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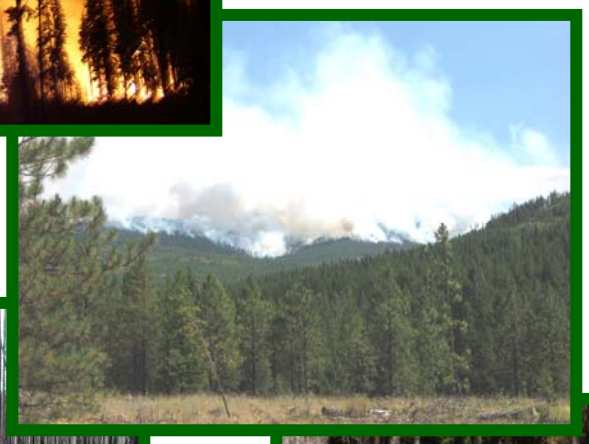
Forest
Service

October 2008

Record of Decision

Sheppard Creek Post-Fire Project

Flathead National Forest
Tally Lake Ranger District
Flathead and Lincoln Counties, Montana



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Flathead National Forest
Tally Lake Ranger District
Flathead and Lincoln Counties, Montana

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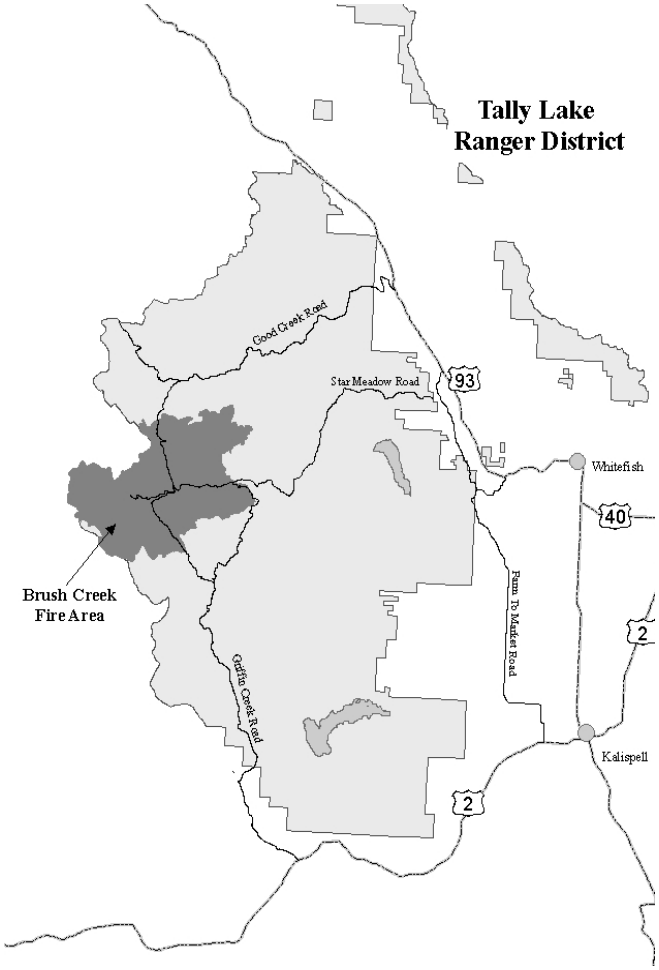
Summary of the Decision

After careful consideration of the potential impacts of the management activities analyzed and documented in the Sheppard Creek Post-Fire Project Final Environmental Impact Statement (FEIS) issued in September of 2008, I have decided to implement management actions as described below. In making my decision, I considered how each alternative meets the purpose and need for action while addressing each of the environmental issues, which will be described in the following sections.

Salvage activities will occur within the Brush Creek Fire area (Figure 1) on National Forest System (NFS) lands within the Tally Lake Ranger District of the Flathead National Forest. A summary of the actions in my decision include:

Figure 1. Vicinity Map



- Implement vegetation treatments from FEIS **Alternative B** with modifications. My decision will include:
  - salvage of fire-affected trees on approximately 3973 acres, and
  - planting trees within salvage units on 1545 acres.
- Implement the transportation management strategy in **Alternative B** with modifications. The modified strategy includes approximately 17.8 miles of temporary road construction; 11.8 miles of which are on historic road templates requiring minimal disturbance. No new permanent roads will be constructed and public motorized access will not change with this decision.
- Implement project-specific design criteria detailed in the FEIS on pages 2-3 through 2-12.
- Implement Appendix C, FEIS – Best Management Practices.
- Implement Appendix E, FEIS – Monitoring Plan for Wildlife, Fish, Soils, Water, and Vegetation.

Background and Project Area Description

The Brush Creek Fire burned a total of approximately 30,000 acres on the Flathead and Kootenai National Forests, Plum Creek Timber Company Lands, and a small amount of other private property. A lightning storm on July 26, 2007 ignited the fire which steadily grew in size for several weeks, finally being declared contained on August 26. Approximately 24,700 acres of the fire burned on lands administered by the Tally Lake Ranger District, Flathead National Forest. The majority of these acres burned in the upper reaches of the Sheppard Creek drainage (approximately 18,000). The Good Creek and Griffin Creek drainages were also affected by the fire.

Proposed activities for the Sheppard Creek Post-Fire Project (hereafter referred to as the Sheppard Creek Project) were developed by an interdisciplinary team (ID Team) and were based upon an evaluation of areas in and around those that burned in the Brush Creek Fire of 2007. The team that provided input for the project is made up of a variety of specialists (wildlife biologist, soil scientist, fisheries biologist, hydrologist, fire and fuel specialists, recreation specialist, botanist, transportation planner, archeologist, and silviculturist). The evaluation was conducted to better understand:

- the impact of the fire on the resources across the landscape;
- the existing condition of key resources within the area on a broader, landscape scale; and
- a range of desired future conditions using public involvement, current management direction, regulations, and laws.

The evaluation, consisting of resource specialist reports in the Project File, suggested management actions are appropriate at this time. The Proposed Action was then developed through interdisciplinary consideration of resource conditions.

Fire suppression and control activities employed a variety of methods, ranging from hand crew fireline construction to fire line construction using heavy equipment such as bulldozers and feller-bunchers. Approximately 60 miles of machine fire line were constructed on the Flathead National Forest side of the Brush Creek Divide. Some closed and impassable roads were reconstructed for firefighter access. Fire-killed trees along some roadways were felled for firefighter and public safety.

A Forest Service Burned Area Emergency Rehabilitation (BAER) team was assigned in August 2007 to determine emergency watershed rehabilitation needs created by the fire. Some of the needs identified in their analysis included insect control using pheromones, noxious weed control and monitoring, flood monitoring, trail erosion control, warning sign installation, culvert cleaning, and upgrading culverts. These actions began in late 2007 and continued into the summer of 2008.

All proposed activities are located within the perimeter of the Flathead National Forest's portion of the Brush Creek Fire with the exception of some road rehabilitation. The center of this area is approximately 20 air miles due west of Whitefish, Montana. The legal township locations for project activities include T30N, R25W; T30N, R26W; T31N, R25W; and T31N, R26W; Principal Montana Meridian, Lincoln and Flathead Counties, Montana.

Past wildland fire, timber management, insect epidemics, and personal-use firewood cutting have all changed the vegetation structure and composition on the landscape since the 1940s when active national forest management began. Prior to the Brush Creek Fire, about 38 percent of the project area was described as seedlings, saplings, or non-stocked stands; 16 percent were pole size stands; and 46 percent were stands larger than pole-sized. Although artificial regeneration in the form of tree planting has occurred, conifer species distribution was still very similar to that found prior to 1940.

Approximately 56 percent of the project area has experienced some type of timber harvest activity. Over 90 percent of the past timber harvest activities have been even-aged regeneration treatments. These types of treatments require the reinitiation of the forest either by planting or natural regeneration. Intermediate harvests have also occurred for salvage and thinning objectives.

The lightning strike that started the Brush Creek Fire occurred in an area of heavy fuels. These heavy fuels primarily resulted from insect-caused mortality in lodgepole pine and subalpine fir stands over the past twenty to thirty years. Dry fuels resulting from sparse seasonal rainfall and prolonged drought created extreme fire behavior, allowing the fire to escape initial suppression efforts. Periodic wind events and low relative humidity over the next four weeks, as well as heavy fuel loading, contributed to the fire spreading to nearly 30,000 acres. Fire suppression activities and higher humidity levels later in the summer allowed the fire to be contained and eventually controlled.

A further discussion of the pre-fire vegetation conditions and the Brush Creek Fire behavior and effects can be found near the beginning of Chapter 1 of the FEIS.

Purpose and Need for Action

The Flathead National Forest Land and Resource Management Plan provides direction for managing the Flathead National Forest. I considered the social, economic, and ecological conditions of the Sheppard Creek Project area to determine the purpose and need for management action. I have identified the following purpose and need for the Sheppard Creek Project:

Recover Merchantable Wood Fiber in a Timely Manner.

There is a need to manage forest products in a predictable and sustainable condition as it positively affects the local social environment. Timber production and land stewardship activities from the Tally Lake Ranger District contribute to the local economy by affecting employment and labor income in the surrounding impact area. The Forest Plan designates much of the Brush Creek Fire area as emphasizing cost-efficient production of timber while protecting the productivity of the land and timber resource.

Most of Flathead and Lincoln Counties are comprised of federal lands. Kalispell, Columbia Falls, Whitefish, Libby, Eureka, Rexford, and Troy were considered “Timber Specialized Communities” in a report by the U.S. Department of Agriculture and Department of Interior (1998). A large amount of the timber processed in the counties comes from federal lands.

Jobs and income associated with timber harvest and contracted land stewardship activities on the Flathead National Forest can help support local economies.

The tree species composition of the burned area is primarily mixed stands of live and dead lodgepole pine, Douglas-fir, and western larch at low to mid elevations and on south-facing slopes. The higher elevation forests, north-facing slopes, and riparian areas along streams are dominated by spruce, subalpine fir, and lodgepole pine. Some areas are nearly pure lodgepole pine. Minor quantities of other species such as western white pine, grand fir, cottonwood, and birch are scattered at low elevations.

The Sheppard Creek Project proposes to harvest burned timber in a timely manner to provide wood products to the local community while it is still economically feasible to do so. Timely recovery of wood fiber will support the economies of local and regional communities. Past experience with fire salvage in northwestern Montana indicates that so-called "whitewood species" such as spruce, subalpine fir, and lodgepole pine substantially deteriorate within a year or so after a fire. Salvage operations will need to begin in the winter of 2008/2009 to ensure economic utilization of the whitewood species.

Western larch and Douglas-fir resist both checking (splitting) and rot for a longer period of time, perhaps two or three years. However, because these more rot-resistant species are intermingled with whitewood species in the proposed project area, it is most cost-efficient to begin harvesting these species in late 2008 and early 2009 when harvest of the whitewood species is still economically feasible.

Public Involvement and Scoping

Public participation and scoping helps the Forest Service identify concerns with possible effects of its proposals. It is also a means of disclosing to the public the nature and consequences of actions proposed for National Forest Lands. 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).

