

# Chapter 2. Public Participation, Issues and Alternatives

## 2.1 Introduction

This chapter describes and compares the alternatives considered by the Forest Service for the Butte Lookout Project. It includes a discussion of how alternatives were developed, an overview of management requirements, monitoring and other features common to all alternatives, a description and map (see Appendix B, documents b-17 and 18) of each alternative considered in detail, and a comparison of these alternatives focusing on the key issues. Chapter 2 is intended to present the alternatives in comparative form, sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public (40 CFR 1502.14).

Some of the information used to compare alternatives at the end of Chapter 2 is summarized from Chapter 3, "Affected Environment and Environmental Consequences." Chapter 3 contains the detailed scientific basis for establishing baselines and measuring the potential environmental consequences of each of the alternatives. For a full understanding of the effects of the alternatives, readers will need to consult Chapter 3.

## 2.2 Public Involvement

The public has been invited to participate in the Butte Lookout project's development numerous times since its initiation in 1994. Various events such as shifting budgets and priorities, a severe windstorm in 1995 that refocused the analysis on salvaging down trees, the listing of bull trout and lynx as threatened in 1998 and 1999 respectively, and a large post-fire analysis in 2000 all contributed to drawing out the project's timeline. The public involvement for this project's entire history is briefly described Section "1.1 Project History" and in more detail in the Project File. This section of the EIS focuses on the public involvement conducted since December, 2005 when the project analysis was re-started with refinements and a smaller analysis area than that which was part of the earlier proposals shared with the public.

During the development of an EIS, a process called "scoping" is used to invite public participation to help identify public issues. The Council on Environmental Quality (CEQ) defines scoping as "...an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action" (40 CFR 1501.7). Although scoping is to begin early, it is really an iterative process that continues until a decision is made.

We invited the public to participate in the project in the following ways:

- The Butte Lookout Project has been listed on the Lolo National Forest Schedule of Proposed Actions (SOPA).
- A legal notice was published in the Missoulian newspaper (December 12, 2005) that provided details about the project and invited people to comment during the scoping period.
- On December 15, 2005, we sent a letter to the mailing list inviting people to comment on the refined proposal. We received 15 responses to this letter.

- Deborah Austin, the Lolo National Forest Supervisor and the Responsible Official for this analysis, decided to conduct an Environmental Impact Statement (EIS) instead of an Environmental Assessment (EA) and published a Notice of Intent to conduct an EIS in the Federal Register on January 18, 2007. The Federal Register Notice asked for comments about the proposal and stated that previously received comments on the project did not need to be resubmitted. We received two comments.
- On December 5, 2007, we sent a letter to 56 individuals, groups, and government agencies to update them on the project and let them know that we anticipated having a draft EIS available and would be hosting a public meeting to discuss it the following spring.
- The Butte Lookout DEIS and/or its summary were mailed to 72 individuals, groups, and government agencies on March 5, 2008. The DEIS was also posted on the Lolo National Forest website.
- On March 7, 2008, a legal advertisement, which announced the completion of the DEIS and requested comments was published in the *Missoulian*. The Notice of Availability of the DEIS was published in the Federal Register on March 7, 2008, which officially started the 45-day comment period.
- On March 19, 2008, Forest Service personnel hosted an open house to discuss the DEIS with interested public. Notice of the open house was published in the *Missoulian* on March 7, 2008 and was included in the cover letter that accompanied the DEIS and summary. No one, other than Forest Service personnel, attended the open house.
- Six letters were received in response to the DEIS.
- U.S. Fish and Wildlife Service Consultation
  - A Biological Assessment and Biological Evaluation which assessed the impact of Alternative 5 on the threatened bull trout was sent to the U.S. Fish and Wildlife Service on April 25, 2008 for formal consultation under Section 7 of the Endangered Species Act. The conclusion of the Assessment and Evaluation was that the action “May Affect Likely to Adversely Affect, but not likely to Jeopardize” the continued existence of the threatened bull trout and will not result in “Adverse Modification of the Proposed Critical Habitat” within the Columbia River drainage. The U.S. Fish and Wildlife Service issued a Biological Opinion on June 5, 2009.
  - A Biological Assessment (BA) was submitted to U.S. Fish and Wildlife Service for the projects’ effects on lynx. The BA’s “Not Likely to Adversely Affect” determination was concurred with by the Service and they proposed no additional requirements or analysis.

## 2.3 Issues

Public comments were reviewed to identify public concerns and issues relative to the Proposed Action. These comments were summarized in the Content Analysis of Public Scoping, which is located in the Project File.

## **Key Issues**

The development of the following “key” resource issues and associated indicators helps to identify concerns and questions from which assessment methods are used to provide meaningful information to assist in making sound decisions. These issues and resultant indicators are derived from previous assessments, public concerns, and specialist input resulting from public scoping, field tours, and interdisciplinary meetings. They are the basis for alternative development or are important factors for comparing effects of alternatives.

### **Water Quality and Aquatic Habitat**

All of the watersheds within the analysis area have been influenced by human activities with varied impacts, although most of the South Fork of Lolo Creek has remained undeveloped, except for the lower reach. Human-related influences on water resources include wildland fire suppression, timber harvesting, roads, mining, and grazing, which in turn have impacted streams, riparian areas, fisheries, and aquatic organisms. Fisheries have been additionally impacted by influences outside of the assessment area.

There are extensive road networks and crossings throughout the analysis area, and project area streams have some degree of fish habitat fragmentation from road crossing culverts. Streams in the project area contribute surface flow to listed “water quality limited” stream segments as determined by the MT Department of Environmental Quality due to elevated levels of sediment produced by the area’s road system. Water yield increases above natural have been a concern in the past. Management actions proposed in this project may affect water quality and aquatic habitat.

**Objective:** Increase the amount of suitable and accessible aquatic habitat in West Fork Butte Creek.

#### **Management Indicators:**

- number of fish barriers removed or replaced
- miles of habitat made available

**Objective:** Reduce existing and potential road sediment delivery influences on water quality and habitat conditions.

#### **Management Indicators:**

- miles of road closed or decommissioned within 300 feet of stream courses
- number of stream crossings removed
- modeled sediment production (tons/10 years) relative to natural conditions

**Objective:** Reduce the effects that roads have on stream and floodplain structure and function, wood recruitment, and shade to streams.

#### **Management Indicator:**

- road density (includes all roads in analysis area)(mi/mi<sup>2</sup>)

**Objective:** Assure that the result of timber harvest remains within historic ranges of water yield and runoff relationships.

