A range of 20 to 60 trees per acre would be retained depending upon the level of dwarf mistletoe infection.
- ◆ **Improvement Cut (Figure 2-5)** - This prescription has been proposed for immature to mature, uneven-aged stands of mixed conifers that have previously been managed. About 30 to 60 percent of the merchantable trees would be removed to improve the quality of the remaining trees and improve the species composition within the stands. Dependent upon the individual stand characteristics, a range of 30 to 60 trees per acre would be retained.
- ◆ **Irregular Shelterwood (Figure 2-6)** - This prescription has been proposed for uneven-aged stands with a healthy, vigorous component of seral tree species. Dependent upon the individual stand characteristics, a range of 15 to 30 trees per acre would be retained to provide a seed source and site protection for natural or artificial regeneration. The emphasis would be on retaining the largest diameter, disease-free trees.
- ◆ **Thinning of Sub-merchantable Trees (less than 8 inches dbh)** – The objective of this prescription, when implemented outside of riparian areas, would be to reduce stocking of the sub-merchantable trees to concentrate growth on the trees retained and reduce susceptibility to damaging forest insects. When implemented within riparian areas, the objective would be to reduce stocking of the sub-merchantable trees to concentrate growth on the trees retained, thereby enhancing long-term stream shading and large woody debris recruitment. Dependent upon site characteristics, a range of 90 to 135 trees would be retained per acre. Preferred species for retention would be ponderosa pine, western larch, and Douglas-fir outside of riparian areas, and; Engelmann spruce and Douglas-fir within riparian areas. Felled trees would be lopped and retained on site.
- ◆ **Aspen Enhancement** – This prescription has been proposed for those stands where competing conifers are impacting the growth and vigor of aspen clones, or are projected to impact aspen clones within the next decade. Small competing conifers (i.e. less than 8 inches dbh) within 30 feet of aspen clones would be felled, lopped, and retained on site. Competing conifers greater than 8 inches dbh and within 30 feet of aspen clones would be girdled.
- ◆ **Whitebark Pine Enhancement** – This prescription has been proposed for those stands where the encroachment of shade tolerant species, such as subalpine fir, and the resultant competition for limited nutrients, moisture, and sunlight is inhibiting the growth and vigor of immature whitebark pine trees in the 2 to 3 inch diameter range. Small competing conifers 3 feet tall to 5 inches dbh and within 30 feet of immature whitebark pine trees would be felled, lopped, and retained on site. Competing conifers greater than 5 inches dbh up to 8 inches dbh and within 30 feet of immature whitebark pine trees would be girdled. Competing conifers greater than 8 inches dbh would not be affected.

Figure 2-1 Clearcut w/Reserve Trees

Area represents one acre

Existing Condition



After Treatment

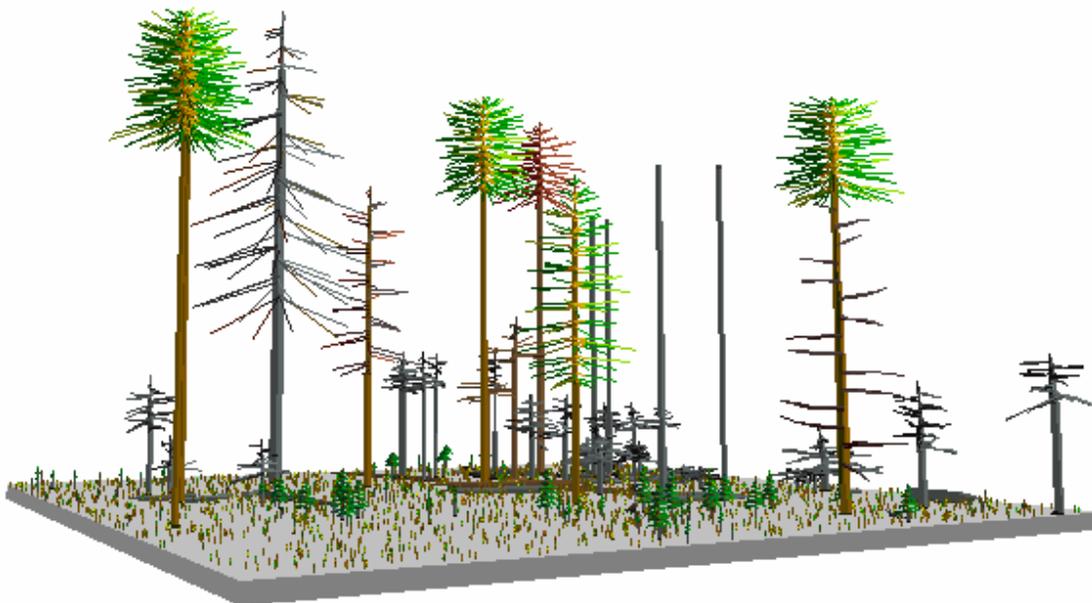
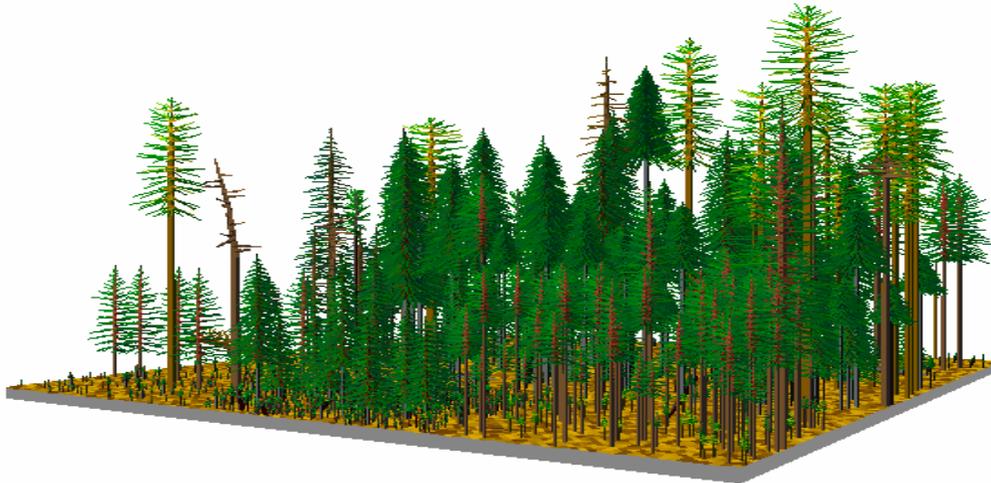