A public involvement strategy was developed to ensure that potentially interested members of the public and other government agencies received timely information about the upcoming analysis so they may participate in the process (Project File Exhibit B-4). The Forest Service developed a list of members of the public and agencies who may be interested in the Sheppard Creek Project. This includes members of the public within these general categories:

- Adjacent landowners or residents
- County governments
- Local Congressional representatives
- Advocacy or user-group organizations
- Interested individuals and the general public
- Adjacent National Forests and Ranger Districts
- Other federal agencies
- Montana State agencies
- Local economic organizations
- Timber industry groups
- Local news media

In addition to the following public participation processes, the Sheppard Creek Project has been listed on the Flathead National Forest Schedule of Proposed Actions since April 1, 2008. Listing of the project on the January 1, 2008 schedule was precluded by a technical oversight (Project file Exhibit B-11). To date, the public has been invited to participate in designing the project in the following ways:

Public Field Tours: On November 7, 2007, a guided tour of the Brush Creek Fire area was hosted by Tally Lake Ranger District personnel. This tour gave interested citizens the opportunity to view the fire area, get a closer look at the fire effects and recovery, and visit with district employees about potential future management plans for the area. The tour was attended by about 55 individuals. Another field tour to the project area was hosted on June 13, 2008 to share information, answer questions, and accept comments for this project during the comment period on the Draft EIS. One individual attended.

Public Mailings: On December 14, 2007, a letter announcing the beginning of the public involvement process and detailing the Proposed Action was sent to approximately 165 individuals and organizations that had expressed interest in this type of project before or lived adjacent to NFS land in the project area. This letter invited comments on the Proposed Action. Comments were received from 18 members of the public.

A mailing on April 7, 2008 to those individuals and organizations that were on the initial scoping mailing list was made to request who would be interested in receiving a copy of the Draft EIS. Approximately 28 individuals and organizations were interested.

On May 15, 2008, copies of the DEIS in various formats were distributed to the 28 individuals and groups who previously expressed interest in receiving a copy. In addition, several federal agencies were notified of the DEIS's availability on the Flathead National Forest's internet web site or were sent a copy. A letter was also sent to approximately 175 other individuals, organizations, and government agencies announcing the availability of the DEIS. This letter discussed how to obtain a DEIS, how to comment, and announced the field tour on June 13. The comment period for the DEIS ended on July 1, 2008.

A mailing on September 2, 2008 to those individuals and organizations that had previously participated in the project's public participation process (approximately 45 entities) was made to request who would be interested in receiving a copy of the Final EIS. Approximately 17 individuals and organizations were interested.

On September 17, 2008, copies of the FEIS in various formats were distributed to the 17 individuals and groups who previously expressed interest in receiving a copy. In addition, several federal agencies were notified of the FEIS's availability on the Flathead National Forest's internet web site or were sent a copy. A cover letter for the FEIS discussed specifics of the Chief's Emergency Situation Determination for this project.

Federal Register Notices: A Notice of Intent to prepare an environmental impact statement was published in the Federal Register on December 14, 2007. A Notice of Availability for an environmental impact statement was published in the Federal Register on May 16, 2008 for the Draft EIS and again on September 26, 2008 for the Final EIS.

Public Meetings: The public was invited to review the Proposed Action at an open house at the district office in north Kalispell on January 9, 2008 which was attended by 17 people. Individuals at this open house expressed support and/or concern about the Proposed Action. Suggestions regarding modifications were also expressed. These efforts resulted in specific comments that shaped the development of the alternatives to the Proposed Action.

Local Media: A legal notice was published in The Daily Inter Lake newspaper on December 16, 2007, announcing the project and seeking public comment. Articles discussing the project and the request for comments on the Proposed Action were published in the Daily Inter Lake on December 15, 2007. An editorial appeared in the Daily Inter Lake on December 23, 2007. A news story featuring an interview with project leader Bryan Donner was aired on local television station KAJ-18 on January 6, 2008. A legal notice soliciting public comments on the DEIS was published in the Daily Inter Lake on May 17, 2008. A press release was prepared and distributed announcing the availability of the DEIS and articles subsequently appeared in the Daily Inter Lake, Whitefish Pilot, and Hungry Horse News newspapers. A legal notice was published in the Daily Inter Lake on September 17, 2008 announcing the availability of the Final EIS.

Content Analysis: Comments generated from the Forest Service's request for comments on the Proposed Action were analyzed using the content analysis process. Nineteen individuals and organizations commented on the proposal. Content analysis is a systematic process to compile, categorize, and capture the full range of public viewpoints and concerns regarding a plan or project. Content analysis helps the planning team clarify, adjust, or use technical information to prepare the Draft EIS. Information from public meetings, letters, emails, faxes, phone calls, and other sources are all included in this analysis. This process makes no attempt to treat comments as votes. Content analysis ensures that every comment is considered at some point in the decision process. The content analysis on the Proposed Action is presented in Exhibits in Part B of the Project File.

To analyze the input, a list of comments was created and reviewed by the ID Team. This list identifies specific requests expressed by individuals and groups who responded to the Proposed Action. To develop the list, each letter was read and representative quotations were selected that best capture the respondent's sentiments in the form of an action the Flathead National Forest should consider pursuing. The list of comments to the Proposed Action from the public and descriptions on how they were used in the process is located in Project File Exhibit B.

Using the comments received on the Proposed Action, the ID Team developed a list of issues to address. These issues are discussed later in this Record of Decision.

A request for comments on the DEIS was made upon its publication in May 2008. Ten comment letters were received regarding individual's and organization's thoughts, suggestions, and concerns with the DEIS. Content analysis similar to that described above was conducted on these letters and is documented in Project File Exhibit B. ID Team responses to these comments are found in Chapter 4 of the FEIS. These comments helped revise the alternatives in the FEIS and expanded some of the specialist's resource analysis in Chapter 3 of the FEIS.

Many of the responses to the Proposed Action and comments on the DEIS cited scientific literature and requested the ID Team to consider this research. An attempt was made to locate and review this literature if team members were not already familiar with the research referenced. The result of this literature search is displayed in Project File Exhibit V.

Forest Service personnel have also responded to specific information requests by individuals on the project in general and the DEIS in particular in various forms (letters, email, office visits, and phone calls).

A list of agencies, groups, and individuals consulted throughout the entire public participation process is in Chapter 4 of the Final EIS. Participation with the Salish and Kootenai Tribes was conducted during regular consultation meetings between tribal representatives and the Flathead National Forest Heritage Resource specialists. These meetings are documented in Project File Exhibit K.

Copies of the Final EIS were sent to those individuals or groups who responded to our recent invitation to receive a copy. A legal notice appeared in the Daily Inter Lake on September 17, 2008 informing the public of the availability of the Final EIS and where they may acquire a copy.

The complete documentation of public participation and media coverage is contained in Project File Exhibit sets B, C, and E.

In arriving at a decision for this project, I recognized that I will not be able to fully satisfy all public concerns, as many of them are mutually exclusive. Some public concerns suggested activities that are not within the regulatory constraints the Forest Service operates under, while other comments were critical of the analysis that was conducted. I have made a decision that I believe is based upon sound analytical and ecological principles and does the best job of responding to the comments and concerns expressed throughout the project process while striving to meet the purpose and need of the project**.**

Issues

An *issue* is defined as a point of discussion, debate, or dispute concerning environmental or social effects of an action. Issues are identified through the scoping process with the public and by review from other agencies and Forest Service personnel. The scoping process is used not only to identify important environmental issues, but also to identify and eliminate issues that do not pertain to the action, thus narrowing the scope of the environmental documentation process accordingly. Therefore, impacts are discussed in proportion to their importance.

To identify issues specific to the Sheppard Creek Project, the ID Team and I reviewed all public comments and information about historical and current conditions within the project area. We also reviewed the Forest Plan and other site-specific planning documents relevant to the Brush Creek Fire area to further develop the list of issues.

The ID Team and I then sorted the issues into three categories. "*Significant Issues"* drive the alternative development process. We also analyzed *"Additional Issues and Concerns,"* which are recognized as important, but do not drive alternative development. A discussion of these Additional Issues and Concerns is presented in Chapter 2 of the FEIS. In addition, we classified some issues as *"issues outside the scope of the analysis."* Examples of issues outside the scope of the analysis include issues that are already decided by law or regulations, or beyond the scope of the project (not related to the purpose and need). The Council on Environmental Quality (CEQ) NEPA regulations explain this delineation in Sec. 1501.7, "…identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)…"

We also determined quantifiable "*issue indicators*" to measure how each alternative responded to the significant issues. Comparison of these indicators is presented in Table 2 on Page 20 of this decision document.

Significant Issues

The following issues were determined to be significant and within the scope of the project decision. These issues are addressed through the Proposed Action and its alternatives.

1. Too much helicopter yarding is being proposed

Many comments were received that indicated the proposal is not economically desirable because it proposed too much helicopter yarding, which is very expensive and involves contractors who do not employ local workers.

2. Possible Old Growth and "Recruitment" Old Growth should not be Salvage Logged

The amount of individual tree mortality in stands experiencing low to moderate vegetation fire severity is often difficult to determine until the summer following the fire event. Comments were received expressing concern that all areas where the old growth status is uncertain should not have timber salvage. In addition, they felt that certain other areas would attain old growth characteristics more quickly and be of better habitat quality if left unsalvaged. Members of the public wanted the Forest Service to determine the status of these areas for their old growth and "recruitment" old growth characteristics and avoid logging if they still met established criteria. "Recruitment" old growth areas have an older, larger overstory live tree layer but do not qualify as old growth habitat.

This issue was addressed in the Draft EIS through development of components of Alternative C that excluded salvage harvest in Douglas-fir or larch old growth that burned at low to moderate vegetation fire severity, but whose post-fire status had not yet been determined. All areas of proposed salvage in the Draft EIS where current and recruitment old growth values were uncertain were field-reviewed for old growth and "recruitment" old growth habitat attributes in the late spring and summer of 2008 (Project File Exhibits Q-1 and Q-2). Units that met the minimum requirement values for old growth and "recruitment" old growth were subsequently removed from all alternatives in the Final EIS. Units that were excluded from the Draft EIS Alternative C because of their old growth status

uncertainty but that were later determined to not be old growth or "recruitment" old growth were included in Alternative C in the Final EIS.

As a result of collecting field data in the summer of 2008 and eliminating some units from all Final EIS alternatives, this issue has been resolved. The issue was still presented in the Final EIS and issue indicator data are presented in Table 2-12 of the FEIS and Table 2 of this Record of Decision (ROD) in order to allow readers to track the issue between the Draft EIS, the Final EIS, and the ROD.

3. Canada Lynx and Snowshoe Hare Habitat is Reduced

Recent large wildfires (in 1994 and 2007) and past timber management have affected Canada lynx habitat in and near the project area. Proposed salvage harvest and temporary road construction will occur in some areas with potential for use by Canada lynx. Some of this habitat appears to be excellent habitat for snowshoe hares and thus feeding habitat for Canada lynx. Other lynx habitats that will be affected appear to function as multi-story non-feeding or travel habitat for lynx.

This issue was largely addressed in the Draft EIS through development of components of Alternative C that dropped or relocated most of the salvage units and temporary roads that could affect important lynx and hare habitat. All areas of proposed salvage in the Draft EIS where lynx habitat values were uncertain were field-reviewed for lynx habitat attributes in the late spring and summer of 2008 (Project File Exhibit Rt-8). Units or parts of units that were in snowshoe hare habitat were subsequently removed from all alternatives in the Final EIS. Units that were excluded from the Draft EIS Alternative C because of potential effects on lynx but that were later determined to not be in lynx feeding habitat were not excluded from Alternative C in the Final EIS. Alternatives B and D in the FEIS have some areas of salvage in what appears to still be "Other" or "Multistory Non-feeding" lynx habitat, where the Snag/Live Tree Prescriptions are designed to retain this habitat value for Canada lynx. In the Final EIS, Alternative C responds to the lynx and hare issue by not salvaging in such lynx habitats and by reducing the amount of temporary road construction through hare habitat.