**Management Indicator:**

- modeled equivalent clear-cut acreage relative to natural conditions and water yield

**Roads**

There are approximately 6,000 miles of roads on the Lolo National Forest. Annual funding for road maintenance is such that only 600 to 900 miles of those are maintained annually. Not all of the roads on the Forest need annual maintenance, however, road maintenance funding has significantly dropped over the last five to ten years resulting in the desire to decommission unneeded road systems.

**Objective:** Close/decommission as many miles of unneeded road as possible to reduce resource impacts while maintaining a road system that will meet current and expected recreation, administrative, and fire protection needs. Reduce the deferred maintenance need of roads.

**Management Indicators:**

- miles of existing road brought up to BMP standards
- miles of National Forest system and non-system (“unclassified”) roads in the analysis area decommissioned under the Butte Lookout Project
- miles of National Forest system road available for public and administrative access via standard highway vehicles
- miles of National Forest system road available for only administrative access via standard highway vehicles
- road density (includes all roads in analysis area) (mi/mi<sup>2</sup>)

**Site Productivity/Forest Health**

Extensive acreages of lodgepole pine within the drainage have developed stand characteristics that have led to a large-scale epidemic of mountain pine beetle. Mountain pine beetles have killed many acres of trees within the drainage and the epidemic shows no sign of slowing. The likelihood of large-scale fire will increase significantly over the next few decades as fuel begins to accumulate with increased insect and disease activity. Past large fires and timber harvest have not changed the landscape vegetative pattern sufficiently to reduce the potential scale of this epidemic. The vegetation management activities proposed in this project may affect site productivity, forest health, vegetative condition, and species composition.

**Objective:** Reduce the risk of bark beetle infestations in lodgepole pine and ponderosa pine stands.

**Management Indicator:**

- acres with reduced risk rating as measured by reduced stand basal area and reduced host species composition

**Objective:** Improve forest health by increasing the representation of western larch and ponderosa pine.

**Management Indicator:**

- acres with increased representation of western larch and ponderosa pine

**Objective:** Maintain or improve the structure, composition, and function of the landscape.

**Management Indicator:**

- acres with improved condition class

**Wildlife Habitat**

Fire exclusion in mixed severity fire types has changed the arrangement and distribution of wildlife habitat within the project area. Mid-to late-seral stands are present on over half of the area. This distribution does not provide conditions favorable to wildlife species diversity nor does it represent optimal habitat conditions for some species we are concerned about including lynx and elk.

Fire has been generally absent since at least 1910, and what shrubs are present in stands that have not been mechanically treated have grown very tall, have little vigor, and produce limited palatable ungulate forage. Further, the heterogeneous vegetative conditions created by mixed severity fire including patchy understories and pockets of fire-scarred and fire-killed trees have been largely lost. Finally, recruitment of old growth Douglas-fir and larch stands may be compromised by unnaturally dense forests which result in stand-replacement rather than mixed severity fires.

The proposed vegetative treatments (including burning) in this project would affect wildlife habitat by increasing structural heterogeneity, opening canopies and understories in portions of the area and creating patches of fire-scarred and fire-killed trees. These treatments are intended to mimic what would have historically occurred in mixed severity fire types. Wildlife habitats affected include: lynx foraging habitat, goshawk nesting and foraging habitats, cavity nesting bird habitat, and big game forage.

**Objective:** Maintain or improve habitat conditions within Lynx Analysis Units (LAU).

**Management Indicator:**

- change in acres of suitable lynx habitat and protection or recruitment of high quality lynx foraging habitat

**Objective:** Maintain or improve goshawk nesting and foraging habitat.

**Management Indicators:**

- change in acres of homogenous, lodgepole-dominated stands with limited structural diversity at the stand and watershed scales to more heterogeneous conditions which increase habitat values for sever species
- protection of known goshawk nest stands and change in acres of stands meeting goshawk nesting habitat criteria according to Samson (2006)

**Objective:** Maintain or increase the number of large, high quality snags and other old-growth related stand characteristics within the analysis area.

**Management Indicators:**

- acres treated to reduce the probability of stand-replacing fire (maintains mixed severity fire regime)
- acres of underburning in mixed severity fire types

**Objective:** Improve the condition and arrangement of big game habitat (forage, hiding, and security cover).

**Management Indicators:**

- change toward meeting desired forage/hiding cover ratio
- miles of road closed or obliterated (improves wildlife security)
- acres of under-burn and ecosystem maintenance burning completed
- miles of long-term road construction (may impact wildlife security)

**Other Issues:** The following internal and public concerns are important and were considered in the analysis of key issues; however, they were determined not to be “key” issues that would drive alternatives. Some are already addressed through other processes or in the Forest Plan (see “Features Common to All Action Alternatives” in Chapter 2), some are analyzed in Chapter 3, or their resolution is beyond the scope of this project. The other issues include concerns about the proposed project on:

- scenic values
- economic values
- biodiversity
- noxious weed infestations
- threatened, endangered, and sensitive plant species and species viability
- soil productivity
- cultural resources
- recreation
- air quality

## 2.4 Alternatives Considered In Detail

### Alternative Design

The alternatives were designed to be economically viable so that the resulting project could be feasibly implemented within a decade. Proposals have to be either paid for by the timber revenue or through appropriated funding. An economic analysis was conducted for each action alternative to determine the monetary value associated with the commercial vegetative proposals. After ensuring the funding of all required post-harvest activities and required management requirements (including application of road BMPs on haul routes within the project area), not all of the identified improvement opportunities could be afforded and they are separated out in the alternative descriptions and described as activities that would be done if additional funding became available.

All of the opportunities were prioritized in terms of their benefits, with emphasis on the aquatic resource. Within the context of aquatic benefits, the “biggest bang for the buck” opportunities were rated highest. When it came down to final decisions about what opportunities were included in the alternatives, those benefiting fisheries rated at the top because cold water trout fishery was listed as the impaired beneficial use for West Fork Butte Creek (Montana DEQ, date) at that time.

Future bid values and the timber market are uncertain. To cover the possibility that bid values would be higher than expected and more funding was available, priority beneficial watershed projects totaling an additional \$362,000, above the predicted high bid value, were included in the proposals for both Alternatives 4 and 5.

Because these opportunities (which are solely associated with road improvements and culvert replacement) are over and above what may be afforded, they are analyzed separately in the Hydrology and Fisheries sections in Chapter 3 to display the potential effects if this additional work were accomplished. See the detailed alternative descriptions below for the discussion of these additional activities.

#### **Features Common to Both Action Alternatives (Alternatives 4 and 5)**

Certain elements are common to the development of all action alternatives. See the end of this chapter and the Project File (individual resource sections) for management requirements.