Figure 2-2 Individual Tree Selection

Area represents one acre

Existing Condition



After Treatment

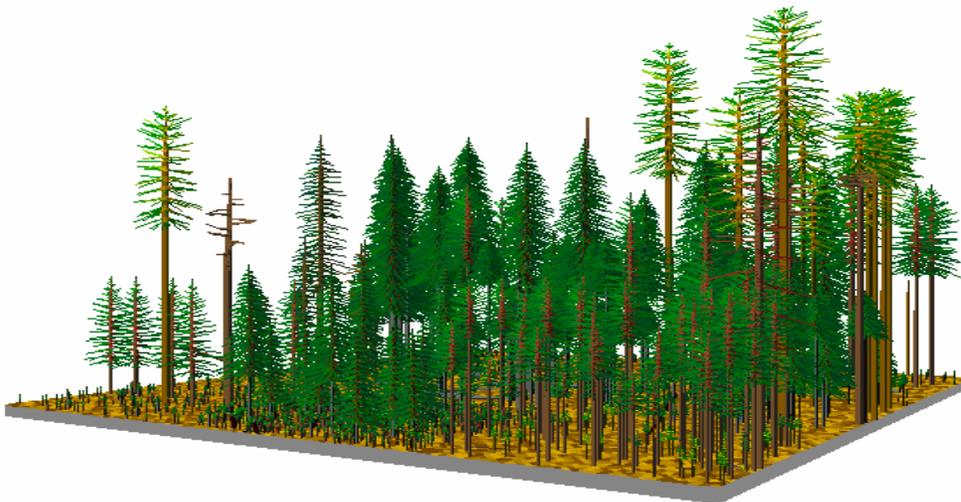


Figure 2-3 Commercial Thin

Area represents one acre

Existing Condition



After Treatment



Figure 2-4 Sanitation/Salvage

Area represents one acre

Existing Condition



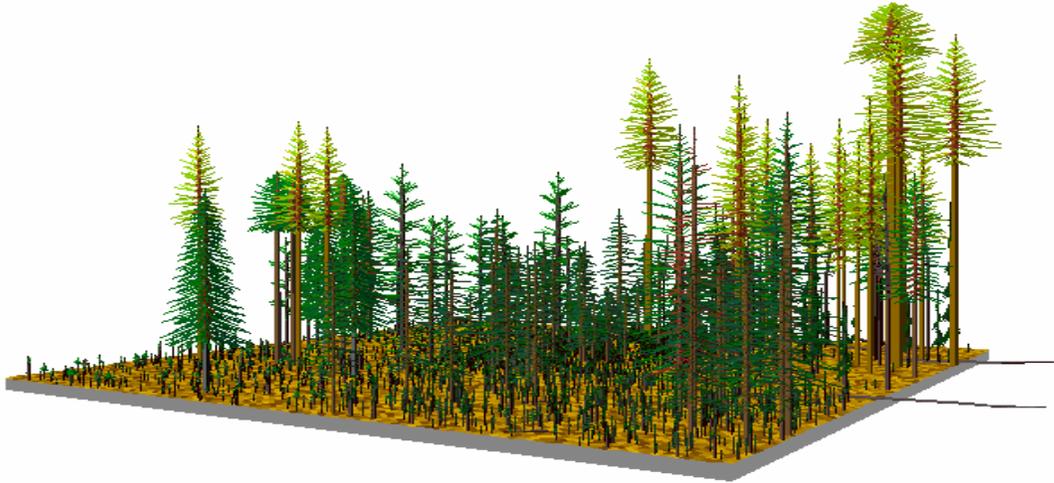
After Treatment



Figure 2-5 Improvement Cut

Area represents one acre

Existing Condition



After Treatment

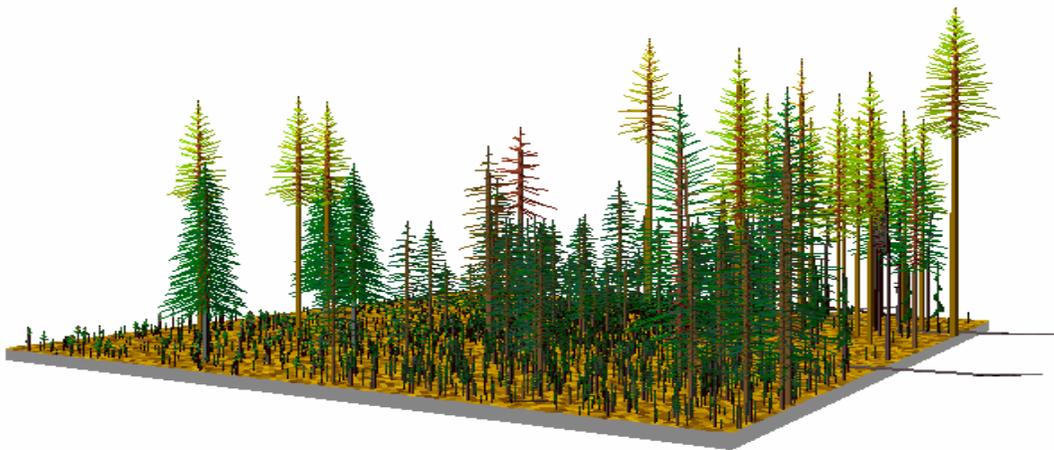
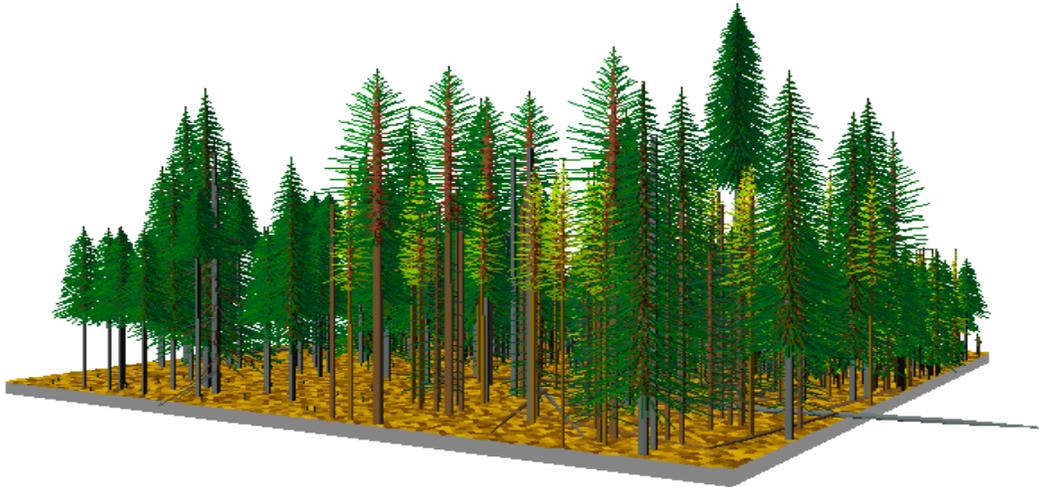


Figure 2-6 Irregular Shelterwood

Area represents one acre

Existing Condition



After Treatment



### 2.4.2 Design Features Common to All Action Alternatives

In addition to Forest Plan standards and guidelines designed to mitigate impacts, the Interdisciplinary Team identified the following measures that would be applicable to all action alternatives. These design features have been incorporated to reduce or prevent undesirable effects resulting from proposed management activities. Design features specific to individual alternatives are discussed in the Description of Alternatives section of this chapter and are in addition to design features common to all action alternatives. Several of the design features reference unit numbers that are consistent with the alternative maps presented in this document.

#### 2.4.2.1 Vegetation

Stands requiring artificial regeneration would be planted with 150 to 350 trees per acre. Ponderosa pine, western larch, and Douglas-fir would be the predominant species planted. In an effort to encourage establishment of aspen, conifers would not be planted within 50 feet of aspen clones in affected units.

The Purchaser of any timber sale would be required to ensure that prior to moving onto the Sale Area all off-road equipment, which last operated in areas known to be infested with specific noxious weeds of concern, would be free of soil, seeds, vegetative matter, or other debris that could contain or hold seeds.

After completion of layout of units receiving the whitebark pine enhancement prescription the Forest Botanist or her representative would review these units for the presence of *Lewisia sacajawean* or *Douglasia idahoensis*. Should either species be present, prescribed activities would be modified or portions of units dropped to mitigate undesirable effects.

#### 2.4.2.2 Transportation/Access Management/Landings

Stabilization of the existing slump on the cutslope along the #498 road would be coordinated with the Valley County Engineering Department and scheduled, to the extent practicable, to avoid disrupting traffic on Federal holidays and weekends associated with those holidays, as well as big-game hunting seasons.

Should it be necessary to close the #498 road during stabilization of the cutslope slump, a notice alerting the public of the road closure would be published in the *Long Valley Advocate* prior to work commencing and signs alerting the public of traffic delays would be posted in strategic locations.

Upon completion of harvest activities, all newly constructed landings would be reshaped to provide adequate drainage, ripped to an approximate depth of 18 inches, slash distributed to cover approximately 30 percent of the reshaped surface, and planted with a Forest Service approved seed mixture.

Upon completion of harvest activities, all newly constructed temporary roads would be ripped to an approximate depth of 18 inches, waterbars constructed, slash distributed to cover approximately 30 percent of the ripped surface, planted with a Forest Service approved seed mixture, and closed to all motorized traffic with earthen barriers or boulders.

Newly constructed landings and temporary roads would be constructed to prevent water from flowing over fill slopes exceeding five feet in height.

Concurrent with all temporary road and landing construction, all available construction slash would be windrowed at the toe of the fill slope.

New landing construction within streamside RCAs would be minimized to the extent practicable. Landings may be constructed within RCAs only if field review concludes that doing so would result

in less overall impacts to soil, water, riparian, and aquatic resources in the temporary, short, and long term timeframes than constructing the landing outside the RCA. Under no circumstances would landings be constructed within riparian vegetation or within 151 feet of any waterbody without a constructed filter windrow or within 50 feet of any waterbody with a constructed filter windrow.

At perennial and intermittent stream crossings associated with new temporary road construction and/or road maintenance activities:

- ◆ Install temporary water diversion during installation or replacement of culverts on flowing streams where sediment delivery from the action may adversely impact downstream fish habitat.
- ◆ Crossing with equipment would be minimized prior to culvert installation or diversion and approved in advance by the District Engineer or their representative.
- ◆ Erosion barriers such as straw bales, silt fences, or SEDIMAT™ would be installed in all flowing streams prior to culvert installation or replacement and retained in the stream until the end of operations for that field season.
- ◆ Following culvert installation, replacement, or removal, unvegetated cut and fill slopes would be mulched at stream crossings with straw or a similar material and seeded with a Forest Service approved seed mixture along the distance that directly contributes to the stream.

**2.4.2.3 Wildlife**

The District Wildlife Biologist would be notified of any occupied nests or dens encountered during sale preparation activities that may be associated with listed, sensitive, or management indicator species. If necessary to maintain key features of nesting/denning habitat or to avoid disruption of nesting/denning activities, prescribed treatments or activities would be modified.

All existing dead trees greater than or equal to 8 inches dbh not posing a safety hazard to logging or post-harvest activities would be retained within proposed harvest units.

All trees within 100 feet of caves, cave-like structures, or abandoned mine shafts would be retained to protect potential western big-eared bat habitat.

All existing cover would be preserved to provide hiding cover around any elk wallow. Hiding cover is defined as vegetation capable of hiding 90 percent of an adult elk or deer from a human’s view at a distance equal to or less than 200 feet (Forest Plan, Glossary, GL-18).

Although there are no known active wolf dens within the project area, if future monitoring efforts reveal that a pack has denned within or adjacent to the project area, proposed activities within one mile of the den site would be suspended from April 1 through July 31 if those actions are determined by the wildlife biologist to be disturbing denning activities.

**2.4.2.4 Air Quality**

Table 2-1 describes various burning activities and the amount of such activities that, based on the results of numerous modeling efforts, could occur without violating guidelines set by Federal air quality regulations.

**Table 2-1 Smoke Management Constraints**

Season	Broadcast Burning (Activity Fuels)	Landing Pile Burning
Spring	45 acres/day	Not Applicable
Fall	50 acres/day	75 piles/day

Burn piles would not be allowed to smolder over a long period of time (prescribed by mop-up standards defined in the prescribed fire plan).

Prescribed fire plans, developed upon completion of sale preparation, would include a smoke management prescription for wind direction and speed, maximum acres per day, minimum fuel moistures, smoke dispersion, public notification, and monitoring.

Cautionary signs would be posted on project area access roads open to public use during burning.

Daily burning activities would be coordinated with the meteorologist/program coordinator stationed in the Monitoring Unit in Missoula Montana or other appropriate personnel.

### 2.4.2.5 Watershed/Fisheries

The following Riparian Conservation Areas (RCAs) and management restrictions are common to all action alternatives. Megahan/Ketcheson modeling completed for this assessment concluded that, given incorporated design features, the RCA widths do not need to be adjusted to avoid or minimize sediment delivery (P.R., Vol. 10, Sedimentation).