4. Post-Fire Reserve Areas Should Be Left Unsalvaged

Setting aside larger burned areas, particularly where unlogged, was proposed as the best way to assure retention of ecosystem function across the landscape. These areas may be particularly important for many species likely to help contain insect populations such as spruce bark beetles. It was recommended that these areas: a) represent the diversity across the fire area, b) have connectivity corridors between reserves where possible, and c) include high-quality low-elevation habitat, as retention of such areas is relatively rare.

This issue was addressed through the design of Alternative C that excluded salvage harvest from some areas that were isolated from other groups of salvage harvest areas. Excluding isolated areas will allow for some relatively large blocks of previously unharvested areas to be retained. For this project, a post-fire reserve area is defined as an area at least 150 acres in size that is at least 0.25 miles from any timber salvage associated with the Brush Creek Fire.

5. Water Quality Must be Maintained or Improved

Construction of some temporary roads or re-opening historic roads can result in a short-term increase in potential erosion and sediment delivery. The amount of erosion and sediment delivery depends on many factors, including the steepness of the slope, need for stream crossings, and relative location to wet areas and streams. Roads located in upland areas do not have the same potential to transport sediment into streams as temporary roads located close to streams.

This issue is addressed in Alternatives C and D by reducing the number of new or reconstructed roads that need to install and then remove culverts on any perennial, intermittent, or ephemeral stream, or located within a Riparian Habitat Conservation Area (RHCA) and parallel to a stream.

6. Stream Channel Stability and Channel Morphology Must be Maintained or Improved

Construction of some temporary roads or re-opening historic roads may contribute to changes in local water flow regimes, which in turn could impact stream channel stability and morphology. However, short lengths of road construction within a watershed will seem to have minimal effect, especially if it is not located near other recent disturbance. Also, roads located far up the hillside in dry areas will tend to capture less groundwater movement than roads nearer a stream channel or moist area.

This issue is addressed in Alternatives C and D by reducing the miles of new or reconstructed roads that are located within an area with numerous seeps and moist sites, or are located near a high density of fire lines and/or constructed safety zones.

7. Bark Beetle Management is not Adequately Addressed

The Brush Creek Fire area has favorable habitat for Douglas-fir and spruce bark beetles. Many trees in the fire area were killed by underburning that left upper boles and crowns intact. Many large spruce were felled for hazard tree reduction and many more fell because their roots were severely damaged. In addition, Douglas-fir beetles have been active in and near the fire area for the last ten years. These conditions result in a high probability that bark beetles could increase populations within the fire area and attack trees in the surrounding areas over the next several years.

There is a concern that the Proposed Action does not harvest enough susceptible Douglas-fir and spruce trees to reduce further bark beetle spread and limit losses to National Forest and private land stands. This issue was addressed through the design of Alternative D that included additional timber salvage areas that consist of Douglas-fir and spruce trees susceptible to bark beetles.

Alternatives

Alternatives for the Sheppard Creek Project were developed from the issues identified and discussed above. The ID Team grouped the alternatives into one of two categories. These categories are "Alternatives Considered in Detail" and "Alternatives Considered but Eliminated from Detailed Study." Rationale has been provided in Chapter 2 of the FEIS for alternatives not studied in detail.

We developed four alternatives for the DEIS and FEIS, which include the No Action and Proposed Action alternatives. A modified alternative that I have selected is described in this Record of Decision.

- The *No Action Alternative* (Alternative A): no management activities to address the purpose and need for action.
- The *Proposed Action* (Alternative B): designed to address the purpose and need for action while implementing the Forest Plan.
- The *Selected Alternative* (Alternative B Modified): I feel best meets the purpose and need of the project while balancing social and environmental concerns.
- Two additional *action alternatives* (Alternatives C and D): were included in the DEIS and FEIS and were designed to address the purpose and need for action while emphasizing one or more key issues.

Four of the alternatives listed above are described in detail in Chapter 2 of the FEIS; the Selected Alternative (a modified version of Alternative B) is presented in detail in Appendix A of this document. The features of all five alternatives are discussed below and summarized in Table 1.

Alternative A - "The No Action Alternative"

Under this Alternative, none of the actions proposed in any of the other alternatives would occur. The analysis in the FEIS describes the possible or likely consequences of not managing the Sheppard Creek Project area as proposed in the action alternatives.

Alternative B - "The Proposed Action"

The Proposed Action is designed to meet the Purpose and Need of timber salvage harvest. The action was developed as a strategy to salvage merchantable wood while complying with Forest Plan direction. Treatments would total approximately 4510 acres of commercial timber salvage, along with 1013 acres of tree planting, and 745 acres of interplanting. About 15.6 miles of temporary roads would be constructed over historic road templates, and 8.7 miles of new temporary roads would be built. All temporary roads constructed for salvage harvest would be reclaimed upon completion of harvest activities.

Implementation of all action alternatives is designed to take place over the course of several years. Most timber salvage activities will be conducted in the first year after the Record of Decision is signed with other activities such as tree planting taking longer.

Table 1. Summary of the Features of all Alternatives

Feature	Alt. A "No Action"	Alt. B "Proposed Action"	Alt. B Modified "Selected"	Alt. C	Alt. D
Temporary Road Construction	0	24.3 miles	17.8 miles	9.3 miles	10.1 miles
-Historic Template	0	15.6 miles	11.8 miles	7.4 miles	7.6 miles
-New Roads	0	8.7 miles	6.0 miles	1.9 miles	2.5 miles
System Road Construction	0	0 miles	0 miles	0 miles	0 miles
Road Rehabilitation of Timber Haul Routes (BMPs)	0	117 miles	114 miles	101 miles	108 miles
Shrub and Forb Planting on Reclaimed Temp Road	0	1.9 miles	1.2 miles	0.2 miles	0.5 miles
Timber Volume Estimate in Million Board Feet	0	29	26	21	32
Total Harvest Acres	0	4510	3973	3278	5013
- Cable	0	114	59	79	152
- Helicopter	0	234	162	0	1049
- Skyline	0	1679	1450	1337	1476
- Tractor	0	2313	2227	1812	2252
- Tractor / Skyline Swing	0	170	75	50	84
Acres Required for Winter Logging	0	1857	1693	1359	1521
Acres of Allowable Summer Slash Mat Yarding	0	552	623	415	696
Acres of Tree Seedling Regeneration					
- Plant	0	1013	803	735	1138
- Interplant	0	745	742	550	1099
- Natural	0	2759	2428	1993	2776

Alternative B Modified - "The Selected Alternative"

The Selected Alternative was designed to meet the Purpose and Need of timber salvage harvest but also responds completely or in part to the issues. This alternative was developed using the Proposed Action as a base. A detailed discussion of the Selected Alternative is described below in the Decision section and in Appendix A.

Alternative C

Using the Proposed Action, Alternative C was developed in response to the first six *Issues* listed above. This alternative proposes no helicopter yarding; reduces the number of acres harvested and amount of road construction through lynx habitat; reduces road construction through RHCAs and moist areas; and reduces the number of culverts installed. Treatments total approximately 3278 acres of commercial timber salvage, along with 735 acres of tree planting, and 550 acres of interplanting. About 7.4 miles of temporary road would be constructed over historic road templates, and 1.9 miles of new temporary roads would be built. All temporary roads constructed for salvage harvest would be reclaimed upon completion of harvest activities.

Alternative D

This alternative was designed in response to issues related to bark beetle management not being adequately addressed in the Proposed Action. It also proposes a reduction in the amount of temporary road construction needed to access units.

Alternative D was also developed using the Proposed Action as the base. Changes to this alternative primarily involved additional areas of timber salvage harvest to manage for possible epidemic levels of Douglas-fir and spruce bark beetles. Some of these additional areas are within RHCAs. This alternative also keeps helicopter logging and reduces the number of temporary roads being built to access units. Treatments total approximately 5013 acres of commercial timber salvage, along with 1138 acres of tree planting, and 1099 acres of interplanting. About 7.6 miles of road would be constructed over historic road templates, and 2.5 miles of new temporary roads would be built. All temporary roads constructed for salvage harvest would be reclaimed upon completion of harvest activities.

Decision

As the responsible official for this project, I have selected the vegetation and transportation management strategy displayed in **Alternative B** in the FEIS with some modifications, along with all other associated actions. Appendix A of this ROD contains a detailed description of the features of the Selected Alternative.

I modified the number of Alternative B salvage units and the shape of two units (99C and 115) (a net decrease in acres of approximately 537 acres – refer to Table 1) due to more detailed field reconnaissance, ground-truthing, and mapping refinements that occurred after the FEIS was published. The reason for not including some units, or the modification of unit shapes, from Alternative B in the FEIS to the Selected Alternative was primarily due to the merchantable value of the wood products in that area being too low and/or the costs to access the area being too high to be economically feasible to the market. Other considerations for not including an area designated for salvage in Alternative B in the FEIS were wildlife habitat, water quality, and post-fire reserve area issues described above.

Transportation management changed slightly from Alternative B in the FEIS to this decision document, in that I decided not to construct temporary roads that were designed to access timber harvest units not in the modified alternative. This allowed for a net reduction of 3.8 miles of temporary road on historic templates and 2.7 miles of new temporary road. The fewer number of timber harvest units also resulted in approximately three fewer miles of Best Management Practices applied to existing roads.

I have reviewed the modifications and determined these changes in Alternative B are within the range of effects disclosed in the FEIS.

I entered into discussions with the U.S. Fish and Wildlife Service (FWS) early in the planning process for this project because of the potential effects that could result from project implementation on threatened and endangered wildlife, plant, and fish populations or habitat. As a

result of these discussions and the specialists' analysis found in Chapter 3 of the FEIS and the Project File, formal consultation with the FWS was not necessary. The FWS did not prepare a Biological Opinion, and therefore no terms and conditions from a Biological Opinion were incorporated into this decision.

I have also incorporated into my decision the project design features from Chapter 2 of the FEIS: *Features Common to all Action Alternatives* (pages 2-3 through 2-12) and *Monitoring* (page 2-38 and Appendix E). These two sections of the FEIS are presented in Appendices B and C of this Record of Decision. If my decision modified one of the practices/design features and/or monitoring items from the FEIS, Appendices B and C of this document have identified this change.

In addition, Appendix C: *Best Management Practices* from the FEIS has been incorporated into my decision.

Rationale for the Decision

In selecting Alternative B Modified, I have determined that my decision is consistent with all laws, regulations, and agency policy. I have considered the potential cumulative effects and reasonably foreseeable activities. I believe that my decision provides the best balance of management activities to respond to the purpose and need, issues, and public comments while complying with all applicable laws and regulations. My decision needed to balance competing interests such as the recovery of merchantable wood products versus protecting habitat for snag-dependant wildlife species, or temporary road construction versus water quality.

The considerations I relied upon to make my decision on this project included:

- Achievement of the project's purpose and need.
- Relationship to environmental concerns, social issues, and public comments.

Achievement of the Purpose and Need

"The purpose of the proposed management action is to recover merchantable wood fiber in a timely manner."