**Inventoried Roadless Areas:** No alternatives propose any physical activities within inventoried roadless areas.

**Botanical Areas:** These areas, which are included in Management Area 6 in the Lolo Forest Plan, contain examples of vegetation unique or limited to the area of concern. In the Butte Lookout project area there is one 30-acre Botanical Area called Mary’s Frog Pond. This area is across Marshall Creek from unit 35 below the Elk Meadows Road. No activities are proposed in or near this Management Area so this resource will not be discussed further in this document.

**Minerals:** There is no leasable or saleable mineral activity within the proposed project area. The locatable mineral status consists of five active mining claims, all located south of any proposed harvest activity. Based on a search of the Bureau of Land Management LR2000 database conducted on December 17, 2007, three claims are located in the SE  $\frac{1}{4}$ , Section 21, T. 11 N., R. 22 W., and two in the SW  $\frac{1}{4}$ , Section 22, T. 11 N., R. 22 W. No Notice of Intent or Plan of Operations have been submitted on these claims; therefore, no significant ground disturbing activity is currently authorized. The result of the LR2000 database query of closed and active mining claims located within the project boundary is included in the Project File (Recreation, Range and Minerals section). All alternatives would have no effect on minerals; and thus, this resource will not be discussed further in this document.

**Heritage Resources:** The project area has been surveyed for heritage resources, and no alternative would adversely affect any known cultural resource site. Should any new sites be discovered during project implementation, activities would be modified, moved or deleted with Forest archaeologist consultation to protect the resource (in addition to consultation with MTSHP and the Confederated Salish Kootenai Tribe).

**Environmental Justice:** On February 11, 1994, President Clinton issued an “Executive Order on Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” [Executive Order 12898 (full text on file at the Lolo National Forest Supervisor’s Office)]. This Executive Order is primarily concerned with disproportionate effects on minority or low-income populations.

The Interdisciplinary Team has determined that the proposed actions would have environmental effects as disclosed in the EIS. Therefore the project must undergo screening for disproportionate effects on minorities and low-income populations. Neither internal nor external scoping identified disproportionate effects on minority or low-income populations. Environmental Justice will not be discussed further in this document.

**Range:** In 2008 the South Fork East Fork Cattle Grazing Allotment, about 10,000 acres of which lies within the analysis area, was terminated; therefore all alternatives would have no effect on range or cattle grazing. This resource will not be discussed further in this document.

### **Detailed Alternatives Descriptions**

#### **Alternative 1 – No Action**

Under this alternative, no vegetation treatments, road work, or watershed restoration activities would occur. Standard protection and maintenance activities (such as road surface stabilization, fire suppression, and access management) would continue under current management direction. Federal actions that were previously analyzed and disclosed under separate environmental analysis and decision documents would continue. Refer to Appendix C for list of Past, Present, and Reasonably Foreseeable Future Actions. Refer to maps in Appendix B, documents b-16, b-17 and b-18.

#### **Proposals Included in Both Action Alternatives (Alternatives 4 and 5)**

- Decommission about 5 miles of road using timber sale revenue following use for harvest (see Table 1). Decommissioning means that the roads would no longer function as roads and would be officially removed from the system for at least 20 years. Decommissioning applies mitigation to reduce road-related impacts to other resources. The amount of work done depends on the closure level (for instance, NFSR 17144 would be ripped, one culvert (c-3) would be removed, and water-bars would be installed). Place about 0.6 miles of NFSR 2175 in storage. Placing this road in storage means that one culvert (c-2) would be removed and the road would be retained on the Forest system roads inventory in long-term storage (up to 20 years).

**Table 1 Proposed Road Decommissioning and Storage Using Timber Sale Revenue**

<b>NFSR</b>	<b>Segment</b>	<b>Mileage</b>	<b>Closure Level</b>	<b>Closure Type</b>
2175	159B	0.45	3D (modified)	Decommission
2175	113	0.42	3D (modified)	Decommission
16088	89A	0.59	4	Decommission
16088	89B	0.20	4	Decommission
17144	179B	1.15	3D (modified)	Decommission
33170	114	0.42	5	Decommission
33188	182A	0.06	5	Decommission
33188	156	0.03	5	Decommission
33193	148A	0.75	5	Decommission
33193	148B	0.30	5	Decommission
<b>TOTAL:</b>		<b>4.37</b>		
2175	159C	0.63	3S	Storage

The table above includes both NFSR and HIR roads. It also includes roads that are tributary roads to existing roads that would be used for timber hauling which will be decommissioned.

- Replace the undersized culvert (culvert #971) at the West Fork Butte Creek crossing, NFSR 451, with a crossing structure that meets current Forest Service direction (i.e., new structure will follow “stream simulation” technology; therefore, providing for aquatic species passage and accommodation of the 100-year flood discharge without backwater conditions). Remove one culvert at the West Fork Butte Creek tributary located on the north side of the watershed (culvert #880).
- Narrow about 2 miles of NFSR 451 from 20 feet to 16 feet.
- About 0.5 miles of temporary road may need to be built during timber sale operations. These short (200-500 ft.) segments would be used for a period of one year or less and then obliterated.
- If additional funding for road work becomes available, decommission about 7 miles of system roads, 10 miles of historic (HIR) roads, and 12 miles of jammer roads, and replace 2 culverts each at Cooper and Marshall Creeks (culvert #s 902 and 874 and culvert #s 899 and 1468, respectively). Remove culvert #906 on NFSR 2174 where it crosses a tributary of Cooper Creek. This additional road maintenance work is analyzed separately in the Hydrology and Fisheries section to display the potential effects if this work were accomplished.

#### **Alternative 4 – Proposed Action**

- Improvement cut and/or under-burn about 67 units totaling about 1,353 acres and ecosystem maintenance burn one 109-acre unit.
- Build approximately 1.7 miles of road to Forest Service standards (0.7 miles of short-term specified road and about 1 mile of permanent road).
- Replace one culvert (c-1) on NFSR 16726 so that it accommodates 100-year flood discharge.
- Install BMP measures such as check dams in ditches, sediment basins, additional ditch relief pipes, lined ditches, and other surface drainage devices on about 40 miles of system roads.

Vegetation treatments are summarized for Alternative 4 in Table 2 below. See Appendix A, Table A-1 and the map in Appendix B, document b-17 for the detailed vegetation treatment proposals for Alternative 4. Total timber volume for Alternative 4 is estimated to be about 6.8 million board feet (MMBF).