- ◆ **Perennial Streams (and Intermittent Streams Providing Seasonal Rearing and Spawning Habitat)** - The RCA shall consist of two site potential tree heights as determined by the stand's potential vegetation group (PVG). No harvest or ground-based skidding would occur within these RCAs.
- ◆ **Intermittent Streams Not Providing Seasonal Rearing and Spawning Habitat** - The RCA shall consist of one site potential tree height as determined by the stand's potential vegetation group (PVG). No harvest or ground-based skidding would occur within these RCAs.
- ◆ **Ponds, Lakes, Reservoirs, and Wetlands** - The RCA shall consist of one site potential tree height as determined by the stand's potential vegetation group (PVG). No harvest or ground-based skidding would occur within these RCAs.

Thinning of sub-merchantable trees (less than 8 inches dbh) within plantations and other previously managed stands would be prohibited within 50 feet of perennial and intermittent streams, ponds, lakes, reservoirs, and wetlands.

Falling and girdling of trees within aspen enhancement and whitebark pine enhancement units would be prohibited within 50 feet of perennial and intermittent streams, ponds, lakes, reservoirs, and wetlands.

Regardless of SINMAP modeling results, the following guidelines developed from Chatwin et al (1994), Megahan (1979), Gray and Megahan (1981), and Pack et al (1998) would be used to identify landslide prone areas. No harvest or ground-based skidding would occur within these field-identified landslide prone areas.

- ◆ Slopes 49 to 70 percent, uniform slope - Wet or dry terrain dissected by deeply incised gullies.
- ◆ Slopes 49 to 70 percent, uniform or irregular slope - Class 7 bedrock (moist sites as indicated by vegetation or actual seeps), or soil accumulation areas below rock outcrop zones, or slopes where dominant rock joint planes dip sharply down slope or parallel to the slope.
- ◆ Slopes greater than 70 percent, uniform slope - All wet or dry sites.

Where practical, all erosion control design features, including BMPs, would be implemented concurrently with the associated activity.

To the extent practical, minimize undercutting the cut slope at the edge of the road prism during blading and shaping of existing roads.

Broadcast burns would be designed to burn at low or moderate intensities with the objective of maintaining slope stability and long-term soil productivity.

Fire ignition would be avoided in RCAs but broadcast burns would be allowed to creep into the RCAs.

No mechanical fireline would be constructed within the RCAs and handline construction would be minimized.

Water drafting sites would be designated and approved by Forest Service personnel prior to use. Drafting hoses would be required to be fitted with screens with a 3/32 inch mesh.

Following completion of use, cross-ditches would be constructed at intervals of approximately 20 feet where skid trails exceed 20 percent slope. Where logs are available immediately adjacent to the skid trails, logs six inches in diameter or greater would be placed against the ground surface and diagonal to the skid trails at 20 foot intervals instead of cross-ditches being constructed. A Forest Service approved seed mixture would be applied to all skid trails. Cross-ditching and/or placement of logs on skid trails, and seeding of those skid trails, would occur prior to the first winter after construction of the skid trail.

#### **2.4.2.6 Visuals**

Within those stands receiving the whitebark pine enhancement prescription and occurring within the Needles IRA, stumps of felled trees (3 feet tall to 5 inches dbh) would be cut flush with the ground to minimize impacts on natural appearance.

Within those stands receiving the whitebark pine enhancement prescription, no trees would be felled or girdled within 50 feet of trails #162, #115, and #111 or road #497.1.

Those portions of trail #113 within proposed harvest units would be maintained free of logs and/or slash resulting from harvest activities. Ground-based skidding would not be allowed down the trail and, should it be necessary to skid across the trail, the Purchaser would be required to reconstruct the disturbed portion of the trail tread following activities.

A minimum of 70 percent of the merchantable stems would be retained within 150 feet of trail #113. Created slash within 150 feet of this trail not removed through whole-tree-yarding operations would be lopped so that it lies within 12 inches of the ground.

To mitigate effects on visual quality, retain a minimum of 50 percent of the existing merchantable stems within 150 feet of the #402 road within Units 12, 20, 29, 66, 68, 74, 81, 103, and 104. In addition, created slash within 150 feet of the road not removed through whole-tree-yarding operations in these units would be lopped so that it lies within 12 inches of the ground.

Should additional field reconnaissance determine the need, a minimum of 50 percent of the existing merchantable trees would be retained within the following units, or portions thereof, to mitigate effects on visual quality; Units 12, 20, 29, 40, 68, 74, 103, and 104.

#### **2.4.2.7 Soil Productivity**

Skid trails would be designated in all units proposed for ground-based skidding, including off-road jammer units. Use of ground-based equipment off of designated skid trails would be minimized.

### 2.4.2.8 Monitoring

Detailed monitoring plans will be developed for the selected alternative and disclosed with the project's decision document. Monitoring plans would be designed to determine the implementation and general effectiveness of Best Management Practices, design features, and/or restoration activities. Monitoring is designed to accomplish all or some of the following goals:

- ◆ Determine if assumptions made for effects analyses appear correct.
- ◆ Verify implementation of design features and the general degree of effectiveness.
- ◆ Determine if resource objectives are being achieved.

### 2.4.3 Description of Alternatives

#### 2.4.3.1 Alternative A - No Action

This is a required "no action" alternative that provides a baseline against which impacts of the various action alternatives can be measured and compared. Under this alternative, no new management activities would occur. Obstructions on trails within the project area would continue to be removed annually or as funding and priorities allow. Roads currently open in the project area would continue to be maintained for motorized traffic during the snow-free season. General maintenance on these roads would occur as needed and/or as funding allows. Suppression of wildfires would continue to occur within the project area. All other currently authorized activities (e.g. dispersed recreation, current travel management restrictions, etc.) would continue in the area.

#### 2.4.3.2 Alternative B - Proposed Action

This alternative was developed to meet the project's purpose and need stated in Chapter 1. It represents the Forest Service's best recommendation prior to detailed analysis of the environmental effects. In addition to the custodial maintenance activities described in Alternative A, the Proposed Action would implement silvicultural activities, including thinning of sub-merchantable trees, aspen enhancement, and whitebark pine enhancement, on 2,687 acres. An estimated 9.3 MMBf would be removed using tractor, off-road jammer, skyline, and helicopter yarding systems. The Proposed Action would employ a variety of silvicultural prescriptions including clearcut with reserve trees, commercial thin, improvement cut, irregular shelterwood, individual tree selection, sanitation/salvage, thinning of sub-merchantable trees, aspen enhancement, and whitebark pine enhancement. Reference Table 2-2 and Figure 2-7.

Thinning of sub-merchantable trees would occur within both plantations and previously managed stands with an overstory component (such as seed cut shelterwoods) where natural and/or artificial regeneration has been established. Aspen clones and immature whitebark pine trees would be released in select locations where competing conifers are currently inhibiting growth and/or vigor.

Road maintenance activities would occur on an estimated 0.3 miles of existing road under this alternative. Specifically, one under-sized culvert along the #402 road would be replaced with a culvert sufficient in size to accommodate a 100-year flow event; a series of drive-through dips would be installed on the #402F1 road to prevent erosion, and; an existing slump on the cutslope along the #498 road would be stabilized.

Roughly 1.1 miles of temporary road would be constructed to facilitate harvest activities and six helicopter landings constructed.

Post-implementation management of the existing transportation system within the project area would not change under this alternative. All existing road restrictions would be reinstated upon completion of harvest activities. Specifically, motorized traffic would be controlled in the following manner:

- ◆ The #400B road would continue to be closed year-round to motorized vehicles exceeding 48 inches in width with the exception of snowmobile and administrative use.
- ◆ The #402F1 and #402F3 road systems would continue to be closed year-round to all motorized traffic with the exception of snowmobile and administrative use.
- ◆ The #497.2 and #497M road systems would continue to be closed year-round to all motorized traffic with the exception of snowmobile and administrative use.
- ◆ The #402F road, which would be opened to facilitate proposed activities, would have all culverts removed and would be closed year-round to all motorized traffic with earthen barriers or boulders.

This alternative also includes two Forest Plan corrections for Management Area 18. These two corrections consist of clarifications of the existing management direction and therefore do not require an amendment of the Forest Plan (FSH 1909.15, Section 18.2). Specifically, the table presented on pages III-314 and III-315 of the Forest Plan discloses visual quality objectives for sensitive travel routes or use areas including “Forest Roads 186, 497” and “Forest Road 402 (to trailhead)”. The corrected table would apply the identified visual quality objectives to “Forest Roads 186, 497.1” and “Forest Road 402 (from road 400 to trailhead 162)”. Reference Appendix C of this document for additional information.

**Table 2-2 Alternative B - Proposed Action**

Total Acres Treated – 2,687 ac.		Road Maintenance – 0.3 mi.	
Temporary Road Construction – 1.1 mi.			
<b>Harvest Methods (acres)</b>			
Helicopter – 74		Skyline - 549	
Off-Road Jammer – 478		Tractor - 329	
<b>Silvicultural Prescriptions (acres)</b>			
Clear Cut with Reserve Tree – 219		Individual Tree Selection – 187	
Commercial Thin – 51		Sanitation/Salvage – 99	
Improvement Cut – 417		Irregular Shelterwood - 457	
Aspen Enhancement - 89		Whitebark Pine Enhancement - 553	
Thinning of Sub-merchantable Trees - 615			
<b>Post-harvest Activities (acres)</b>			
Lop Activity Fuels – 1,353		Whole Tree Yard – 1,334	
Broadcast Burn Activity Fuels – 23		Tree Planting - 241	
<b>Temporary Road Construction (miles)</b>			
400B Tmp – 0.5		400B Tmp2 – 0.2	
400B Tmp3 – 0.2		497M Tmp – 0.2	
<b>Road Maintenance (miles)</b>			
402 – 0.1	402F1 – 0.1	498 – 0.1	

### 2.4.3.3 Alternative C – Response to Flammulated Owl Issue

This alternative was developed in response to internal concerns that Alternative B could result in the loss of the seven modeled flammulated owl home ranges within the project area. In addition to the custodial maintenance activities described in Alternative A, this alternative would implement silvicultural activities, including thinning of sub-merchantable trees, aspen enhancement, and whitebark pine enhancement, on 2,489 acres. An estimated 8.5 MMbf would be removed using tractor, off-road jammer, skyline, and helicopter yarding systems. This alternative would employ a variety of silvicultural prescriptions including clearcut with reserve trees, commercial thin, improvement cut, irregular shelterwood, individual tree selection, sanitation/salvage, thinning of sub-merchantable trees, aspen enhancement, and whitebark pine enhancement. Reference Table 2-3 and Figure 2-8.