As Forest Supervisor, I have the responsibility to ensure that this Forest is managed under a sustainable multiple-use management concept using ecological principles to meet the diverse needs and values of people. The Forest Plan provides me direction on how to do this through goals, objectives, and standards. One of the goals of the Forest Plan is to "provide a predictable and sustainable supply of timber products that is responsive to local industry and economies, consistent with other Forest management goals, objectives, and standards" (Forest Plan, page II-5). The Selected Alternative will provide almost as much merchantable timber as Alternatives B and D but substantially decreases impacts on wildlife habitat, water quality, and other resources compared to these other alternatives.

The vegetation management proposals in the action alternatives proposed salvaging a range of timber volume, from a low of 21 million board feet (MMBF) in Alternative C to the 32 MMBF estimated for Alternative D. The Proposed Action (Alternative B) would have provided an estimated 29 MMBF while the Selected Alternative (Alternative B Modified) is expected to provide 26 MMBF. The differing volume estimates among the action alternatives were derived primarily from different transportation management strategies, which affected harvest opportunities along roads, and the consideration of a bark beetle management strategy in Alternative D. Alternative C would have eliminated several harvest units in areas that were considered more sensitive to salvage because of concerns with one or more resources.

In making my decision, I weighed the need to utilize a portion of the fire-affected trees for timber products against the environmental impacts of salvage harvest. The Selected Alternative will provide approximately 26 MMBF of salvaged timber to help support local communities. Based on the effects analysis in the FEIS and Project File, I believe that my decision balances the need to recover merchantable wood fiber in a timely manner while protecting and improving important resource conditions such as sensitive species, water quality, and fisheries habitat.

I also considered the need to contribute to the recovery of desired vegetation/site conditions against the environmental impacts of those actions. Much of the needed recovery activities in the fire-affected areas were accomplished immediately following the fire through the implementation of Burned Area Emergency Rehabilitation activities and rehabilitation of effects from fire suppression activities. Additional management activities that are included in my decision that will contribute to the recovery needs of the fire area include planting native trees within designated salvage units and native shrubs on some reclaimed roads, and application of Best Management Practices (BMPs) which include the removal of four high risk culverts.

Planting of trees and shrubs will be done to more rapidly revegetate some of the more vulnerable burned sites and improve soil stability. Planting of long-lived native species will ensure development of a diverse forest and re-establish conifer species that have been severely reduced in numbers due to exotic diseases such as white pine blister rust.

For the reasons cited above, I believe selecting Alternative B Modified best meets the purpose and need of the project while also satisfying the sustainable multiple-use principles that are the basis for the Forest Plan.

Consideration of the Issues

My interdisciplinary planning team considered a variety of issues in the process of preparing the Proposed Action and identifying the consequences of that action in the FEIS. Typically, issues are developed to sharply define the alternatives and provide a clear basis of choice among options for the decision maker and the public. I believe that we have thoroughly described and evaluated the identified issues in the FEIS.

The following section summarizes how I believe my decision responds to key issues identified and analyzed in the FEIS and to the comments and concerns I received regarding the project. Refer to Table 2 below for a quantitative comparison of issues among all alternatives.

Too much helicopter yarding is being proposed

The Proposed Action alternative, as presented in the initial public review of the project in December of 2007, proposed 712 acres of salvage harvest using helicopter yarding systems. At the time of the development of the Proposed Action, information about the topography of the units as well as the size and value of the salvageable wood products in the units was incomplete. As detailed information was gathered about these potential helicopter units, many areas were excluded as a result of low product value that could not support the expensive helicopter system or opportunities to yard the wood products using more conventional yarding systems were found. The Selected Alternative now contains 162 acres of helicopter yarding in five different units.

In Alternative B, units (69A, 73B, 76, and 77) are located on temporary road "P" (please refer to Figure 2-1 on page 2-18 of the FEIS). Alternative B proposed to utilize this road for skyline yarding these units. I chose not to select the use of road "P" due to the large length of road reconstruction necessary and the five culverts that would be required to be installed and subsequently removed after operations were completed. This road reconstruction would have contributed unacceptable levels of sediment to nearby Sheppard Creek. I decided that these four units should be helicopter yarded in the Selected Alternative.

One helicopter unit (118) could not be yarded using any other yarding system. The area is too steep to use ground-based yarding systems such as tractors. Constructing a temporary road to the top of the unit to employ a skyline system would not have allowed access to much of the area, as the terrain is uneven and creates many "blind" spots.

Possible Old Growth and "Recruitment" Old Growth should not be Salvage Logged

My decision on this project specifically prohibits any salvage of timber in areas of old growth or "recruitment" old growth as disclosed in the Old Growth Habitat and Old Growth Associated Wildlife Species section of the FEIS, pages 3-227 to 3-240 and the Project Design Features described in Appendix B of this decision document. All areas of proposed salvage where old growth status was uncertain at the time of publication of the DEIS were field-reviewed by trained Forest Service personnel in the summer of 2008. The status of these areas was determined to either meet the old growth or "recruitment" old growth definitions or not meet these definitions. Those proposed salvage areas in Alternatives B and D of the DEIS that met the definitions were excluded from those alternatives in the FEIS (Alternative C did not propose any salvage in areas of uncertain old growth status). As the Selected Alternative only contains components of the alternatives in the FEIS, it does not contain any acres of old growth or "recruitment" old growth.

I believe that salvaging in the areas that were old growth just prior to the Brush Creek Fire, but no longer have the requisite characteristics of old growth or "recruitment" old growth because of mortality caused by the fire (Project File Exhibits Q-1 and Q-2), is appropriate to meet the purpose and need of the project and is in full compliance with the Forest Plan.

Canada Lynx and Snowshoe Hare Habitat is Reduced

Timber salvage and temporary road construction under my decision would have minimal effects on Canada lynx and snowshoe hares and their habitat. Most of the salvage units and temporary roads that could have affected important lynx and hare habitat were not brought forward from the alternatives described in the DEIS to those in the FEIS and thus from this decision.

I have decided to specifically prohibit any salvage of timber in areas of live sapling or multi-story lynx feeding habitat as disclosed in the Threatened Wildlife Species section of the FEIS, pages 3-261 to 3-276 and the Project Design Features described in Appendix B of this decision document. In addition, the small amount of salvage in current potential lynx habitats (”other” and “multistory feeding”) would occur only where leave tree marking or modified prescriptions would retain habitat characteristics. The amount of temporary road construction through hare habitat was reduced to 0.1 miles as compared to the other action alternatives in the FEIS (see Table 2, Issue #3 below). These effects are consistent with the direction found in the Northern Rockies Canada Lynx Direction (Project File Exhibit Rt-15).

The U.S. Fish and Wildlife Service concurred with our determination that the project is “not likely to adversely affect” the Canada lynx (Project File Exhibit Rt-3).

Post-Fire Reserve Areas Should Be Left Unsalvaged

Some members of the public recommended that large portions of the fire should be set aside with no timber salvage operations prescribed as the best way to assure retention of ecosystem function across the landscape. It was also felt this was particularly important to maintain habitat for many bird and other wildlife species likely to help control or contain insect populations such as spruce or Douglas-fir bark beetles.

I have selected an alternative that would retain 21 percent of the fire area in contiguous patches that are at least 150 acres in size and at least 0.25 miles from any timber salvage associated with the Brush Creek Fire (see Table 2, Issue #4 below). This was largely accomplished by excluding salvage harvest from six small proposed units in Alternative B that were isolated from other groups of salvage harvest areas. The largest reserve area patch would be over 5300 acres in size. Less than half of the acreage of post-fire reserve areas have had past regeneration timber harvest. The reserve areas selected represent the diversity of conditions across the fire area, have connectivity corridors between reserves where possible, and include all elevations and qualities of snag and downed wood habitat.

Water Quality Must Be Maintained or Improved

I am requiring that all forest roads used during salvage operations be improved to Best Management Practices standards, which will prevent water quality degradation both during the project and afterward. This requirement also applies to all temporary road construction. The design of the salvage units emphasizes the protection of streams and water quality by relying upon low-impact harvest methods. Most ground-based harvest units will be logged

during winter, when snow and frozen ground protect soils and results in virtually no ground disturbance. Other ground-based units that allow a summer season of logging were selected due to the presence of adequate branch and tree top material to use as slash mats. Skyline and helicopter yarding systems are inherently low-impact logging methods.

I have also chosen not to authorize timber harvest in any Riparian Habitat Conservation Areas, which are Forest Plan-designated areas along all streams, lakes, and other water bodies. Although several comments I received from members of the public requested that these areas be included in the salvage proposal, I have decided that the risks of causing harm to water quality and fish populations by harvesting in these areas are not worth the value of the additional timber or value of reducing the potential for bark beetle spread. There was strong concern from other agencies and members of the public that harvest in RHCAs would harm fish populations and water quality. I also chose not to harvest in these areas during salvage following the Moose Fire of 2001, the Robert and Wedge Fires of 2003, and the Blackfoot Complex of fires of 2003; and I am pleased at how well those projects protected streams and water quality.

The indicators of how well this issue performed are listed in Issue #5 in the table below. The miles of temporary road construction or reconstruction located within an RHCA and parallel to a stream is a small amount in the Selected Alternative (0.4 miles) and only occurs with road reconstruction on a historic template on Roads H and K. The amount of ground disturbance and therefore sediment production with this type of road reconstruction is minimal.

The number of new culvert installations and subsequent removals after their use that are needed on temporary roads for the Selected Alternative is less than Alternative B but greater than Alternatives C and D. These nine new culverts are acceptable because, overall, I expect the combination of sediment-producing activities (culvert installations and removals, timber harvest, and road work) will likely be offset by road BMPs and the removal of four high risk culverts. A catastrophic failure of just one high risk culvert could potentially exceed the amount of sediment delivered by all proposed activities. Therefore, I believe that during the next few years, implementation of this project will result in a net improvement to water quality.

Stream Channel Stability and Channel Morphology Must be Maintained or Improved

Streams that exhibit channel instability are more prone to erosion. As stated above in the Issues section, construction of some temporary roads or re-opening historic roads may contribute localized changes in channel stability and morphology. The greatest concerns for channel changes may be associated with new ground disturbance located near other recent disturbance.

Many of the methods for maintaining or improving stream channel stability and channel morphology are described in my rationale for the water quality issue above. The application of BMPs, low-impact harvest methods, and avoiding treatments in RHCAs will provide ample protection of stream channels.

The indicators of how well this issue performed are listed in Issue #6 in the table below. The miles of temporary road construction or reconstruction within RHCAs are greatest in Alternatives B and B Modified. This 0.9 mile of temporary road reconstruction in RHCAs is located on historic road templates which minimizes any changes to stream stability and channel morphology.

The 1.4 miles of new temporary road construction near suppression activities (dozer lines, safety zones) and moist areas are much less in the Selected Alternative than in Alternative B, but greater than in Alternatives C and D. I specifically did not select units 15 through 21 and temporary roads F, FS1, and FS2 in Alternative B to avoid salvage harvest and road construction in an area of moist site concerns. This disturbance is located on temporary roads S and U2 in the northern portion of the project area and temporary road AS in the southwest corner of the project area. The effects of these temporary roads are not expected to negatively affect stream channel stability or change stream channel morphology (please refer to the Hydrology section of Chapter 3 in the FEIS).

Bark Beetle Management is Not Adequately Addressed

Some members of the public expressed a concern that the Sheppard Creek Project did not do enough to prevent the burned forest from becoming a source of spruce and/or Douglas-fir bark beetles that will infest neighboring lands. Disturbances such as insects, disease, and fire are a natural part of the ecosystem. A bark beetle outbreak in and around the fire area will be normal and natural from an ecological context; however, high tree mortality in much of this area (on national forest, state, and private lands) may conflict with management objectives and create undesirable consequences.