Table 2 Vegetation Treatments Summary – Alternative 4

Equipment Type	* Treatment Method (acres)			
	IMC &/or ILP	IMC &/or ILP/GTS/VRH	EMB only	Total
<b>Tractor</b>	131	125	---	256
<b>Skyline</b>	446	181	---	627
<b>Helicopter</b>	150	320	---	470
<b>EMB only</b>	---	---	109	109
<b>Total</b>	<b>727</b>	<b>626</b>	<b>109</b>	<b>1,462</b>

\* Treatments are described in more detail in Appendix A

IMC = Improvement Cut Mixed Conifer  
 ILP = Improvement Cut Lodgepole Pine  
 GTS = Group Tree Selection  
 VRH = Variable Retention Harvest  
 EMB = Ecosystem Maintenance Burn

Table 3 and Appendix A, Tables A-4 and A-5 provide a summary of access management proposals for Alternative 4 and Appendix B, document b-17 displays Alternative 4 road work proposals.

Table 3 Access Management – Alternative 4

Access Management	Miles (approx. <sup>1</sup> )
Long-term (i.e., Permanent) Road Construction	1
Short-term Specified Road Construction	0.7
Road Maintenance and Improvements on Haul Routes	40
Road Decommissioning	5
Road Storage	0.6
Road Decommissioning, if funding is available	29

<sup>1</sup> These figures are approximations because when activities are laid out on the ground, slight variations occur. These figures are based on the more precise figures provided in the Transportation reports for this document.

**Alternative 5 - Preferred Action**

- Improvement cut and/or underburn about 62 units totaling about 1,274 acres, and ecosystem maintenance burn 4 units totaling 166 acres.
- Build approximately 0.9 miles of road to Forest Service standards (0.7 miles of short-term specified road and 0.2 miles of permanent road).
- Install BMP measures such as check dams in ditches, sediment basins, additional ditch relief pipes, lined ditches, and other surface drainage devices on about 27 miles of system roads that would be used for timber haul.

Vegetation treatments are summarized for Alternative 5 in Table 4 below. Appendix A, Table A-1 and Appendix B, document b-18 display the detailed vegetation treatment

proposals for Alternative 5. Total timber volume for Alternative 5 is estimated to be about 6.4 million board feet (MMBF).

Table 4 Vegetation Treatments Summary – Alternative 5

Equipment Type	* Treatment Method (acres)			
	IMC &/or ILP	IMC &/or ILP/GTS/VRH	EMB only	Total
<b>Tractor</b>	103	65	---	168
<b>Skyline</b>	395	124	---	519
<b>Helicopter</b>	150	437	---	587
<b>EMB only</b>	---	---	166	57
<b>Total</b>	<b>648</b>	<b>626</b>	<b>166</b>	<b>1,440</b>

\* Treatments are described in more detail in Appendix A

IMC = Improvement Cut Mixed Conifer

ILP = Improvement Cut Lodgepole Pine

GTS = Group Tree Selection

VRH = Variable Retention Harvest

EMB = Ecosystem Maintenance Burn

Table 5 and Appendix A, Tables A-4 and A-5 provide a summary of access management proposals for Alternative 5. Appendix B, documents b-12 and b-18 display Alternative 5 road work proposals.

Table 5 Access Management – Alternative 5

Access Management	Miles (approx. <sup>1</sup> )
Long-term (i.e., Permanent) Road Construction	0.2
Short-term Specified Road Construction	0.7
Road Maintenance and Improvements on Haul Routes	27
Road Decommissioning	5
Road Storage	0.6
Road Decommissioning, if funding is available	29

<sup>1</sup> These figures are approximations because when activities are laid out on the ground, slight variations occur. These figures are based on the more precise figures provided in the Transportation reports for this document.

### Timing of Activities

Based on discussions with my staff and timber industry representatives, current market conditions do not support the implementation of helicopter logging at this time. During contract preparation, the decision to include or drop the helicopter units in this project from implementation will be made after a comprehensive appraisal is completed. It is likely these units will become optional, will not be included in the contract, or will be included in a separate timber sale contract for helicopter yarding. Harvest activities would most likely also include a few separate small sales. These small sales would mostly contain nonsawtimber material (e.g., posts, poles, and pulp) with small amounts of sawtimber. Because some the road work included in the selected alternative would be included in the timber sale contract, it would be accomplished during the same period as the timber harvest or within a few years following completion of harvest. The road maintenance and improvement activities would be accomplished prior to and during

harvest work. Most road closure activities, except those required for mitigation, would be accomplished a few years following the harvest to allow for completion of post-sale work. These activities could begin as soon as the Record of Decision is signed and, while the majority of the activities would likely occur within 3 to 5 years, some could continue for a seven to ten year period.

The burn-only units would be treated in some cases concurrently with the harvest units or could be treated separately. It is expected that all proposed burning could be accomplished in a ten year period. The accomplishment of burning these acres would depend on weather, airshed constraints, and funding. The noncommercial vegetation treatments could be accomplished at any time within the decade following signature of the Record of Decision, depending on available funding.

## 2.5 Alternatives Considered But Eliminated From Detailed Study

As discussed in Section 1.1, the Butte Lookout Project has been studied intermittently over a fair amount of time and has included numerous iterations of alternatives throughout its history. For instance, four alternatives were developed prior to 2000 before the project area size was decreased, other refinements were made, and the Responsible Official decided to prepare an EIS. These alternatives were modified during the review of internal and public feedback and several variations, which included Alternatives 2 and 3, were considered by the Interdisciplinary Team. In 2007, many proposed treatment units were dropped from further study after additional field reconnaissance revealed that they were not economically viable. Additionally, some treatments were modified due to their location within lynx habitat, in accordance with the Lynx Conservation Strategy; and one unit was dropped due to the presence of a goshawk nest. These changes resulted in the two action alternatives studied in detail in this EIS (i.e., Alternatives 4 and 5)

Of the various alternatives considered throughout the evolution of the analysis, the following two alternative themes were considered but eliminated from detailed study after further assessment. Refer to the Project File, Process Documentation section for more information.

### **Restoration without Commercial Timber Harvest**

One alternative theme that was considered in response to public comments, but not fully developed into an alternative was *'restorative road work without commercial timber harvest'*. In response to a comment on the DEIS, which again requested the full analysis of an alternative that includes only "road removal to reduce road densities and culvert upgrades and replacements that maintain or aid successful fish passage", additional discussion is included in the FEIS and below which addresses the reasons why additional analysis of this alternative is not needed.

NEPA directs federal agencies to "...evaluate all reasonable alternatives" (40CFR 1502.14(a)). Reasonable alternatives fulfill the purpose and need, address significant issues, and can be implemented. One of the reasons this alternative was eliminated from detailed study was because it would not effectively achieve the purpose and need by reducing the risk of fire and insect infestations, much of which can be accomplished

through commercial timber harvest. Eliminating active vegetation management (including the use of commercial harvest), would also not meet the purpose and need for increasing the area's ecological resiliency or improving wildlife habitat.