Thinning of sub-merchantable trees would occur within both plantations and previously managed stands with an overstory component (such as seed cut shelterwoods) where natural and/or artificial regeneration has been established. Aspen clones and immature whitebark pine trees would be released in select locations where competing conifers are currently inhibiting growth and/or vigor.

Road maintenance activities would occur on an estimated 0.3 miles of existing road under this alternative. Specifically, one under-sized culvert along the #402 road would be replaced with a culvert sufficient in size to accommodate a 100-year flow event; a series of drive-through dips would be installed on the #402F1 road to prevent erosion, and; an existing slump on the cutslope along the #498 road would be stabilized.

Roughly 1.1 miles of temporary road would be constructed to facilitate harvest activities and six helicopter landings constructed.

Post-implementation management of the existing transportation system within the project area would not change under this alternative. All existing road restrictions would be reinstated upon completion of harvest activities. Specifically, motorized traffic would be controlled in the following manner:

- ◆ The #400B road would continue to be closed year-round to motorized vehicles exceeding 48 inches in width with the exception of snowmobile and administrative use.
- ◆ The #402F1 and #402F3 road systems would continue to be closed year-round to all motorized traffic with the exception of snowmobile and administrative use.
- ◆ The #497.2 and #497M road systems would continue to be closed year-round to all motorized traffic with the exception of snowmobile and administrative use.
- ◆ The #402F road, which would be opened to facilitate proposed activities, would have all culverts removed and would be closed year-round to all motorized traffic with earthen barriers or boulders.

This alternative also includes two Forest Plan corrections for Management Area 18. These two corrections consist of clarifications of the existing management direction and therefore do not require an amendment of the Forest Plan (FSH 1909.15, Section 18.2). Specifically, the table presented on pages III-314 and III-315 of the Forest Plan discloses visual quality objectives for sensitive travel routes or use areas including “Forest Roads 186, 497” and “Forest Road 402 (to trailhead)”. The corrected table would apply the identified visual quality objectives to “Forest Roads 186, 497.1” and “Forest Road 402 (from road 400 to trailhead 162)”. Reference Appendix C of this document for additional information.

**Table 2-3 Alternative C – Response to Flammulated Owl Issue**

Total Acres Treated – 2,489 ac.		Road Maintenance – 0.3 mi.	
Temporary Road Construction – 1.1 mi.			
<b>Harvest Methods (acres)</b>			
Helicopter – 74		Skyline - 470	
Off-Road Jammer – 388		Tractor - 300	
<b>Silvicultural Prescriptions (acres)</b>			
Clear Cut with Reserve Tree – 207		Individual Tree Selection – 187	
Commercial Thin – 51		Sanitation/Salvage – 74	
Improvement Cut – 270		Irregular Shelterwood – 443	
Aspen Enhancement - 89		Whitebark Pine Enhancement - 553	
Thinning of Sub-merchantable Trees - 615			
<b>Post-harvest Activities (acres)</b>			
Lop Activity Fuels – 1,353		Whole Tree Yard – 1,135	
Broadcast Burn Activity Fuels – 23		Tree Planting - 230	
<b>Temporary Road Construction (miles)</b>			
400B Tmp – 0.5		400B Tmp2 – 0.2	
400B Tmp3 – 0.2		497M Tmp – 0.2	
<b>Road Maintenance (miles)</b>			
402 – 0.1	402F1 – 0.1	498 – 0.1	

**2.4.3.4 Alternative D – Response to Flammulated Owl and Pileated Woodpecker Issues**

This alternative was developed in response to internal concerns that Alternative B could result in the loss of the seven modeled flammulated owl home ranges within the project area, and the loss of one or both of the modeled pileated woodpecker home ranges in the project area. In addition to the custodial maintenance activities described in Alternative A, this alternative would implement silvicultural activities, including thinning of sub-merchantable trees, aspen enhancement, and whitebark pine enhancement, on 2,170 acres. An estimated 3.7 MMbf would be removed using tractor, off-road jammer, skyline, and helicopter yarding systems. This alternative would employ a variety of silvicultural prescriptions including clearcut with reserve trees, commercial thin, improvement cut, irregular shelterwood, individual tree selection, sanitation/salvage, thinning of sub-merchantable trees, aspen enhancement, and whitebark pine enhancement. Reference Table 2-4 and Figure 2-9.

Thinning of sub-merchantable trees would occur within both plantations and previously managed stands with an overstory component (such as seed cut shelterwoods) where natural and/or artificial regeneration has been established. Aspen clones and immature whitebark pine trees would be released in select locations where competing conifers are currently inhibiting growth and/or vigor.

Road maintenance activities would occur on an estimated 0.3 miles of existing road under this alternative. Specifically, one under-sized culvert along the #402 road would be replaced with a culvert sufficient in size to accommodate a 100-year flow event; a series of drive-through dips would be installed on the #402F1 road to prevent erosion, and; an existing slump on the cutslope along the #498 road would be stabilized.

Roughly 0.4 miles of temporary road would be constructed to facilitate harvest activities and six helicopter landings constructed.

Post-implementation management of the existing transportation system within the project area would not change under this alternative. All existing road restrictions would be reinstated upon completion of harvest activities. Specifically, motorized traffic would be controlled in the following manner:

- ◆ The #400B road would continue to be closed year-round to motorized vehicles exceeding 48 inches in width with the exception of snowmobile and administrative use.
- ◆ The #402F1 and #402F3 road systems would continue to be closed year-round to all motorized traffic with the exception of snowmobile and administrative use.
- ◆ The #497.2 and #497M road systems would continue to be closed year-round to all motorized traffic with the exception of snowmobile and administrative use.
- ◆ The #402F road, which would be opened to facilitate proposed activities, would have all culverts removed and would be closed year-round to all motorized traffic with earthen barriers or boulders.

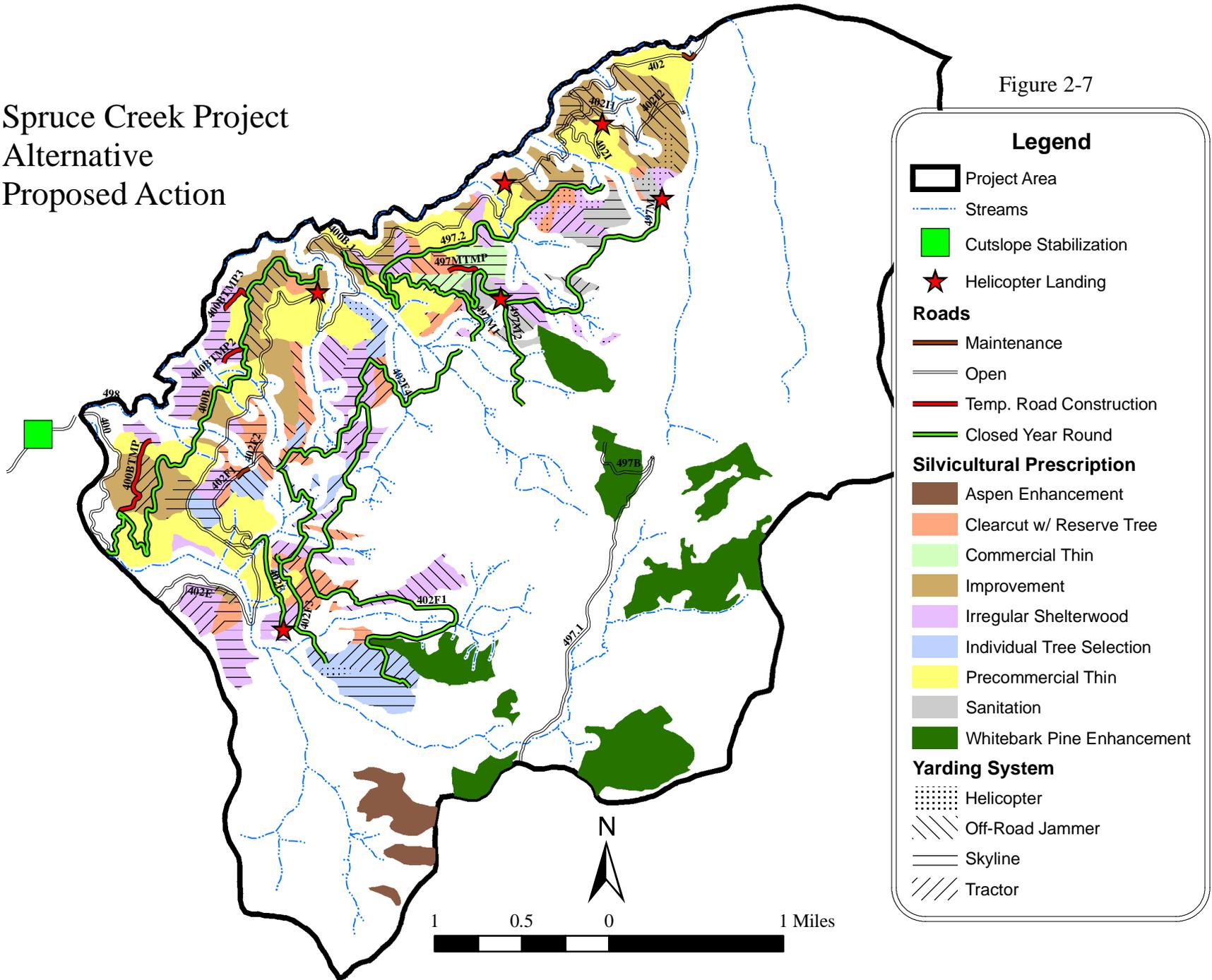
This alternative also includes two Forest Plan corrections for Management Area 18. These two corrections consist of clarifications of the existing management direction and therefore do not require an amendment of the Forest Plan (FSH 1909.15, Section 18.2). Specifically, the table presented on pages III-314 and III-315 of the Forest Plan discloses visual quality objectives for sensitive travel routes or use areas including “Forest Roads 186, 497” and “Forest Road 402 (to trailhead)”. The corrected table would apply the identified visual quality objectives to “Forest Roads 186, 497.1” and “Forest Road 402 (from road 400 to trailhead 162)”. Reference Appendix C of this document for additional information.