After disturbances such as wildfire, removal of bark beetle susceptible trees before or while they are infested is an effective course of action to prevent an outbreak or influence beetle populations. Because live, susceptible trees are not targeted for removal and many areas affected by the fire that have insect-susceptible trees were not economically feasible for salvage harvest, many susceptible trees will remain. However, removing as many infested trees as feasible before the adult beetles emerge and spread to live trees in the vicinity can reduce the potential for a large-scale bark beetle infestation. In selecting Alternative B Modified, I have decided to remove the vast majority of the susceptible and infested trees proposed by the alternatives considered in the FEIS. Alternative B Modified salvages approximately 1409 acres of spruce beetle susceptible areas compared to 1948 acres in Alternative D (the alternative with the most acres of beetle susceptible acres treated) and 3296 acres of Douglas-fir beetle compared to 4000 acres in Alternative D. I am also committed to a monitoring program that will continue to assess bark beetle activity in and near the fire areas. I am also including in the Selected Alternative the pheromone insect-control measures described in the Features Common for all Action Alternatives section in Chapter 2 in the FEIS.

A feature of Alternative D in the FEIS is to salvage harvest spruce and/or Douglas-fir trees in or in the vicinity of riparian areas. The Selected Alternative does not include this feature as I have concerns regarding the possible negative effects to water quality, fisheries, sensitive plant species, and riparian wildlife from this riparian salvage harvesting. With this concern in mind, I consider the number of acres of bark beetle treatments foregone in the Selected

Alternative as an acceptable consequence of protecting these resources (539 acres foregone for spruce beetle and 704 acres foregone for Douglas-fir beetle). The effects of riparian salvage harvest are discussed in their respective resource sections of Chapter 3 of the FEIS.

My decision on this project in no way precludes future management options for dealing with bark beetle outbreaks. Any future management options would be subject to appropriate NEPA procedures.

Quantitative Comparison of Issues

I used "issue indicators" to measure how each fully developed alternative responded to identified issues. The following table presents information to support the discussions in the previous paragraphs.

Table 2. Response of Alternatives to Issues

Issue and Issue Indicators:	Alternative A "No Action"	Alternative B "Proposed Action"	Alternative B Modified "Selected"	Alternative C	Alternative D
#1. Helicopter Yarding					
• Acres of salvage harvest using a helicopter yarding system.	0	234	162	0	1049
#2. Old Growth Habitat					
• Acres of salvage harvest in pre-fire old growth with unknown post-fire status.	0	0	0	0	0
• Acres of salvage harvest in apparent "recruitment" old growth.	0	0	0	0	0
#3. Canada Lynx Habitat					
• Acres of salvage harvest in lynx feeding habitat.	0	0	0	0	8
• Acres of salvage harvest in apparent non-feeding lynx habitats.	0	165	112	0	165
• Miles of temporary road construction through lynx habitats.	0	3.7	0.1	0.4	0.9
#4. Post-Fire Reserve Areas					
• Number of post-fire reserve areas.	1	3	4	6	4
• Percentage of the project area in post-fire reserve areas.	83%	15%	21%	29%	11%
• Acreage of the largest post-fire reserve area.	21,097	3352	5309	5991	1293
• Percentage of total post-fire reserve area acreage that have past regeneration harvest.	44%	53%	48%	50%	53%

Issue and Issue Indicators:	Alternative A "No Action"	Alternative B "Proposed Action"	Alternative B Modified "Selected"	Alternative C	Alternative D
#5. Water Quality					
• Miles of temporary road construction or reconstruction located within an RHCA and parallel to a stream.	0	0.4	0.4	0	0
• Number of new culvert installations on temporary roads.	0	14	9	3	3
#6. Stream Channel Stability and Morphology					
• Miles of temporary road construction or reconstruction that are within RHCAs.	0	0.9	0.9	0.1	0.1
• Miles of new temporary road construction near suppression activities and moist areas.	0	3.3	1.4	0.2	0.2
#7. Bark Beetle Management					
• Acres of salvage harvest in stands with spruce bark beetle hazard.	0	1650	1409	1168	1948
• Acres of salvage harvest in stands with Douglas-fir bark beetle hazard.	0	3642	3296	2633	4000

Findings Required by Laws, Regulations, and Policies

I have determined that my decision is consistent with the laws, regulations, and agency policies related to this project. The following summarizes findings required by major environmental laws.

The National Forest Management Act (NFMA)

Consistency with Forest Plan Standards, Goals, and Objectives

The Flathead National Forest Land and Resource Management Plan (Forest Plan) establishes management direction for the Flathead National Forest. This management direction is achieved through the establishment of Forest goals and objectives, standards, and guidelines, and Management Area goals and accompanying standards and guidelines. Project implementation consistent with this direction is the process in which desired conditions described by the Forest Plan are achieved. The National Forest Management Act requires that all resource plans are to be consistent with the Forest Plan (16 USC 1604(i)). The FEIS displays the Forest Plan and Management Area goals and objectives and the standards and guidelines applicable to the Sheppard Creek Project area (FEIS Appendix B). The environmental

consequences of the alternatives in relation to the Forest Plan standards and guidelines are described in the FEIS, Chapter 3. After reviewing the FEIS, I find that my decision is consistent with Forest Plan standards, goals, and objectives as amended.

Project-Specific Amendments to the Forest Plan

This decision does not propose any project-specific amendments to the Forest Plan.

Suitability for Timber Harvest

The selected action includes some timber salvage on lands allocated to MA 2C (lands emphasizing roaded, natural appearing dispersed recreation) in the Forest Plan. These lands are classified as not suitable for timber production. However, salvage harvest in these areas is consistent with management area direction stated in the Forest Plan (page III-9, Forest Plan (updated)). All other salvage authorized by this decision is located on lands deemed to be suitable for timber production in the Flathead Forest Plan.

Analysis of current and historical regeneration data for the post-burn area supports the conclusion that adequate stocking of the proposed harvest units is assured (Project File Exhibits P-9 and P-16). Low-impact logging methods such as helicopter and winter logging provide greater protection to naturally regenerated seedlings. Planting will be implemented on up to 1545 acres. Monitoring of regeneration will ensure that reforestation progresses at a desirable rate.

Clearcutting and Even-aged Management

When timber is to be harvested using an even-aged management system, a determination that the system is appropriate to meet the objectives and requirements of the Forest Plan must be made and, where clearcutting is to be used, must be determined to be the optimum method (16 USC 1604(g)(3)(F)(i)). The clearcutting management system is not a component of the Selected Alternative. The salvage harvest system of the Selected Alternative is not in itself an even-aged management system. However, the fires have created even-aged replacement stands over most of the burned area and the salvage harvest along with future management are expected to further even-aged stand conditions.

Determination that even-aged management systems are appropriate to meet the objectives and requirements of the Forest Plan: Considering the recently burned setting, desired stand and landscape conditions were developed using Forest Plan goals and objectives as well as input from the public and contemporary knowledge for sustaining forest and aquatic ecosystems. Timber stands within the area have evolved within a fire-dependent ecosystem. Within the Sheppard Creek Project area, Forest Plan objectives and requirements related to vegetation management are best achieved through even-aged management systems. Salvage harvesting trees and planting seedlings in some stands that may be affected by the logging activities will maintain the even-aged stands and allow options for future management.

It is my determination that proper use of even-aged systems and extensive application of long-term reserve tree and snag retention concepts on appropriate sites can provide healthy, functioning ecosystems while providing a sustainable production of forest resources.
I have determined that the silvicultural systems in the Selected Alternative are appropriate to meet the objectives and requirements of the Forest Plan. The effects of implementing these harvest methods are described in the Vegetation section of the FEIS. Project File Exhibit P contains further documentation of the silvicultural diagnosis process and analysis.

Vegetative Manipulation

All proposals involving vegetative manipulation of tree cover for any purpose must comply with the seven requirements found in 36 CFR 219.27(b):

1. Management prescriptions shall be best suited to the multiple-use goals established for the area with impacts considered in the determination.

    - All proposed treatments meet the goals and objectives in the Forest Plan for designated Management Areas and meet the purpose and need for action.

2. Management prescriptions shall ensure that the lands can be adequately restocked as provided in 36 CFR 219.27(c)(3) "…assure that the technology and knowledge exist to adequately restock the lands within 5 years after final harvest" (16 USC 1604(g) (E)(ii)).

    - Adequate stocking of the units after harvesting will be provided through natural regeneration or planting of tree seedlings. Previous harvest units in both the post-fire and non-burned environments in the vicinity of the proposed treatment areas have all regenerated adequately through similar methods. There are no unusual site conditions within the units that lead me to believe that adequate regeneration will not occur on these sites as well.

3. Management prescriptions shall not be chosen primarily because they will give the greatest dollar return or the greatest output of timber.

    - The Economics and Social section of Chapter 3 in the FEIS describes the economic effects by alternative. While the purpose and need of the project is to recover merchantable wood fiber in a timely manner, I have chosen to select an alternative that considers other resource values by implementing a snag and downed wood strategy in all salvage units and foregoing salvage in other areas entirely.

4. Management prescriptions shall consider the effects on residual trees and adjacent stands.

    - Management prescriptions were chosen primarily because they will result in desired environmental and social effects, as defined by the Purpose and Need for Action.

    - The analysis considered the effects of management activities and practices on residual trees and adjacent stands as shown in Chapter 3 of the FEIS. I find the stand treatments described in Appendix A and the design criteria listed in Appendix B of this decision document are adequate to protect the reserve trees and adjacent stands.

5. Management prescriptions shall avoid permanent impairment of site productivity and ensure conservation of soil and water resources.

   - The effects of Alternative B on soil and water resources are disclosed in Chapter 3 of the FEIS. The modifications to Alternative B described in this ROD are within the range of effects presented in the FEIS. I find the unit locations, silvicultural systems, riparian protection, logging technology, season of operations and post-harvest activities, in relationship with the soil and water conservation practices planned, will minimize impairment of site productivity and ensure conservation of soil and water resources. The Best Management Practices to be followed in the project are identified in Appendix C of the FEIS.

6. Management prescriptions shall provide the desired effect on water quantity and quality, wildlife and fish habitat, regeneration of desired tree species, forage production, recreation use, and aesthetic values.

   - The information provided in the Project File documents that the vegetative management treatments included in my decision will achieve the desired forest vegetation conditions described in the vegetation section of Chapter 3 in the FEIS. After reviewing the social and environmental effects of the alternatives (FEIS Chapter 3), I have determined that my decision is consistent with Forest Plan direction for the management of natural resources, including water quality/quantity, wildlife and fish habitat, recreation uses, aesthetic values, and other resource yields.

7. Management prescriptions shall be practical in terms of transportation and harvesting requirements, and total cost of preparing, logging, and administration.

   - The specified transportation and harvesting systems to be used in the implementation of this decision have been analyzed in combination with the other requirements of the management prescriptions. Equipment and technology that are commonly available are prescribed. The preparation, logging, and administration are practical for achieving the resource objectives and progress toward the desired future condition in the project area. A summary of the economic analysis included in the FEIS on pages 3-329 through 3-340 along with its supporting documentation in the Project File demonstrates this finding.