The Forest Plan management direction for the Butte Lookout project area provides for a long-term strategy of timber management (see FEIS page 34, MA 16). Alternatives 4 and 5 addressed identified needs of the vegetative component by using the range of silvicultural "tools" available, including timber harvest and prescribed fire. The effects of implementing no commercial harvest on vegetation, fire and fuels, and wildlife are discussed in detail in the environmental consequences of the no action alternative in those respective sections of the FEIS.

In order to meet the project's objective of developing a diverse mix of vegetative composition and structure that would reduce the risk of significant bark beetle infestation and sustained high intensity wildfire, the use of both commercial timber removal and prescribed fire is needed. As discussed in research by Allen (2002), it is impractical to attempt to use prescribed fire in overly dense sawlog-sized live stands without first removing "excess" trees. Achieving understory brush and conifer removal objectives while protecting the overstory is much more difficult under a closed canopy. A fire hot enough to obtain understory objectives can quickly increase to intensities that cause unacceptable levels of overstory tree mortality.

Closed canopy stands present difficult prescribed burn conditions. The shading effects of a closed canopy cause ground level fuels to retain moisture later into the spring. When the fuel bed is sufficiently dried, the fuel bed conditions are dry across much larger areas than the targeted treatment area. This makes control of the prescribed fire much more difficult and costly. In many years, by the time the fuel bed dries to prescribed burn parameters, the associated live understory vegetation has greened (increased fuel moistures from leaf emergence) to a point that greatly hinders fire spread.

A closed overstory tree canopy also retards the beneficial effects of wind. Wind is needed to carry a prescribed fire across the target area, rapidly transport heat through the canopy, and disperse smoke. Eliminating commercial harvest from treatments proposed for the area would result in an accumulation of total basal area over time (Barbour 2001) because trees 6 inches DBH and larger would not be removed by timber harvest, and most trees over 5 inches DBH would not be removed by prescribed fire. This would create and maintain densely stocked stands of uniform sized trees that are at high risk of further bark beetle infestations (Barbour 2001), and fail to restore forest health or reduce the risk of stand-replacement wildfires in the project area (Fiedler 2001).

Further, sites with mechanical fuel treatment appear to have more dramatically reduced fire severity compared to sites treated with prescribed fire only. Forests with much lower density and larger trees have less continuous crown and ladder fuels, crowns higher off the ground, and thicker bark resulting in lower potential for crown fire initiation and propagation and for less severe fire effects (Pollet 1999). The reduction of crown fuels outweighs any reduction in surface fire hazard because crown fire propagation is dependent on the abundance and horizontal continuity of canopy fuels (Omi 2001).

This alternative would not adequately address the vegetation and fire components of the purpose and need because it would fail to improve vegetative conditions, increase the area’s ecological resiliency to large and intense disturbances, or maintain or improve wildlife habitat conditions. Ecological sustainability requires the restoration of process as well as structure (Stephenson 1999, Arno 1996). Fire regimes and stand structures interact and must be restored in an integrated way. Fire alone may be too imprecise or unsafe in many settings, so a combination of treatments is often the safest and most certain restoration approach (Allen 2002).

This alternative was not considered in detail because the effects of implementing the proposed watershed and road-related activities are already thoroughly discussed throughout the analysis of both action alternatives, and the Responsible Official has the latitude to select a modified version of either alternative (i.e., the decision could select only the road decommissioning and storage and culvert replacement and removal work from either alternative and not any commercial vegetation treatments). Both action alternatives displayed in detail, were designed to respond to the aquatic restoration needs within the project area by improving watershed conditions and aquatic habitat through incorporating road-associated work. While the action alternatives include more watershed and road-related restoration work than can be funded by the project’s proposed commercial harvest component, including this additional work in this analysis will allow us to implement these activities when we are able to secure additional funding.

Because an analysis of the effects of the “funded work” and “as funded” work are discussed for each resource (as described below), analyzing a separate alternative that includes just the watershed and road-related restoration work would simply duplicate existing discussions.

Table 6 Analysis of Watershed and Road-related Restoration Work

Resource	Discussion of Watershed and Road-related Restoration Work	Refer to
Hydrology and Fisheries	Separates analysis of funded and as funded watershed and road-related restoration work and outlines specific work.	DEIS pages 146-158 Tables 50,51,52,53 Figure 4
Wildlife	Discussion of effects in general terms as related to analysis of impacts such as: response to noise or human activity during project implementation (e.g., heavy equipment operation); and habitat modification (e.g., security)	DEIS pages 63 – 123
Visual Quality	Separates discussion of road and culvert replacement work from other components of action alternatives	DEIS pages 212 - 213
Threatened, Endangered and Sensitive Plants	Separates discussion of road and culvert replacement work, relative to potential impacts to plant habitat, from other components of action alternatives	DEIS page 221
Recreation	Separates discussion of road and culvert replacement work, relative to potential illegal OHV use, from other components of action alternatives	DEIS page 224
Noxious Weeds	Discussion of effects relative to the amount of this work performed	DEIS pages 228-229
Range	Discussion of effects relative to the amount of this work performed	DEIS page 231
Economics	Disclosure of economic impacts or costs of those watershed and road-related activities that would be funded through selling timber and those that would be funded using other sources	Tables 105 and 106 (DEIS page 268) and Table 87 (DEIS page 238)
Transportation	Discussion in terms of the effects on access management and	DEIS pages 252-268

Resource	Discussion of Watershed and Road-related Restoration Work	Refer to
System	the implementation of long-term road mitigation. Discussion separates those effects that would result from implementing the road activities related to the sale of timber versus those that would require additional funding.	
Soils	The watershed and road-related restoration activities by themselves would have little or no effect on this resource (see Hydrology and Fisheries)	DEIS page 177; analysis of the no action alternative
Fire and Fuels	The watershed and road-related restoration activities by themselves would have little or no effect on this resource (see Transportation System)	DEIS pages 196 – 197; analysis of the no action alternative

### Economic Efficiency Alternative

This alternative was developed to respond to concerns regarding the high costs of treating many of the units in the project area. It included eliminating harvest units requiring helicopter or skyline yarding systems. New roads would be built and only units that could be yarded using ground-based systems would be harvested. Activities would be focused in older, more decadent lodgepole pine stands which are most at-risk. These stands may or may not have included old-growth.