**Table 2-4 Alternative D – Response to Flammulated Owl and Pileated Woodpecker Issues**

Total Acres Treated – 2,170 ac.		Road Maintenance – 0.3 mi.	
Temporary Road Construction – 0.4 mi.			
<b>Harvest Methods (acres)</b>			
Helicopter – 46		Skyline - 311	
Off-Road Jammer – 304		Tractor - 252	
<b>Silvicultural Prescriptions (acres)</b>			
Clear Cut with Reserve Tree – 27		Individual Tree Selection – 406	
Commercial Thin – 30		Sanitation/Salvage – 74	
Improvement Cut – 246		Irregular Shelterwood – 130	
Aspen Enhancement - 89		Whitebark Pine Enhancement - 553	
Thinning of Sub-merchantable Trees - 615			
<b>Post-harvest Activities (acres)</b>			
Lop Activity Fuels – 1,325		Whole Tree Yard – 846	
Broadcast Burn Activity Fuels – 23		Tree Planting - 50	
<b>Temporary Road Construction (miles)</b>			
400B Tmp3 – 0.2		497M Tmp – 0.2	
<b>Road Maintenance (miles)</b>			
402 – 0.1	402F1 – 0.1	498 – 0.1	

# Spruce Creek Project Alternative Proposed Action

Figure 2-7



### Legend

- Project Area
- Streams
- Cutslope Stabilization
- Helicopter Landing

#### Roads

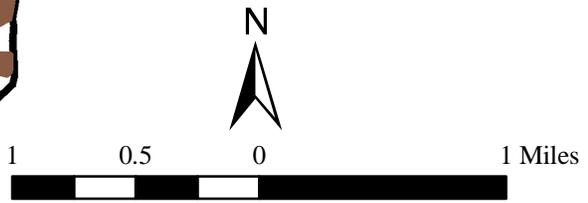
- Maintenance
- Open
- Temp. Road Construction
- Closed Year Round

#### Silvicultural Prescription

- Aspen Enhancement
- Clearcut w/ Reserve Tree
- Commercial Thin
- Improvement
- Irregular Shelterwood
- Individual Tree Selection
- Precommercial Thin
- Sanitation
- Whitebark Pine Enhancement

#### Yarding System

- Helicopter
- Off-Road Jammer
- Skyline
- Tractor



# Spruce Creek Project Alternative C Response to Flammulated Owl Issue

Figure 2-8

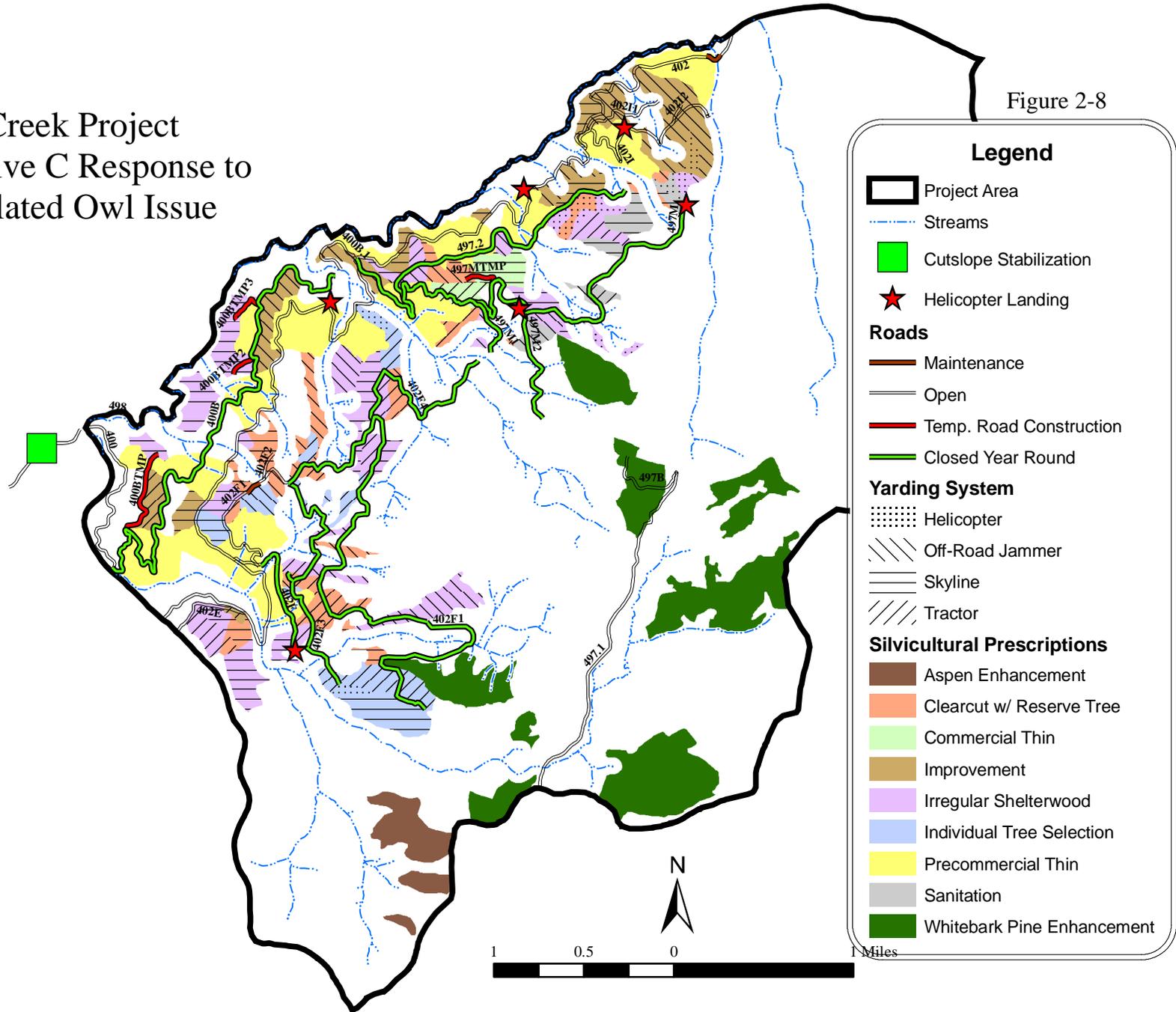
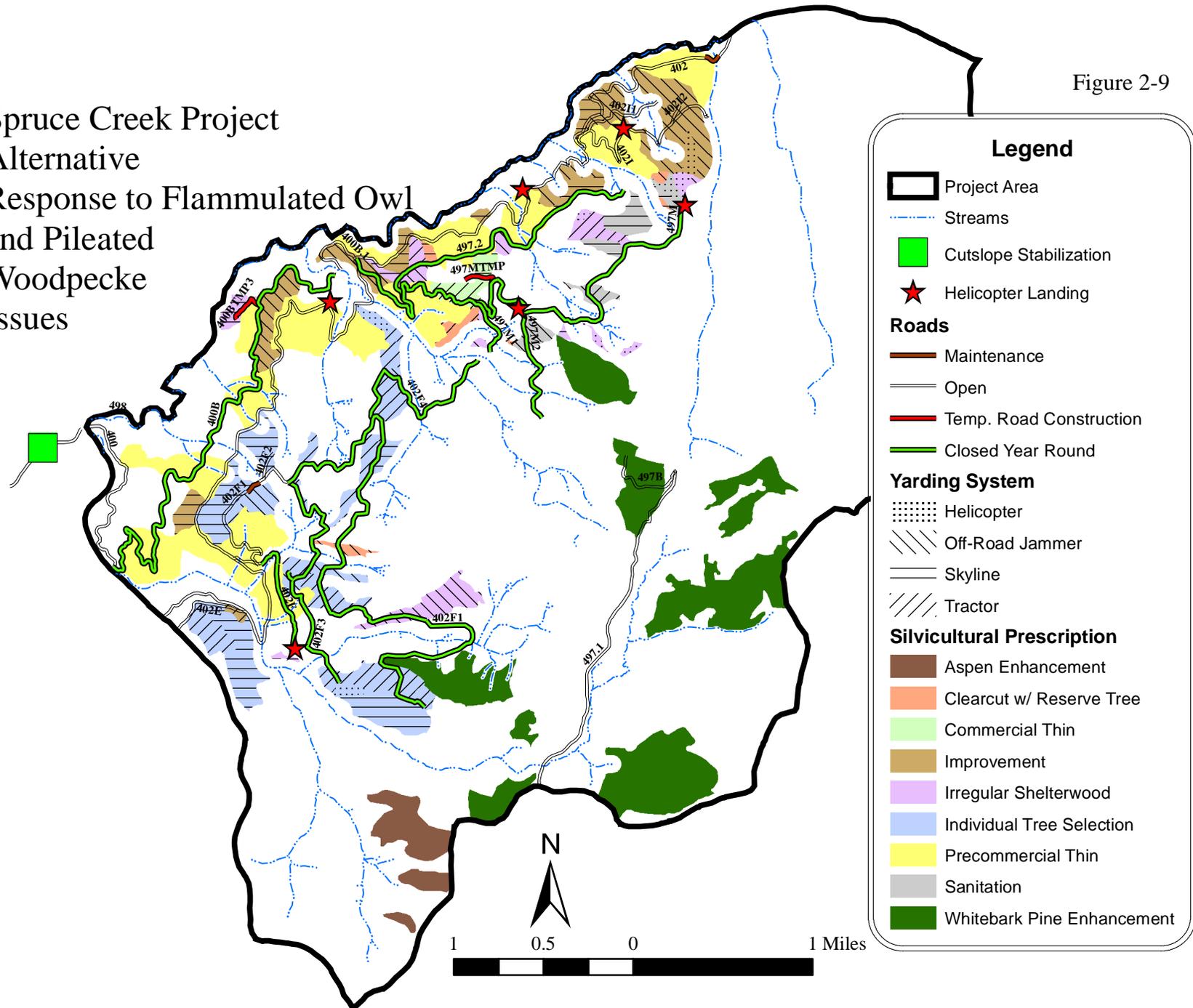