Roads

The NFMA requires that the necessity for roads be documented, and that road construction be designed to "standards appropriate for the intended uses, considering safety, cost of transportation, and impacts on land and resources" [36 CFR 219.27(10)]. NFMA also requires that "all roads are planned and designed to re-establish vegetation cover on the disturbed areas within a reasonable period of time, not to exceed 10 years .... unless the road is determined a necessary permanent addition to the National Forest Transportation System" [36 CFR 219.27(11)].

Management actions associated with the Sheppard Creek Project do not include construction of permanent specified roads. Approximately 11.8 miles of temporary roads will be con-

structed on historic road templates and 6.0 miles of new temporary road would be constructed. Both of these types of road will be rehabilitated after their use (FEIS, page 2-17 to 2-18 and page 2-21). I believe that we have met the intent of 36 CFR 219.27(10) and (11).

NFMA Diversity

The Forest Plan contains an array of components that contribute to the wildlife, fisheries, and plant habitat capability of the Flathead National Forest. Each of these components reduces the risk to a reduction of species' diversity. Based upon a consideration of these components of the Forest Plan (as amended), as well as:

- the configuration of the selected alternative with its monitoring plan and design features,
- an analysis of effects of the Sheppard Creek Project at the Forest and Regional Scale (Project File Exhibits Rg-1 and F-7), and
- the Biological Assessments and Biological Evaluations,

I conclude that my decision will have no impact on some species, or may impact individuals or habitat but are not likely to result in a trend toward federal listing or reduced viability for other populations or species. In addition, my conclusion is based on a review of the Project File that shows a thorough evaluation was made of relevant scientific information, a consideration of responsible opposing views, and the acknowledgment of incomplete or unavailable information, scientific uncertainty, and risk.

Clean Water Act and Montana State Water Quality Standards

Upon review of the Sheppard Creek Post-Fire Project FEIS (Chapters 2 and 3, Appendix C - BMPs, Appendix D - Water Regulations, and Appendix F - Monitoring Plan), I find that the ID Team took a hard look at the impacts of the project on water quality. Activities associated with Alternative B Modified will comply with state water quality standards, with application of the Best Management Practices as outlined and associated monitoring requirements. The ID Team fully analyzed the impacts on water bodies by calculating the effects attributable to the activities, compared them among alternatives, and discussed the impact on water quality and fisheries.

All activities associated with the Selected Alternative will fully comply with the Clean Water Act by employing Best Management Practices, project design criteria, and associated monitoring that meet or exceed reasonable land, soil, and water conservation measures. In addition, Inland Native Fish Strategy RHCAs have been established along all wetlands and stream courses that are in or adjacent to treatment areas. The Selected Alternative further complies with the Clean Water Act in meeting state water quality standards and complying with the antidegradation requirement by maintaining beneficial uses. The Montana Department of Environmental Quality has classified Sheppard Creek in the B-1 category. Beneficial uses under this B-1 classification include: drinking, culinary, and food processing after conventional treatment; bathing, swimming, and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl, and furbearers; and agricultural and industrial water supply. These beneficial uses in the Sheppard Creek drainage will be protected as a

result of the application of general and site-specific BMPs as well as other protective design features. Specific practices are described in detail in Appendices C and D of the FEIS. The Environmental Protection Agency (EPA) Region VIII Montana Office was notified of this project and sent copies of the DEIS and FEIS. A letter was received from the Montana Office with detailed comments on the DEIS. These comments are disclosed in Appendix F of the FEIS with our responses in Chapter 4 of the FEIS.

Clean Air Act

Upon review of the FEIS (Chapter 3), I find that the activities in the Selected Alternative will be coordinated to meet the requirements of the State Implementation Plans, Smoke Management Plan, and Federal air quality requirements.

National Historic Preservation Act, American Indian Religious Freedom Act, and Native American Graves Protection and Repatriation Act

Cultural resource reviews have been completed on all areas to be impacted by ground-disturbing activities. No cultural resources are expected to be affected by this action. Recognizing that the potential exists for unidentified sites to be encountered or disturbed during project activity, special provisions for their protection will be included in all contracts used to implement this project. These provisions will allow the Forest Service to unilaterally modify or cancel a contract to protect cultural resources, regardless of when they are identified. This provision will be used if a site were discovered after a harvest operation had begun. This project is in compliance with the Forest Service Region 1 programmatic agreement (1995) with the State Historic Preservation Office and the Advisory Council on Historic Preservation.

Government-to-Government Relations

The Forest Service consulted the Confederated Salish and Kootenai Tribes during the analysis process. The intent of this consultation was to remain informed about Tribal concerns regarding the American Indian Religious Freedom Act (AIRFA) and other tribal issues. In addition, the Salish and Kootenai Tribes reserved rights under the Hellgate Treaty of 1855. These rights include the "right of taking fish at all usual and accustomed places, in common with citizens of the Territory, and of erecting temporary buildings for curing; together with the privilege of hunting, gathering roots and berries, and pasturing their horses and cattle upon open and unclaimed land." The federal government has trust responsibilities to Tribes under a government-to-government relationship to insure that the Tribes reserved rights are protected. Consultation with the tribes during project planning helps insure that these trust responsibilities are met.

The Endangered Species Act (16 USC 1531 et. seq.)

Under provisions of this Act, Federal agencies are directed to seek to conserve endangered and threatened species and to ensure that actions are not likely to jeopardize the continued

existence of any of these species. Biological Assessments for the endangered grey wolf and threatened grizzly bear, Canada lynx, bull trout, water howellia and Spaulding's catchfly were prepared by ID Team members and are available in the Project File (Exhibits F-1, Rt-4, and S-4). These assessments concluded that activities as described in my decision may affect, but are not likely to adversely affect the gray wolf, grizzly bear, and Canada lynx. The assessments also concluded no habitat exists for bull trout, water howellia, or Spaulding's catchfly and therefore there is no effect to these species. As a result of these conclusions, pursuant to 50 CFR 402.13 (a), formal consultation on all these endangered and threatened species is not required.

Upon review of the terrestrial wildlife biological assessment, the U.S. Fish and Wildlife Service concurred in an October 1, 2008 letter with our determination that the project is "not likely to adversely affect" the endangered gray wolf or the threatened Canada lynx or grizzly bear (Project File Exhibit Rt-3). The Service was informed about our determination that the project will have "no effect" on the threatened bull trout, water howellia or Spaulding's catchfly.

Upon review of the Sheppard Creek Post-Fire Project FEIS Chapter 3, the Biological Assessments, and the October 1, 2008 concurrence letter from the U.S. Fish and Wildlife Service, I find that Alternative B Modified complies with this Act.

Administration of the Forest Development Transportation System – Roads Policy – 36 CFR Part 212 et al. (published in the Federal Register on January 12, 2001)

This project does not include any system road construction on public lands. I find that this project is in compliance with the terms of this new rule and policy.

Migratory Bird Treaty Act

On January 10, 2001, President Clinton signed an Executive Order outlining responsibilities of federal agencies to protect migratory birds. Upon review of information in the FEIS, I find that Alternative B Modified complies with this Executive Order.

Environmental Justice

The Selected Alternative was assessed to determine whether it will disproportionately impact minority or low-income populations, in accordance with Executive Order 12898 (FEIS, page 3-402). No impacts to minority or low-income populations were identified during scoping or effects assessment.

Compliance with Other Laws, Regulations, and Policies

Compliance with other laws, regulations, and policies are listed in various sections of the Project File, the Forest Plan, and the FEIS (primarily in the "Regulatory Framework" and "Regulatory Consistency" discussions at the end of the resource sections of Chapter 3).

Environmentally Preferred Alternative

The FEIS analyzed one no-action and three action alternatives in detail. A modified Alternative B that I have selected is presented in this Record of Decision. It is also required by law that one or more environmentally preferred alternatives be disclosed in the Record of Decision. The environmentally preferred alternative is not necessarily the alternative that will be implemented and it does not have to meet the underlying need of the project. It does, however, have to cause the least damage to the biological and physical environment or it also means the alternative that best protects, preserves, and enhances historical, cultural, and natural resources (Section 101 NEPA: 40 CFR 1505.2(b)).

The FEIS identified Alternative A, the No Action Alternative, as the environmentally preferred alternative. I believe that this is true in the sense that this alternative causes the least damage to the biological and physical environment. However, all of the action alternatives also meet the Council on Environmental Quality (CEQ) definition of environmentally preferable, as found in Number Six of the "Forty Most Asked Questions Concerning CEQ's NEPA Regulations" (1981), in that they protect, preserve, and enhance the natural resources of the project area. The Action Alternatives all respond to these criteria of protecting, preserving, and enhancing the natural resources by ensuring long-term benefits to water resources and fisheries (due to the application of Best Management Practices in the form of road drainage improvements and timber harvest methodologies throughout the project area), improved vegetative diversity (due to the planting of trees and shrubs), and reduced spread of noxious weeds, (due to weed treatments along timber haul routes).

Review and Appeal Opportunities

Copies of the Sheppard Creek Post-Fire Project FEIS and this Record of Decision are available for review at the Tally Lake Ranger Station/Forest Supervisor's Office in Kalispell, Montana, and online at: www.fs.fed.us/r1/flathead/nepa/nepa.htm. The supporting Project File is also available for review at the Tally Lake Ranger Station (650 Wolfpack Way, Kalispell, MT 59901).

This decision is subject to appeal pursuant to 36 CFR 215.11. A written appeal must be submitted within 45 days following the publication date of the legal notice of this decision in the Daily Inter Lake Newspaper, Kalispell, Montana. It is the responsibility of the appellant to ensure their appeal is received in a timely manner. The publication date of the legal notice of the decision in the newspaper of record is the *exclusive* means for calculating the time to file an appeal. Appellants should not rely on date or timeframe information provided by any other source.

Paper appeals must be mailed to:

USDA Forest Service, Northern Region
ATTN: Appeal Deciding Officer
P.O. Box 7669
Missoula, MT 59807

For hand delivery or package delivery by UPS, Fed Ex, etc.; please use this address:

USDA Forest Service, Northern Region
ATTN: Appeal Deciding Officer
200 East Broadway
Missoula, MT 59802

Office hours: 7:30 a.m. to 4:00 p.m.

Electronic appeals must be submitted to:

appeals-northern-regional-office@fs.fed.us

Faxed appeals must be submitted to:

Fax: (406) 329-3411

In electronic appeals, the subject line should contain the name of the project being appealed. An automated response will confirm your electronic appeal has been received. Electronic appeals must be submitted in MS Word (.doc), Word Perfect (.wpd), Rich Text Format (.rtf), or Portable Document Format (.pdf).

It is the appellant's responsibility to provide sufficient project- or activity-specific evidence and rationale, focusing on the decision, to show why my decision should be reversed. The appeal must be filed with the Appeal Deciding Officer in writing. At a minimum, the appeal must meet the content requirements of 36 CFR 215.14, and include the following information:

- The appellant's name and address, with a telephone number, if available;
- A signature, or other verification of authorship upon request (a scanned signature for electronic mail may be filed with the appeal);
- When multiple names are listed on an appeal, identification of the lead appellant and verification of the identity of the lead appellant upon request;
- The name of the project or activity for which the decision was made, the name and title of the Responsible Official, and the date of the decision;
- The regulation under which the appeal is being filed, when there is an option to appeal under either 36 CFR 215 or 36 CFR 251, subpart C;
- Any specific change(s) in the decision that the appellant seeks and rationale for those changes;
- Any portion(s) of the decision with which the appellant disagrees, and explanation for the disagreement;
- Why the appellant believes the Responsible Official's decision failed to consider the comments; and
- How the appellant believes the decision specifically violates law, regulation, or policy.