This alternative was eliminated because it included extensive road building to access the timber on the west side of West Fork Butte Creek. Many of these roads would have had to be built across several deep draws and would have been expensive and difficult to construct. In order to maximize cost effectiveness, this alternative did not include watershed improvement efforts. These features of this alternative did not meet the purpose and need of managing the area's road system to reduce sediment and improving, maintaining and enhancing water quality and aquatic habitat. Additionally, treating old-growth has been marked by controversy in the past, and planning and designing projects that never get implemented, due to litigation or appeal, is costly.

## 2.6 Comparison of Alternatives

Although Chapter 3 presents a detailed discussion of the environmental effects of the alternatives, this chapter includes Table 7 which summarizes the effects of the alternatives. Each alternative is evaluated for its effects on the resources based on the key issues. Issue indicators, as discussed earlier in this chapter, are the parameters used to measure the effects of each alternative on the resources emphasized by the issue.

Table 7 Summary of Effects by Alternative as Measured by Issue Indicators

Issue and Indicator	Alternative 1 No Action	Alternative 4 Proposed Action	Alternative 5 Preferred Alternative
<b>Water Quality and Aquatic Habitat</b>			
Number of fish barriers removed or replaced	0	2	2
Miles of habitat made available	0	9.25	9.25
Miles of roads closed or decommissioned within 300 feet of stream courses	0	0.6 1.8 <sup>1</sup>	0.6 1.8 <sup>1</sup>
Number of stream crossings removed	0	3	3
Modeled sediment production (tons/10 years) relative to	492	346	378

<b>Issue and Indicator</b>	<b>Alternative 1 No Action</b>	<b>Alternative 4 Proposed Action</b>	<b>Alternative 5 Preferred Alternative</b>
natural conditions		-74 <sup>1</sup>	-74 <sup>1</sup>
Modeled equivalent clear-cut acreage relative to natural conditions and water yield	5%	9%	9%
<b>Roads</b>			
Miles of existing road brought up to BMP standards	0	35.86	22.80
Miles of National Forest system and non-system ("unclassified") roads in the analysis area decommissioned under the Butte Lookout Project	0	29.17	29.17
Miles of National Forest system road available for public and administrative access via standard highway vehicles	15.69	15.69	15.69
Miles of National Forest system road available for only administrative access via standard highway vehicles	47.15	38.84	38.08
Road density (includes all roads in analysis area) (mi/mi <sup>2</sup> )	5.46	4.89 3.44 <sup>1</sup>	4.85 3.40 <sup>1</sup>
<b>Site Productivity/Forest Health</b>			
Acres with reduced risk rating as measured by reduced stand basal area and reduced host species composition	0	1462	1440
Acres with increased representation of western larch and ponderosa pine	0	1462	1440
Acres with improved condition class	0	1462	1440
<b>Wildlife Habitat</b>			
Change in acres of suitable lynx habitat and protection or recruitment of high quality lynx foraging habitat	0 suitable 0 forage (may improve over time)	0 suitable 1353 forage (May improve over time)	0 suitable 1274 forage (may improve over time)
Change in acres of homogenous, lodgepole-dominated stands with limited structural diversity at the stand and watershed scales to more heterogeneous conditions which increase habitat values for several species	0	1353 commercial thin (704 of 1353 underburned) 109 ecoburn 1462 total	1274 commercial thin (668 of 1274 underburned) 166 ecoburn 1440 total
Protection of known goshawk nest stands and change in acres of stands meeting goshawk nesting habitat criteria according to Samson (2006)	1 known nest 0 acres affected	1 known nest buffered (100 acre stand excluded from treatment) No old-growth stands (1348 within code HUC treated)	Same as Alternative 4
Acres treated to reduce the probability of stand-replacing fire (maintains mixed severity fire regime)	0	1462	1440
Acres of underburning in mixed severity fire types	0	704	668
Change toward meeting desired forage/hiding cover ratio	0	1462 with potential to improve forage (hiding cover not reduced)	1440 with potential to improve forage (hiding cover not reduced)
Miles of long-term road constructed (may impact wildlife security)	0	1	0.2
Acres of underburn and eco-burn completed	0	813	834

<sup>1</sup> If funding for additional roadwork identified in Alternatives 4 and 5 becomes available

## 2.7 Management Requirements

The interdisciplinary team reviewed all potential treatments and identified management requirements and features that would eliminate, avoid, or reduce potential impacts associated with the treatments proposed in Alternatives 4 and 5. These items are an integral part of the action alternatives, and would be carried out during implementation and before the projects in this analysis are completed.

### Vegetation

Use standard timber sale contract clauses, which address resource and residual timber protection by requiring directional felling, pre-approved skid trails and landings, logs yarded with leading edge free of the ground, and skyline corridor spacing. These provisions shall be used to protect:

- ponderosa pine and western larch regeneration (or natural regeneration) during harvests
- aspen trees
- residual trees and snags

Protect the research study site directly upslope of units 3, 5, and 6 (permanent growth plot established in Butte Timber Sale unit 37 – stand 30904006).

Live or dead trees 19 inches diameter at breast height (dbh) and larger would not be designated for removal except where required for the safe and efficient conduct of logging (e.g., for skid trails, landings, or roads that cannot be located elsewhere).

No live old-growth trees, as defined by R1 Old Growth Criteria (Green 1992, 2005), shall be harvested or cut unless required by OSHA safety standards in an unavoidable instance (such as those described above). All live old-growth trees would be retained for biodiversity, legacy, and habitat in these landscapes.

Prescribed fire treatments should protect 80 percent or more of the target residual overstory in harvested and noncommercial units. Some activities that could be incorporated are:

- yarding tops to landing piles
- leave tree and snag protection
- slashing sub-merchantable (less than 5 inches dbh) seedlings, saplings, and pole timber

Silvicultural prescriptions would consider weed risk and prevention factors such as maximizing shade where feasible.

### Wildlife

To minimize the potential for wildlife species to become food habituated, food and garbage associated with all activities on this project should be stored in a vehicle or other bear proof container.

Retention of snags and large diameter trees is addressed in the vegetation section as well as by Forest Plan Standards. When possible, snags that must be felled to meet safety requirements should be cut at 15 feet or higher. This goal can be achieved when

a mechanical feller-buncher is used. Priority should be placed on snags greater than 20 inch dbh and when possible, landings should be located so that snags in this size class do not need to be felled for safety.

If nesting birds of local concern such as goshawks, pileated woodpeckers, flammulated owls, or black-backed woodpeckers are detected within the project area, the wildlife biologist would be contacted so that operations can be modified to provide adequate protection for these species. This may include addition of nest site buffers or the imposition of activity timing restrictions.