Figure 2-9

Spruce Creek Project  
 Alternative  
 Response to Flammulated Owl  
 and Pileated  
 Woodpecker  
 Issues



## 2.5 Summary Comparison of Alternatives

Table 2-5 presents a comparative summary of principle activities and the environmental effects for the alternatives being considered in detail. The summary is limited to the effects on project objectives, significant issues or concerns, Forest Plan standards, and other resources the Interdisciplinary Team deemed important for an informed decision. A brief discussion of the similarities and differences between the alternatives follows the table.

**Table 2-5 Comparison of Activities and Effects**

<b>Project Objective Indicators</b>	<b>Alt. A</b>	<b>Alt. B</b>	<b>Alt. C</b>	<b>Alt. D</b>
Acres Converted to Large Tree Size Class	0	531	471	349
Acres of Existing Large Tree Size Class with High Canopy Closure Converted to Moderate or Low	0	106	106	44
Retention and Recruitment of Seral Species Encouraged?	No	Yes	Yes	Yes
Acres of High or Moderate Susceptibility to Insects & Diseases Converted to a Low Susceptibility	0	1,202	1,020	559
Acres of Aspen and Whitebark Pine Enhanced	0	642	642	642
Weighted Average Annual Growth (cu.ft./ac./yr)	33	34	34	35
Wood Products Made Available (MMbf)	0	9.3	8.5	3.7
Cutslope Stabilized on the #498 Road?	No	Yes	Yes	Yes
<b>Project Issue Indicators</b>	<b>Alt. A</b>	<b>Alt. B</b>	<b>Alt. C</b>	<b>Alt. D</b>
Number of Flammulated Owl Home Ranges	7	0	7	10
Number of Pileated Woodpecker Home Ranges	2	1	1	2
<b>Forest Plan Consistency/Other Key Items</b>	<b>Alt. A</b>	<b>Alt. B</b>	<b>Alt. C</b>	<b>Alt. D</b>
Results in the Development of any IRA?	No	No	No	No
Activities Comply with Detrimental Disturbance Standard?	Yes	Yes	Yes	Yes
Activities Comply with Total Soil Resource Commitment Standard?	Yes	Yes	Yes	Yes
Activities Comply with Road Standards 1820, 1821, and 1822?	Yes	Yes	Yes	Yes
Activities Comply with Visual Quality Objectives Standards?	Yes	Yes	Yes	Yes
Activities Comply with TMDL?	Yes	Yes	Yes	Yes
<b>Threatened, Endangered, and Proposed Species</b>	<b>Alt. A</b>	<b>Alt. B</b>	<b>Alt. C</b>	<b>Alt. D</b>
Wildlife Species	NE	NE/MA/NJ	NE/MA/NJ	NE/MA/NJ
Plant Species	NE	NE	NE	NE
Fish Species	NE	MA	MA	MA
<b>Sensitive Species</b>	<b>Alt. A</b>	<b>Alt. B</b>	<b>Alt. C</b>	<b>Alt. D</b>
Wildlife Species	NI	NI/MI	NI/MI	NI/MI
Plant Species	NI	NI/MI	NI/MI	NI/MI
Fish Species	NI	MI	MI	MI
<b>Management Indicator Species</b>	<b>Alt. A</b>	<b>Alt. B</b>	<b>Alt. C</b>	<b>Alt. D</b>
Pileated Woodpecker Population Trend	Maintained	Maintained	Maintained	Maintained
Bull Trout Population Trend	Maintained	Maintained	Maintained	Maintained

NE = No Effect; MA = May affect, but not likely to adversely affect; NJ = Not likely to jeopardize.

NI = No Impact; MI = May impact individuals or habitat but would not likely contribute to a trend towards Federal listing.

Reference discussions below and in Chapter 3 for detailed information.

### 2.5.1 Project Objective Indicators

**2.5.1.1 Retain the existing size class of stands currently identified as large tree and manipulate the structure of small and medium tree size class stands to accelerate their movement towards the large tree size class, thereby retaining and potentially contributing to habitat for some terrestrial wildlife species associated with large tree size class.**

Implementation of Alternative A would have no effect on the existing quantities or distribution of tree size classes within the analysis area (Section 3.2.2.1).

Silvicultural activities associated with Alternative B would shift 26 acres from the small tree size class to the medium tree size class; 71 acres from the small tree size class to the large tree size class,

and; 460 acres from the medium tree size class to the large tree size class (Section 3.2.2.2). Under Alternative C, silvicultural activities would shift 26 acres from the small tree size class to the medium tree size class; 71 acres from the small tree size class to the large tree size class, and; 400 acres from the medium tree size class to the large tree size class (Section 3.2.2.3). Silvicultural activities associated with Alternative D would shift 26 acres from the small tree size class to the medium tree size class; six acres from the small tree size class to the large tree size class, and; 343 acres from the medium tree size class to the large tree size class (Section 3.2.2.4).

None of the action alternatives would convert any stand from the large tree size class to a smaller size class. The lack of any major shift of tree size classes for the analysis area as-a-whole under the action alternatives is largely explained by the fact that these alternatives would only treat a range of 22 to 27 percent of the 9,997 acre analysis area because of inventoried roadless areas, streamside RCAs, and/or other resource concerns (Sections 3.2.2.2, 3.2.2.3, and 3.2.2.4).

**2.5.1.2 Reduce the densities of stands currently identified as large tree size class in order to maintain or restore canopy closures within desired conditions, and to potentially contribute to habitat for those terrestrial wildlife species associated with large tree size class stands with low to moderate canopy closures.**

Alternative A would have no effect on the existing quantities or distribution of canopy closure within the analysis area (Section 3.2.3.1).

Specific to stands **currently** in the large tree size class, Alternative B would convert large tree size class stands with an existing high canopy closure to a low canopy closure on 106 acres, and shift the canopy closure from moderate down to low on another 58 acres (Section 3.2.3.2); Alternative C would convert large tree size class stands with an existing high canopy closure to a low canopy closure on 106 acres, and shift the canopy closure from moderate down to low on another 51 acres (Section 3.2.3.3), and; Alternative D would convert large tree size class stands with an existing high canopy closure to a low canopy closure on 44 acres, and shift the canopy closure from moderate down to low on another 49 acres (Section 3.2.3.4).

**2.5.1.3 Consistent with the particular habitat type, discriminate against shade tolerant species such as grand fir and subalpine fir and encourage retention and recruitment of seral species.**

Implementation of Alternative A would have no effect on the existing quantities or distribution of forest types within the analysis area (Section 3.2.4.1).

As disclosed in Section 3.2.4.2, with the exception of thinning of sub-merchantable trees in riparian habitats, all silvicultural prescriptions applied under these alternatives would favor shade intolerant species and discriminate against shade tolerant tree species such as subalpine fir and grand fir. Although unquantifiable, these alternatives would result in a slight shift of species compositions towards those species associated with more open stand conditions (i.e. shade intolerant species).

**2.5.1.4 Relative to Douglas-fir beetle, mountain pine beetle, western pine beetle, western spruce budworm, and/or dwarf mistletoe, manipulate the structures, densities, and compositions of stands in order to maintain a low or moderate susceptibility level, or to decrease susceptibility to a low or moderate level.**

Alternative A would have no effect on stand susceptibility to forest insects and diseases. Approximately 6,589 acres, 66 percent of the analysis area, would continue to have a high or moderate susceptibility to damage from western spruce budworm, Douglas-fir beetle, mountain pine beetle, western pine beetle, and/or dwarf mistletoe (Section 3.2.6.1).

Based on projections of post-implementation stand conditions, Alternative B would reduce the susceptibility rating to forest pathogens of concern from high or moderate down to low on roughly 1,202 acres. Following implementation of this alternative approximately 5,387 acres, 54 percent of

the 9,997 acre analysis area, would have a high or moderate susceptibility to damage from western spruce budworm, Douglas-fir beetle, mountain pine beetle, western pine beetle, and/or dwarf mistletoe (Section 3.2.6.2).