"If an appeal is received on this project there may be informal resolution meetings and/or conference calls between the Responsible Official and the appellant. These discussions would take place within 15 days after the closing date for filing an appeal. All such meetings are open to the public. If you are interested in attending any informal resolution discussions, please contact the Responsible Official or monitor the following website for postings about current appeals in the Northern Region of the Forest Service: http://www.fs.fed.us/r1/projects/appeal_index.shtml."

Based on the need to implement this decision during the 2008-2009 winter season to prevent substantial loss of the salvage volume merchantability and value, the Chief of the Forest Service has determined that an emergency situation exists. In accordance with 36 CFR 215.10, activities associated with the removal of salvage trees may proceed immediately following the publication of this Record of Decision.

If no appeal is received, implementation of the portions of this decision that are not exempted from stay may occur on, but not before, five business days from the close of the appeal filing period. If an appeal is received, implementation on the non-exempted actions may not occur for 15 days following the date of appeal disposition.

For further information on this decision, contact District Ranger Lisa Timchak at (406) 758-5200 or Bryan Donner, Project Leader, at (406) 758-3508.

Cathy Barbouletos 10/16/08

CATHY BARBOULETOS **Date**
Forest Supervisor
Flathead National Forest

APPENDIX A

DETAILS of the SELECTED ALTERNATIVE

The action I selected to meet the purpose and need is timber salvage harvest. Other actions associated with meeting the purpose and need include planting within salvage units, temporary road construction, road maintenance, road restoration, and temporary road reclamation. The action was developed as a strategy to salvage merchantable wood while complying with Forest Plan direction. Specific timber salvage units were identified and their corresponding treatment prescriptions were developed based on the level of known or predicted mortality, the amount of salvage wood material available, the economics of yarding and transporting the material, and consideration of protection of resource values; such as water quality and soil productivity. The following sections describe details of my decision.

Timber Salvage Management Proposals

Timber salvage and related activities are proposed to meet the purpose and need of this project. Please refer to the Selected Alternative Vegetation Treatment map (Figure A-1) for locations of the salvage units. Vegetation treatments would include:

- Approximately 3973 acres of commercial timber salvage is proposed for harvest (please see Table A-1 below for a unit by unit description). Harvest activities would occur in 156 different units within the project area. Areas proposed for salvage were selected based on the amount, size, and type of burned timber available. Some areas that could be salvaged based on the size and amount of burned timber were avoided due to their Forest Plan management area requirements. Material targeted for removal is primarily dead trees affected by the fire; however, in many units, live trees that are smaller than the specified diameters would also be removed, unless the unit is designated for live tree marking. In addition, some of the larger live trees designated for retention would likely be cut to facilitate logging operations, such as in landings, skid trails, or temporary road locations; or for safety reasons. Definitions of dead trees are discussed in detail in Project File Exhibit P-15. Each timber salvage unit was designed to be logged using the most economical logging system practical for that particular site while still protecting resources such as soil, water, and wildlife. Helicopter operations in the immediate vicinity of Sylvia Lake would be restricted for public safety and wildlife security. Some units would be required to be logged in winter conditions for site protection.

- Commercial timber harvest activities typically generate a large volume of waste wood at the log landing. This material is typically piled at or near the landing and later burned in the fall or early winter when the pile burning would not create a wildland fire risk. The number and locations of these landings are not currently

known. Reducing activity related fuels within the salvage units would not be necessary.

- Approximately 803 acres of planting and 742 acres of interplanting would occur. The planting and interplanting would consist of seedling sized trees of western larch, Douglas-fir, lodgepole pine, spruce, western white pine, and ponderosa pine. Interplanting refers to the planting of desired seedling species amongst naturally regenerated seedlings to ensure adequate stocking or desired species composition. Site preparation prior to planting to remove down wood or vegetation that might hinder the planting operations would not be necessary. The remaining acres of salvaged ground would be reforested using natural regeneration methods.

Table A-1. Alternative B Modified Units for Commercial Timber Harvest

Unit Number	Acres	Yarding System^	Snag/Live Tree Rx Group**	Regeneration Method@	Winter Logging Required Ω
1	32	Tractor	WW-Multi	Plant	Yes
2E	13	Tractor	WW-Multi	Plant	Yes
2W	6	Tractor	WW-Multi	Plant	Yes
3	10	Tractor	WW-Multi	Plant	Yes
4	16	Tractor	WW-Multi	Plant	Yes
5	46	Tractor	WW-Multi	Plant	Yes
8	32	Tractor	WW-Single	Natural	Yes
8AN	24	Skyline	WW-Multi	Natural	No
8AS	32	Skyline	WW-Multi	Natural	No
8B	7	Tractor	WW-Multi	Natural	Yes
13	21	Tractor	WW-Multi	Plant	Yes
14C	3	Tractor	WW-Multi	Plant	Yes
14E	18	Tractor/Swing	WW-Multi	Plant	Yes
14W	8	Skyline	WW-Multi	Plant	No
17BN	11	Tractor	WW-Multi	Plant	Yes
17BS	7	Tractor	WW-Multi	Plant	Yes
23	82	Tractor	WW-Multi	Natural	No
23A	60	Tractor	WW-Multi	Plant	Yes
24	14	Tractor	WW-Single	Plant	No
25	10	Tractor	WW-Multi	Natural	Yes
27	15	Tractor	WW-Multi	Plant	Yes
28	2	Tractor	WW-Multi	Plant	Yes
28A	2	Tractor	WW-Multi	Plant	Yes
28B	44	Tractor	WW-Multi	Natural	Yes
29	12	Tractor	WW-Multi	Plant	Yes
31	124	Tractor	WW-Multi	Plant	Yes
34	17	Tractor	WW-Single	Plant	No
36	8	Tractor	WW-Single	Natural	Yes
37	6	Skyline	WL	Natural	No
38	49	Tractor	DF	Interplant	No
40	16	Tractor	DF	Interplant	Yes
43	20	Skyline	WW-Single	Natural	No
43B	14	Tractor	WW-Multi	Plant	Yes
44A	36	Tractor	DF	Natural	Yes
44C	5	Tractor	WW-Multi	Interplant	Yes
44E	22	Tractor	WW-Multi	Interplant	Yes
44W	12	Tractor	WW-Multi	Interplant	Yes

Unit Number	Acres	Yarding System^	Snag/Live Tree Rx Group**	Regeneration Method@	Winter Logging Required Ω
45B	21	Tractor	DF	Natural	Yes
46	24	Tractor	WW-Multi	Interplant	Yes
47	5	Tractor	DF	Natural	Yes
48	26	Tractor	WW-Single	Natural	No
49	11	Tractor	DF	Natural	No
49A	7	Skyline	DF	Natural	No
51	22	Tractor	DF	Natural	No
52	4	Tractor	DF	Natural	Yes
52A	1	Tractor	DF	Natural	Yes
53A	21	Tractor	DF	Natural	Yes
53B	9	Tractor	DF	Natural	Yes
53C	4	Tractor	DF	Natural	Yes
54	78	Skyline	DF	Interplant	No
55	41	Tractor	DF	Interplant	Yes
55A	2	Tractor	DF	Interplant	Yes
56	4	Tractor	DF	Interplant	Yes
57	5	Tractor	DF	Natural	Yes
58	16	Tractor	WL	Natural	Yes
58A	34	Tractor	DF	Natural	No
59	64	Skyline	DF	Interplant	No
59A	7	Cable	DF	Interplant	No
60	45	Skyline	DF	Interplant	No
60A	44	Skyline	DF	Interplant	No
61	11	Skyline	DF	Natural	No
62	17	Skyline	WW-Multi	Natural	No
63	23	Skyline	WL	Natural	No
64A	12	Skyline	WW-Multi	Interplant	No
64B	38	Skyline	DF	Interplant	No
64C	4	Tractor	WW-Multi	Interplant	Yes
64D	11	Skyline	DF	Interplant	No
64E	9	Skyline	WW-Multi	Interplant	No
64F	10	Tractor	DF	Interplant	Yes
64G	24	Skyline	DF	Natural	No
64H	23	Tractor	DF	Natural	Yes
64I	9	Skyline	DF	Natural	No
64J	34	Skyline	WW-Multi	Interplant	No
64K	2	Skyline	WW-Multi	Interplant	No
64L	90	Skyline	WW-Multi	Natural	No
64M	10	Tractor	WW-Multi	Interplant	Yes
64N	2	Tractor	WW-Multi	Interplant	Yes
65	90	Tractor	WW-Multi	Natural	Yes
65A	37	Skyline	DF+LTM	Natural	No
65B	8	Skyline	DF+LTM	Natural	No
65C	4	Tractor	WW-Multi+LTM	Natural	Yes
66	13	Skyline	DF	Interplant	No
67	9	Tractor	DF	Natural	Yes
68	21	Skyline	DF	Natural	No
68A	10	Skyline	DF	Natural	No
69	38	Skyline	DF	Interplant	No
69A	11	Helicopter	DF	Interplant	No
70	3	Tractor	DF	Plant	Yes
71	2	Cable	DF	Natural	No
73A	44	Skyline	DF	Natural	No

Unit Number	Acres	Yarding System^	Snag/Live Tree Rx Group**	Regeneration Method@	Winter Logging Required Ω
73B	19	Helicopter	DF+LTM	Natural	No
74	87	Tractor	DF	Natural	Yes
74A	32	Tractor	WW-Single	Plant	Yes
75	18	Skyline	DF	Natural	No
76	10	Helicopter	DF	Plant	No
77	52	Helicopter	DF	Plant	No
77A	40	Skyline	DF	Natural	No
78	19	Skyline	DF	Plant	No
80	56	Skyline	DF	Natural	No
81	11	Tractor	DF+LTM	Natural	Yes
82	16	Skyline	DF	Interplant	No
83	41	Tractor	WW-Multi	Plant	Yes
83A	22	Tractor	WW-Multi	Plant	No
84	17	Tractor/Swing	WW-Multi	Interplant	Yes
84A	16	Skyline	WW-Multi	Interplant	No
85	33	Tractor	WW-Single+LTM	Plant	No
86	39	Tractor	WW-Multi	Interplant	Yes
86A	4	Skyline	WW-Multi	Interplant	No
87A	7	Skyline	WW-Multi	Plant	No
87B	2	Tractor	WW-Multi	Plant	Yes
89	85	Tractor	WL	Natural	Yes
92	43	Tractor	WL	Natural	No
93	16	Tractor	DF	Natural	Yes
94	19	Tractor	WW-Multi	Natural	Yes
96	2	Tractor	DF	Natural	Yes
97	38	Skyline	WL	Natural	No
98	24	Tractor	WL	Natural	Yes
99	7	Tractor	WL	Natural	No
99A	6	Cable	WL	Natural	No
99C	2	Cable	WL	Natural	No
99D	14	Cable	WL	Natural	No
100	8	Skyline	DF	Natural	No
101	4	Tractor	WL	Natural	Yes
102	43	Skyline	DF	Natural	No
103	3	Cable	DF	Plant	Yes
104	41	Skyline	DF	Natural	No
105	11	Tractor	DF	Natural	No
106	4	Cable	WW-Single	Natural	No
107	35	Tractor	DF	Natural	Yes
107A	3	Tractor	DF	Natural	Yes
107B	31	Skyline	DF	Natural	No
107C	11	Cable	WL	Natural	Yes
108	24	Tractor	DF	Natural	Yes
109	15	Tractor/Swing	WW-Multi	Natural	Yes
111A	23	Skyline	WL	Natural	No
112	44	Tractor	WW-Multi	Natural	No
114	11	Tractor	WW-Multi	Interplant	Yes
115	25	Tractor/Swing	WW-Multi	Plant	Yes
116	126	Skyline	WL	Natural	No
117	56	Tractor	WW-Multi	Natural	No
118	70	Helicopter	DF	Natural	No
119	31	Tractor	WW-Multi	Plant	Yes
119A	21	Tractor	WL	Natural	Yes