The wildlife biologist would coordinate with fire and silviculture personnel to ensure that retention of small diameter trees meets multiple resource needs during slashing and burning operations. In addition, the wildlife biologist would coordinate with fire personnel during burning to ensure that high quality, large diameter snags (especially larch and ponderosa pine) are protected.

### **Hydrology, Fisheries and Soils**

**Inland Native Fish Strategy (INFISH) Buffers:** INFISH riparian habitat conservation area (RHCA) buffers would be required on appropriate stream courses and wetlands (as described below). Boundaries of wetlands and RHCAs would be flagged prior to activities to exclude ground-based equipment and other activities.

#### **Category 1 – Fish-Bearing Streams:**

Interim RHCAs consist of the stream and the area on either side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or the outer edges of the 100-year floodplain, or to the outer edges of riparian vegetation, or to a distance equal to the height of two site-potential trees, or 300 feet slope distance (600 feet, including both sides of the stream channel), whichever is greatest.

#### **Category 2 – Permanently Flowing Nonfish-Bearing Streams:**

Interim RHCAs consist of the stream and the area on either side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year flood plain, or to the other edges of riparian vegetation, or to a distance equal to the height of the one site-potential tree, or 150 feet slope distance (300 feet, including both sides of the stream channel), whichever is greatest.

#### **Category 3 – Ponds, Lakes, Reservoirs, and Wetlands Greater than 1 Acre:**

Interim RHCAs consist of the body of water or wetland and the area to the outer edges of the riparian vegetation, or to the extent of the seasonally saturated soil, or to the extent of moderately and highly unstable areas, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance from the edge of the maximum pool elevation of constructed ponds and reservoirs or from the edge of the wetland, pond or lake, whichever is greatest.

#### **Category 4 – Seasonally Flowing or Intermittent Streams, Wetlands Less than 1 Acre, Landslides, and Landslide-Prone Areas:**

- The extent of landslide and landslide-prone areas
- The intermittent stream channel and the area to the top of the inner gorge

- The intermittent stream channel or wetland and the area to the out edges of the riparian vegetation.
- For Priority Watersheds, the area from the edges of the stream channel, wetland, landslide, or landslide-prone area to a distance equal to the height of one site-potential tree, or 100 feet slope distance, whichever is greatest.
- For watersheds not identified as Priority Watersheds, the area from the edges of the stream channel, wetland, landslide, or landslide-prone area to a distance equal to the height of one-half site potential tree, or 50 feet slope distance, whichever is greatest.

**BMPs for Forestry:** BMPs for forestry would be met as a minimum, including provisions of the Streamside Management Zone Law. All activities would comply with Lolo NF BMPs. Montana Department of Natural Resources and Conservation (DNRC) approval would be requested if variances to Montana BMPs are needed.

**BMP Timing:** Prior to timber haul, all BMP and associated Soil and Water Conservation Practices designed to control surface drainage from roads would be in place on road segments to be used and would be maintained to ensure functionality.

**BMP Inspection:** All BMPs would be inspected in accordance with monitoring requirements, which are typically at the end of each operating season to assure their ability to protect water quality during spring snowmelt runoff season. Additionally, all BMPs would be functional at the close of timber sale activities.

**Erosion Control Measures:** Erosion control measures (e. g., straw bales, wattles, silt fences, hydro mulching, etc.) would use only certified weed free products and where necessary and remain in place before and during ground disturbing activities. To ensure effectiveness, erosion control measures would remain in place and functional until disturbed sites (e. g., roads, culverts, landings, etc.) are stabilized, typically for a minimum period of one growing season after ground disturbing activity occurs. This would require regular inspection and may require maintenance. Additional inspections and maintenance would occur following high rainfall events and prior to fall and spring runoff to ensure their effectiveness.

**Slash Filter Windrows** (low-profile – 1-2 foot height maximum, mostly fine material):  
Slash filter windrows would be applied according to the following:

- Applied to all stream crossings on haul routes before blading, haul and other project activities are to occur in order to mitigate 85% or more of the effects of road blading and increased sediment from haul traffic.
- Installed on relief culvert outlets that are within 300 feet of a waterway.

**Stream Permitting:** Montana Streamside Protection Act 124 permits would be obtained for any activity that would disturb stream channels.

**Culvert Replacements:** Fish biologist or hydrologist would be notified prior to stream culvert removals, as appropriate, during road decommissioning and at all stream crossing replacements to allow them the opportunity to be present during these activities in order to oversee appropriate alignment and reshaping of the stream channel, bank-full width, floodplain, step-pools and grade control structures, transplants, etc.

**Wet Areas/Streams Encountered During Project Layout:** During project layout, field personnel would identify wet areas and/or stream channels, and notify appropriate water and/or fisheries specialist and botanist regarding any special management requirements that may be required (e.g., an appropriate no-activity buffer around these wet areas).

**Short-Term Specified Roads:** For the short-term specified roads, work would comply with all BMP standards. Work would be conducted during dry conditions, either naturally or via a clear water diversion to further minimize sediment impacts.

**Landings – Erosion Control and Operations:** Where soil erosion will or may potentially occur, appropriate BMPs would be applied to:

- eliminate or reduce erosion by keeping disturbance areas minimized and seeding and/or mulching as soon as possible
- detain sediment from traveling from the eroded area by employing low-profile windrows, straw bales, silt fence, waddles, or other sediment detention measures as necessary
- as soon as possible following the completion of harvest operation or slash disposal/burning (whichever occurs last), constructed landings would be ditched or sloped to permit water drainage or spread, scarified, seeded with an approved Lolo native seed mix, and covered with woody debris

**Winter Haul and Road Impacts:** If winter hauling is to occur, snow drainage holes (areas where drainage can flow through road-side snow berms and off the snow-packed road surface) would be designated prior to winter haul, and kept open throughout the duration of winter hauling.

**Temporary Roads:**

- Sediment buffering devices such as slash filter windrows would be installed below all fill slopes within 300 feet of streams.
- Will be ripped, recontoured, seeded, and have large wood scattered for cover within one season of completion of use (see photo below for expected wood distribution to landing, temporary roads, and decommissioned roads).

**Coarse Woody Debris:** Coarse woody debris would be kept on site to meet objectives for long-term soil productivity as specified within “Lolo National Forest Down Woody Material Guide”, 2006 (USDA 2006).

**Slash Dispersal on Disturbed Areas:** When possible, green slash would be scattered on all disturbed, scarified and ripped surfaces (e. g., skid trails, landings, decommissioned roads, etc.), as directed by the appropriate timber sale administrator. Figure 1 below displays typical site expectations for how a disturbed site should look following decompaction, seeding, and slash dispersal, as appropriate for the site.