Alternative C would reduce the susceptibility rating to forest pathogens of concern from high or moderate down to low on roughly 1,020 acres. Following implementation of this alternative approximately 5,569 acres, 56 percent of the 9,997 acre analysis area, would have a high or moderate susceptibility to damage from western spruce budworm, Douglas-fir beetle, mountain pine beetle, western pine beetle, and/or dwarf mistletoe (Section 3.2.6.3).

Under Alternative D the susceptibility rating to forest pathogens of concern would be reduced from high or moderate down to low on roughly 559 acres. Following implementation of this alternative approximately 6,030 acres, 60 percent of the 9,997 acre analysis area, would have a high or moderate susceptibility to damage from western spruce budworm, Douglas-fir beetle, mountain pine beetle, western pine beetle, and/or dwarf mistletoe (Section 3.2.6.4).

### **2.5.1.5 Maintain or restore aspen and immature whitebark pine by eliminating competition with other conifer species.**

Alternative A would have no effect on the existing quantities or distribution of aspen or whitebark pine within the analysis area (Section 3.2.4.1).

Activities associated with Alternatives B, C, and D would eliminate the encroachment of shade tolerant species like subalpine fir, and the resultant competition for limited nutrients, moisture, and sunlight which is currently inhibiting the growth and vigor of immature whitebark pine in the higher elevations of the project area, and aspen in several stands in the southwest portion of the project area. These alternatives would increase the probability of immature whitebark pine trees reaching maturity on 553 acres and aspen on another 89 acres (Section 3.2.4.2).

### **2.5.1.6 Improve long term stand growth to or near levels indicative of sustainable forests.**

Under Alternative A, average annual growth minus mortality would be expected to remain around 33 cubic feet/acre/year for the 9,997 acre analysis area (Section 3.2.5.1).

Given that 73 to 78 percent of the 9,997 acre analysis area would remain untreated under the action alternatives, average annual growth for the analysis area as-a-whole would improve only slightly to around 34 cubic feet/acre/year in 2027 under Alternative B or C (Section 3.2.5.2 and 3.2.5.3) and 35 cubic feet/acre/year in 2027 under Alternative D (Section 3.2.5.4).

In comparison to an average annual growth of 47 cubic feet/acre/year under Alternative A for the same acres, the average annual growth on the 2,687 acres treated under Alternative B would improve to around 53 cubic feet/acre/year in year 2027 (Section 3.2.5.2).

In comparison to an average annual growth of 46 cubic feet/acre/year under Alternative A for the same acres, the average annual growth on the 2,489 acres treated under Alternative C would improve to around 52 cubic feet/acre/year in year 2027 (Section 3.2.5.3).

In comparison to an average annual growth of 45 cubic feet/acre/year under Alternative A for the same acres, the average annual growth on the 2,170 acres treated under Alternative D would improve to around 55 cubic feet/acre/year in year 2027 (Section 3.2.5.4).

While Alternative D may reflect more of an improvement in growth than Alternatives B and C, this is explained in part by the time period of the modeling and the indicator used in this analysis. Alternatives B and C would result in the establishment and growth of more seedlings and saplings than Alternative D. In contrast Alternative D would retain, on average, more merchantable trees/acre than the other action alternatives. Since seedlings and saplings contribute very little to the

indicator of cubic feet/acre, and since Alternative D would retain more merchantable trees/acre, it is not surprising that Alternative D reflects a better growth/acre in 20 years after implementation (year 2027). However, if the stands were modeled 40 to 50 years into the future when seedlings and saplings have reached a merchantable size, the average annual growth under Alternative B or C would be expected to surpass that of Alternative D.

#### **2.5.1.7 Provide wood products to support local and regional economies.**

Alternative A would not result in the harvest of any wood products (Section 3.8.1).

Alternative B would harvest an estimated 9.3 MMbf of timber and generate an estimated appraised value of \$459,000 (Section 3.8.2). Alternative C would harvest an estimated 8.5 MMbf of timber and generate an estimated appraised value of \$408,000 (Section 3.8.3). Alternative D would harvest an estimated 3.7 MMbf of timber and generate an estimated appraised value of \$180,000 (Section 3.8.4).

Sawlogs and other wood products, as well as employment opportunities associated with these alternatives, would help sustain sawmills and economies in Valley County and adjacent counties. Jobs supported by these alternatives would directly and indirectly benefit local economies and the economies of other counties (Sections 3.8.2, 3.8.3, and 3.8.4).

#### **2.5.1.8 Stabilize the cutslope failure on the #498 road.**

Alternative A does not propose any new management activities in the analysis area and therefore would have no direct or indirect effects on erosion or sedimentation. The cutslope failure on the #498 road would continue to slump into the ditchline and contribute sediment directly into Gold Fork River (Section 3.10.1.1).

Given its juxtaposition to the Gold Fork River, activities associated with stabilization of the existing cutslope slump on the #498 road under Alternative B, C, or D have the potential to contribute sediment. However, the use of erosion barriers such as straw bales, silt fences, or SEDIMAT™ should mitigate any unacceptable effects. Establishment of vegetation on the site and providing a means for water to drain from this area would reduce, but probably not eliminate, this chronic source of sedimentation (Section 3.10.1.2). In addition, replacing one under-sized culvert on the #402 road and removing another on the #402F road would immediately reduce the risk of these culverts becoming clogged with debris and precipitating road prism failures and the associated sediment delivery to streams. Although replacement/removal of these under-sized culverts would result in a temporary and near short term increase in sedimentation in non-fishing bearing streams, these activities would improve the overall hydrologic conditions in the area (Section 3.10.1.2). Similarly, installation of a series of drive-through dips on the #402F1 road would increase erosion for a few years. However, given that field reconnaissance concluded that this site is not currently contributing sediment to area streams, this activity would not be expected to result in any sediment delivery. Installation of these drive-through dips would reduce the chronic erosion and rutting that has been occurring on this segment of road and the potential of a future road prism failure (Section 3.10.1.2).

### **2.5.2 Project Issue Indicators**

#### **2.5.2.1 Flammulated Owl – Harvest activities associated with the Proposed Action could result in the loss of modeled flammulated owl home ranges.**

Alternative A does not include any new management activities and would therefore have no direct or indirect effects on this species or its habitat (Section 3.9.2.1)

Alternative B would modify suitable habitat within the seven existing modeled home ranges within the analysis area. The reduction in canopy closure and tree density would result in the direct loss of all seven home ranges. Individuals within affected home ranges, if occupied, would likely be forced to leave the project area in search of suitable habitat. This alternative would also convert 82 acres of unsuitable habitat to a suited condition. However, the juxtaposition of this habitat is such that no additional home ranges would be formed (Section 3.9.2.3).

Alternative C would not modify habitat within any of the seven modeled home ranges. All seven existing modeled home ranges would remain viable following this alternative. This alternative would also convert 82 acres of unsuitable habitat to a suited condition. However, the juxtaposition of this habitat is such that no additional home ranges would be formed (Section 3.9.2.4).

Alternative D would not modify habitat within any of the seven modeled home ranges. All seven existing modeled home ranges would remain viable following this alternative. Alternative D would convert 223 acres of unsuitable habitat to a suited condition. Given the juxtaposition of this habitat, an additional three home ranges could be formed (Section 3.9.2.5).

Following implementation of Alternatives B, C, and D, sufficient habitat would remain within that portion of the 5<sup>th</sup> field HUC administered by the Forest Service to support an estimated 21 to 31 home ranges for this species. The presence of 21 to 31 modeled home ranges, presumably containing reproducing individuals, would serve to maintain a viable population of flammulated owls within the cumulative effects area. Therefore none of the action alternatives would be expected to contribute to a trend towards federal listing or cause a loss of viability to the population or species (Section 3.9.2.6).

### **2.5.2.2 Pileated Woodpecker – Harvest activities associated with the Proposed Action could result in the loss of modeled pileated woodpecker home ranges.**

Alternative A does not include any new management activities and would therefore have no direct or indirect effects on this species or its habitat (Section 3.9.3.1).

Alternatives B and C would modify suitable habitat within both of the two existing modeled home ranges within the analysis area. Neither home range would provide sufficient habitat to be considered a viable home range following implementation of these alternatives. Enough suitable habitat would however remain within the project area to form one home range that would still be expected to support a nesting pair (Section 3.9.3.2).

Alternative D would modify approximately 86 acres of suitable nesting habitat and 254 acres of forage habitat. However, silvicultural prescriptions would retain sufficient canopy closures and tree densities such that these affected acres would not be converted to an unsuitable condition. As a result, both of the two existing modeled home ranges would remain viable following implementation of this alternative (Section 3.9.3.3).

Following implementation of Alternatives B, C, and D, sufficient habitat would be present within that portion of the 5<sup>th</sup> field HUC administered by the Forest Service to support an estimated 4 or 5 home ranges for this species. The presence of 4 or 5 modeled home ranges, presumably containing reproducing individuals, would serve to maintain a viable population of pileated woodpeckers within the cumulative effects area and maintain the current population trend of this species at the Forest and Ecogroup scale. The Final EIS prepared in concert with the Forest Plan suggests that there is currently a sufficient amount of pileated woodpecker habitat distributed across the Boise National Forest to prevent a loss of viability to the population or species. The conclusions in the Forest Plan are further supported by Wisdom et al (2000) which reports an estimated 21 percent increase in source habitat in the Central Idaho Mountains ERU (Section 3.9.3.4).

### **2.5.3 Forest Plan Consistency/Other Key Items**

The Forest Plan Consistency Checklist, contained in the project's planning record, lists all applicable standards and guidelines in the 2003 Forest Plan and discloses how the various alternatives comply or fail to comply with those standards and guidelines. In addition, the Interdisciplinary Team identified other items considered important in making an informed decision. The following discussions summarize the effects of the alternatives relative to those standards and/or guidelines and other items identified by the Interdisciplinary Team as key in this assessment.

#### **2.5.3.1 Inventoried Roadless Areas**

Alternative A does not propose any activities within the Needles IRA and therefore would have no direct or indirect effects on the wilderness attributes (Section 3.3.1.1).

With the exception of 356 acres of whitebark pine enhancement treatments, Alternatives B, C, and D do not propose any activities within the boundaries of the Needles IRA. All action alternatives would have a temporary effect (9 to 10 weeks) on solitude and primitive recreation in portions of the Needles IRA. These alternatives would also result in subtle effects to the natural appearance for a period of three to five years. These alternatives would not have any other direct or indirect effects on the IRA, nor would they result in the development of any portion of the IRA. This IRA in its entirety would remain suitable for wilderness designation by Congress (Section 3.3.1.2).

#### **2.5.3.2 Detrimental Soil Disturbance**

Alternative A would have no effect on detrimental soil disturbance (Section 3.10.4.1).

With the exception of one 4 acre unit (Unit #99) harvested with a tractor yarding system in 1991 and common to all action alternatives, none of the activity areas of concern have existing levels of detrimental disturbance. Based on monitoring of units with a similar yarding system, it was determined that eight percent of Unit #99 is currently considered detrimentally disturbed. Following implementation of Alternative B, C or D, roughly 13 percent of Unit #99 would be detrimentally disturbed, with detrimental disturbance ranging from 0 to 14 percent in the other activity areas depending upon the yarding system. All action alternatives would be consistent with Forest Plan direction to maintain detrimental disturbance below 15 percent within the activity areas (Section 3.10.4.2).

#### **2.5.3.3 Total Soil Resource Commitment (TSRC)**

Alternative A would maintain the existing TSRC of 1.9 percent for the 9,997 acre activity area (Section 3.10.4.1). Following implementation of Alternative B, C, or D, TSRC for the 9,997 acre activity area would increase from the existing 1.9 percent to 2.2 percent. The Forest Plan standard for TSRC would be met (Section 3.10.4.2).

#### **2.5.3.4 Forest Plan Road Standards 1820, 1821, and 1822**

Alternatives B, C, and D would all comply with Road Standards 1820, 1821, and 1822 (P.R., Vol. 13, Forest Plan Consistency Checklist). None of the alternatives include construction of any new classified roads. Temporary roads constructed under Alternative B, C, or D would not involve any stream crossings nor would they occur within any known streamside RCA. Proposed activities addressed in these standards would not degrade nor retard attainment of desired resource conditions (Sections 3.10 and 3.11).

During implementation of Alternative B or C (i.e. after temporary roads are built but prior to decommissioning), total road density within the NFGF 6<sup>th</sup> field would increase from the existing 2.44 mi/mi<sup>2</sup> to 2.46 mi/mi<sup>2</sup>. During implementation of Alternative D total road density within the

NFGF 6<sup>th</sup> field would increase from the existing 2.44 mi/mi<sup>2</sup> to 2.45 mi/mi<sup>2</sup>. Within an estimated four years, temporary roads would be decommissioned and the road density in this 6<sup>th</sup> field would return to the existing 2.44 mi/mi<sup>2</sup> after Alternative B, C, or D (Section 3.10.1.2).

Implementation of Alternative B, C, or D would necessitate construction of five new helicopter landings within the NFGF 6<sup>th</sup> field. However none of these helicopter landings would affect RCAs because they would all be located outside of any streamside RCA. The closest stream to any of the proposed helicopter landings would be approximately 350 feet. The sediment delivery distance using the Megahan/Ketcheson model for these helicopter landings was 151 feet, therefore no direct or indirect effects on sedimentation would be expected. The majority, if not all, of the landings associated with other yarding systems would also be located outside of RCAs. Design features require that new landing construction within streamside RCAs be minimized to the extent practicable (Section 2.4.2.2). There may however be situations where it would be preferable, and result in less overall resource damage, to construct a landing near the outer edge of an RCA rather than create a skid trail down a high cutslope to access the road. Design features (Section 2.4.2.2) stipulate that this would be allowed only after field review of the specific characteristics of the site and only if the conclusion is that there would be no measurable impacts to RCAs and sedimentation. Under no circumstances would landings be constructed within riparian vegetation or within 151 feet of any waterbody without a constructed filter windrow or within 50 feet of any waterbody with a constructed filter windrow (modeled sediment delivery distances). Upon completion of use, all newly constructed landings would be reshaped to provide adequate drainage, ripped to an approximate depth of 18 inches to increase infiltration and reduce water runoff, slash distributed to cover approximately 30 percent of the reshaped surface, and planted with a Forest Service approved seed mixture (Section 3.10.1.2).

Implementation of Alternative B, C, or D would include opening a number of existing roads in Maintenance Level 1 status. Access onto all roads to be reopened within the NFGF 6<sup>th</sup> field is currently prevented by closed gates. With the exception of the #400B road, all gated roads to be reopened are currently passable in their current condition and are used on a frequent basis for administrative purposes. Opening the #400B road, which is currently accessible to ATVs, would consist of opening the locked gate and removing some brush from the road prism. Removal of this brush, given incorporated design features, would not retard attainment of desired resource conditions nor would it result in measurable adverse effects on TEPC species or their habitats. Opening the remaining roads would consist of simply opening the existing gates. All existing road restrictions would be reinstated upon completion of harvest activities (Section 3.10.1.2).

Given the locations of these proposed activities relative to RCAs and incorporated design features, the activities described in the preceding paragraphs would not be expected to measurably slow the recovery rate of existing conditions moving toward the range of desired resource conditions, nor would these activities be expected to have a measurable effect on any TEPC species or its habitat (Sections 3.10 and 3.11).

### **2.5.3.5 Visual Quality Objectives**

Alternative A would have no direct or indirect effects on the vegetation or the visual quality of the analysis area (Section 3.5.1).

Although the appearance of stands would be noticeably changed in some locations, given incorporated design features none of the action alternatives would result in a high degree of visual contrast nor would these management activities dominate the viewshed from any sensitive route or area. Forest Plan Visual Quality Objectives (VQOs) would be met after a period of approximately three to five years (Sections 3.5.2, 3.5.3, and 3.5.4).

### 2.5.3.6 Total Maximum Daily Load (TMDL)

Alternatives B, C, and D would not contribute additional sediment in amounts that would prevent the attainment or maintenance of instream objectives, nor would these alternatives have a measurable effect on the identified beneficial uses. All action alternatives would comply with existing management direction including Forest Plan Standards and Guidelines, and the Clean Water Act. All action alternatives would be consistent with the intent of the TMDL of reducing sediment, the pollutant of concern. A number of activities (i.e. restorative BMPs) have already been implemented in the watershed to reduce management-related sediment. Even though these alternatives would reflect only a slight improving trend, they all include additional restorative BMPs to further reduce sediment and the potential for road prism failures in the drainage (Section 3.10.1.2).

### 2.5.4 Threatened, Endangered, Proposed, and Candidate Species

Determinations disclosed in Chapter 3 and documented in completed biological assessments for threatened, endangered, proposed, and candidate species concluded that:

Alternative A would have no effect on any threatened, endangered, proposed, or candidate species.

Alternatives B, C, and D would have no effect on any listed plant species (Section 3.2.11.3).

Alternatives B, C, and D may affect but are not likely to adversely affect lynx and northern Idaho ground squirrel, would not likely jeopardize gray wolves, and would have no effect on bald eagles (Section 3.9.1.3).

Alternatives B, C, and D may affect but are not likely to adversely affect bull trout (Section 3.11.3).

### 2.5.5 Sensitive Species

Determinations disclosed in Chapter 3 and documented in completed biological evaluations for sensitive species have concluded that:

Alternative A would have no impacts on any sensitive species or any Forest watch plants.

Alternatives B, C, and D would have no impact on *Botrychium lineare*, *Botrychium simplex*, *Botrychium crenulatum*, *Botrychium multifidum*, *Botrychium virginianum*, and *Allium validum*, and; may impact individuals but would not likely contribute to a trend towards Federal Listing or cause a loss of viability to the population or species of *Douglasia idahoensis* or *Lewisia sacajaweanana* (Section 3.2.11.3).

Alternatives B, C, and D would have no impact on peregrine falcon, white-headed woodpecker, mountain quail, greater sage grouse, western big-eared bat, spotted bat, and spotted frog, and; may impact individuals but would not likely contribute to a trend towards federal listing or loss of viability to the population or species of great gray owl, boreal owl, northern goshawk, northern three-toed woodpecker, fisher, wolverine, and flammulated owl (Section 3.9.2.6).

Alternatives B, C, and D may impact individuals but would not likely contribute to a trend towards federal listing or loss of viability to the population or species of westslope cutthroat trout (Section 3.11.3).

### 2.5.6 Management Indicator Species

Following implementation of Alternatives B, C, and D, sufficient habitat would be present within that portion of the 5<sup>th</sup> field HUC administered by the Forest Service to support an estimated 4 or 5 home ranges for this species. The presence of 4 or 5 modeled home ranges, presumably containing reproducing individuals, would serve to maintain a viable population of pileated woodpeckers within the cumulative effects area and maintain the current population trend of this species at the Forest and Ecogroup scale. The Final EIS prepared in concert with the Forest Plan suggests that there is currently a sufficient amount of pileated woodpecker habitat distributed across the Boise National Forest to prevent a loss of viability to the population or species. The conclusions in the Forest Plan are further supported by Wisdom et al (2000) which reports an estimated 21 percent increase in source habitat in the Central Idaho Mountains ERU (Section 3.9.3.4).

Alternatives B, C, and D would maintain the current population trend of bull trout at the Forest and Ecogroup scale (P.R., Vol. 11, Fisheries).

### 2.6 Identification of the Preferred Alternative

Alternative C, Response to Flammulated Owl Habitat, is the Responsible Official's preferred alternative.