Figure 1 Rehabilitated fire-line (typical disturbed

**Ground-Based Timber Operations (Non-winter):**

- **Timing:** Ground-based activities would be restricted to a dry operating season generally between June 15 and September 15, except for ground-based winter units.
- **Ground Condition/Slopes:** Tractor and/or skidder yarding would be limited to those areas with slopes less than 35 percent.

**Ground-Based Timber Operations (Winter):** The following units, which are located on more easily compactable soils, would be winter harvested:

- Units 9A, 17A, 22, 23, 27, 34, 43. Additional units may be winter-harvest at the timber sale purchaser's discretion.
- **Ground Conditions:** Ground-based winter activities must have at least 24 inches of settled snow or frozen ground conditions. Operations outside of the specified conditions may occur only on a case-by-case basis following consultation with Forest hydrologist and/or soil scientist.

**Burning Rehabilitation:** Following burning, burn pile areas would be ripped (if necessary), seeded, and covered with green slash and woody debris, as with landing areas.

**Skid Trails:** Skid trails would be water barred, green slash would be scattered across their surfaces and where appropriate, they would be ripped and seeded.

**Dust Abatement** such as MgCl would be used on Elk Meadows Road (NFSR 451) from its intersection with Highway 12 to its intersection with NFSR 19124 (about 6 miles) in order to reduce the impact of dust on water quality and to reduce wear and tear and road maintenance needs.

The effectiveness of management requirements and BMPs to protect water and fisheries resources is discussed in the Project File.

### **Fire, Fuels and Air Quality**

All prescribed burning would be conducted in compliance with State and Federal air quality standards.

- All prescribed burning generated by this project would be accompanied by an approved prescribed burn plan.
- Prescribed burning would be managed and conducted by Missoula RD Fire personnel.
- Prescribed burning ignition days would be regulated by ID/MT Airshed Group and Missoula County Air Quality Regulations for Airshed 3A and 3A/M to mitigate the smoke effects.
- Fire Management staff would generate public notice information just prior to burn days.
- Following timber harvest and prior to any prescribed burning, a weed inventory would be conducted to determine pre-or post-burn weed treatments and management requirements.

### **Visual Quality**

All slash piles visible from NFSR 451 in units 37, 38, 39, 40, 41, 42, and 43 would be removed as soon as possible after harvesting has been accomplished.

In units 37, 38, 39, 40, 41, 42, and 43, leave trees would be left in a random or patchy arrangement to mimic a more natural appearing vegetative pattern.

Leave between 10-20 % of the healthiest, and best-shaped understory trees scattered randomly across all units for vertical visual diversity.

### **Threatened, Endangered, and Sensitive Plants**

If plants of local concern, such as rare or sensitive plants or species of interest or species of concern, are detected within the project area, the Forest botanist would be contacted so that protective measures may be revised or newly prescribed. This could include addition of buffers or the imposition of activity timing restrictions.

### **Recreation**

Activity behind gates would be suspended for the first week of the general big game hunting season to provide hunter opportunity and non motorized hunting experiences.

Project related contractors would be prohibited from hunting, transporting hunters, discharging firearms, or transporting big game animals with vehicles within closed areas.

During project implementation, restrict wheeled traffic on Elk Meadows Rd. #451 from 6 p.m. Friday to 6 a.m. Monday with the gate at the snowmobile trailhead. Rd. #451 would remain closed to wheeled traffic beyond logging operations in Unit 43, 7 days a week.

Unit 43 will be the first unit cut and hauled when winter logging conditions are met.

Maintain Rd. #s 2136, 33186, and 33187 from the snowmobile parking area to where Rd. #33187 junctions with Rd. #451 as groomed snowmobile routes while winter logging operations are in progress. These roads are currently managed as B closures which are available to snowmobiling after December 1<sup>st</sup>. Because they were included in the State's groomed trail analyses, no further consideration is required by the State.

### **Noxious Weeds**

As described below, R1 Weed Prevention BMPs would be used to prevent or reduce the establishment and spread of noxious weeds in the project area.

Incorporate weed prevention into road layout and design. Whenever possible, do not locate new roads through weed infested areas.

Treat haul routes prior to entry and at project completion. Treatment diaries would be provided to the Ranger District.

Remove all mud, dirt, and plant parts from all off road equipment before moving into project area. Cleaning must occur off National Forest lands. This does not apply to service vehicles that stay on the roadway, traveling frequently in and out of the project area.

Clean all equipment prior to leaving the project site, if operating in areas infested with new invaders (Reference 12/07 Lolo NF Weed FEIS page 4, Weed List) as determined by the Forest Weed Specialist. Reference Contract Provision C 6.351# regarding new invasions.

Apply seed to all disturbed soil, except the travel way on surfaced roads. Follow 2003 Lolo National Forest Seeding Guidelines for detailed procedures and appropriate seed mixes. To avoid weed contaminated seed, each lot must be tested by a certified seed laboratory against the "All States Noxious Weeds List" and documentation of the seed inspection test provided.

Monitor and evaluate success of revegetation. Repeat as indicated by monitoring.

Minimize the movement of existing and new weed species caused by moving infested gravel and fill material. Borrow pits would not be used if weeds, listed in the 12/07 Lolo NF Weed FEIS page 4 are found on site.

Minimize sources of weed seed in areas not yet revegetated. If straw is used for road stabilization and erosion control, it must be certified weed and weed-seed free and tested by a certified seed laboratory against the "All States Noxious Weeds List" and documentation of the seed inspection test provided.

Do not blade roads or pull ditches where new invaders are found until after the infestation has been treated and the new invader controlled or eradicated. Refer to the list of New Invaders in the 12/07 Lolo NF FEIS page 4.

Maintain desirable roadside vegetation. If desirable vegetation is removed during blading or other ground disturbing activities, apply seed following the 2003 Lolo NF Seeding Guidelines for detailed procedures and appropriate procedures.

Reduce weed establishment in road decommissioning projects. Treat roads that are infested with weeds prior to decommissioning. Revegetate following 2003 Lolo National Forest Seeding Guidelines.

Retain shade to suppress weeds. Consider minimizing the removal of trees and other roadside vegetation during road construction, reconstruction, and maintenance, particularly on southerly aspects.

When practical, treat weeds on landings and processing sites prior to and following harvest activities.

Monitor for weeds after sale activity and treat as discussed in Appendix D.

## **2.8 Monitoring and Evaluation**

A project monitoring plan is provided in Appendix D. The specified monitoring is an integral feature of both action alternatives.