Unit Number	Acres	Yarding System^	Snag/Live Tree Rx Group**	Regeneration Method@	Winter Logging Required Ω
120	58	Tractor	DF+LTM	Natural	Yes
121	44	Tractor	DF+LTM	Natural	No
122	12	Tractor	DF	Interplant	No
123	5	Tractor	DF	Interplant	No
124	15	Tractor	DF	Interplant	Yes
125	14	Tractor	DF	Natural	Yes
126	41	Tractor	DF	Natural	Yes
128	23	Skyline	WL+LTM	Natural	No
129	90	Skyline	WW-Multi+LTM	Natural	No
130	182	Tractor	WL	Natural	Yes/No
131	11	Skyline	WL	Plant	No
132	61	Skyline	WW-Multi	Plant	No
134	10	Cable	DF	Natural	No
TOTAL	**3973**				

^ Yarding Systems: Cable and Tractor yarding are ground based systems having little or no suspension of the log; Skyline yarding partially or fully suspends the logs; Tractor/Swing uses both a partially suspended skyline system and ground based tractor system; and Helicopter yarding fully suspends the logs.
** Snag/Live Tree Prescription Group: See the Snag/Live Tree Prescriptions Section below. "LTM" means additional trees would be marked to leave.
@ Regeneration Method: Plant- units expected to not have adequate regeneration would be hand planted; Interplant- units expected to have some natural regeneration but would also be planted for species diversity; Natural- units expected to have enough live trees to naturally regenerate.
Ω Units designated with 'Yes/No' indicated approximately half of the unit acres are required winter log.

Snag/Live Tree Prescriptions

Table A-2 describes the snag and live tree prescriptions for the Selected Alternative. The "whitewood" group was divided into a) stands dominated by a single whitewood species, such as lodgepole pine, spruce, or subalpine fir, and b) stands dominated by whitewoods but with a representation of larch or Douglas-fir. In all snag/live tree prescription groups, units with lower burn severities would have additional trees marked to leave. This would retain live trees that would otherwise be removed under the standard prescriptions. These units have "+LTM" in the Snag/Live Tree Prescription Group column in Table A-1 above.

Table A-2. Alternative B Modified Snag/Live Tree Prescriptions in Commercial Timber Harvest Units (Exhibit Rd-13).

Snag/Live Tree Prescription Group	Western Larch Retention	Douglas-fir Retention
Douglas-fir	All	None
Larch	16" DBH* and larger	None
Whitewoods—single-species	All	All
Whitewoods—multi-species	14" DBH and larger	None

* DBH = Diameter at Breast Height, or 4.5 feet above ground level.

These minimum retention diameters by species are intended to keep the largest snags and most of the live trees within the salvage units. Across the acreage in all but one of the snag/live tree prescription groups, an average of eight of these larger trees and snags per acre is expected to remain after salvage. The exception is the single-species whitewoods group,

where an average of only five larch and Douglas-fir over 12 inches DBH exist per acre. A snag/live tree prescription group was assigned to each salvage unit.

Transportation Management Proposals

Transportation management proposals would involve temporary road construction, road maintenance, and road restrictions. Please refer to the Selected Alternative Vegetation Treatment map (Figure A-1) for locations of the temporary roads. No new permanent system roads would be built. No road construction of any kind would take place on Forest Plan MA 2C lands. Public motorized access will not change with this decision.

Road Construction and Maintenance

- Approximately 11.8 miles of historic road templates would be temporarily opened to access proposed salvage units; these roads would be reclaimed after use. These temporary roads on historic templates were system roads constructed to the best road construction standards of their day but later removed or decommissioned from the Forest's transportation system for a variety of reasons. The road template, drainage ditches, and ditch relief culverts are typically still in place. Stream crossing culverts may or may not have been removed. Many of the roads have been naturally revegetated with grass, shrubs, and thick clumps of alder. Reconstruction of the roads would typically only require the replacement of stream culverts and possibly brush cutting. Table A-3 describes this and the new temporary road construction.

- Approximately 6.0 miles of new temporary roads would be constructed to access proposed salvage units. These temporary roads would be obliterated after use. Obliteration typically means to recontour the temporary road to its original slope or near its original slope. It may also include placement of natural debris or revegetation with shrubs or trees. Culvert removals and stream restoration would occur where roads to be obliterated intersect streams.

- Road maintenance actions consisting of brushing and blading may be needed on some haul roads within the project area. Other drainage work such as the placement of drain dips, additional culverts, and replacement of culverts would likely take place. Dust abatement and blading would occur as needed on the main haul routes.

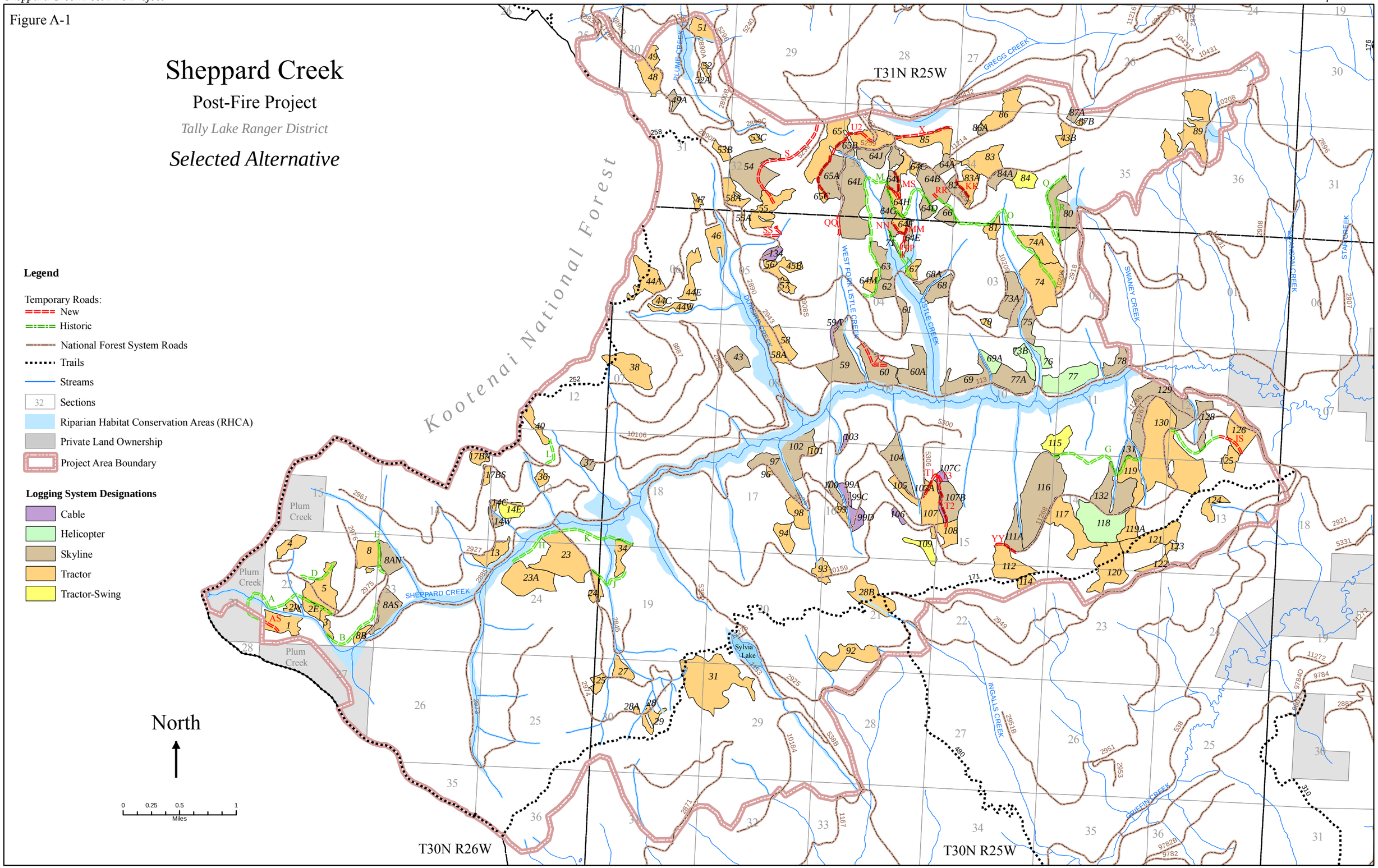
Figure A-1

Sheppard Creek

Post-Fire Project

Tally Lake Ranger District

Selected Alternative



Revegetation of Temporary Roads

Native vegetation cover greatly reduces the potential for weed invasion. Temporary roads revegetated with native forbs and shrubs in addition to grass seeding have less invasion potential providing quicker native vegetation cover than roads that are only seeded. In areas showing no or low weed infestations, temporary roads YY, T1, T2, and T3 would be revegetated using native forbs, shrubs, and grass seed to reduce the potential for nearby infestations to spread into these currently weed-free areas. These plantings should occur as soon as possible after the road is no longer needed.

Table A-3. New and Historic Temporary Road Construction for Alternative B Modified.

Road Number	New or Historic	Length (miles)	Units Accessed
A	Historic	1.2	1, 2E, 2W, 3, 5
B	Historic	0.7	3, 8B
D	Historic	0.4	5
E	Historic	0.3	8, 8AN
G	Historic	1.1	115, 116, 119, 131, 132
H	Historic	0.5	23. 23A
I	Historic	0.6	125, 126, 128
J	Historic	0.4	24, 34
K	Historic	0.8	34
L	Historic	0.3	40
M	Historic	2.3	62, 63, 64D, 64F, 64G, 64H, 64I, 64M
N	Historic	0.5	64E, 64F, 64G, 67, 71
O	Historic	1.6	64B, 66, 74, 74A
Q	Historic	0.7	80
R	Historic	0.4	80
TOTAL HISTORIC		**11.8**	
AS	New	0.2	1
IS	New	0.3	125, 126
KK	New	0.2	82, 83A
MM	New	0.1	64E, 64F
NN	New	0.2	64F, 64G
PP	New	0.2	64E, 64F, 64G
QQ	New	0.2	64L
RR	New	0.1	64B
S	New	1.1	54, 55
SS	New	0.3	55
T1	New	0.3	107, 107A
T2	New	0.5	107B, 107C
T3	New	0.1	107C
U2	New	1.0	65, 65A, 65B, 65C
X	New	0.5	85
YY	New	0.3	111A, 112, 113, 113A
ZZ	New	0.4	60
TOTAL NEW		**6.0**	

Helicopter Landings

An estimated three areas covering approximately 1.0 to 1.5 acres each would be used for helicopter landings. Landings would not be located on problematic soils, in RHCAs, Forest Plan Management Areas 2C and 7, or other areas determined as "sensitive" by an interdisciplinary review led by the District Hydrologist. In addition, they would be located in generally level areas. In some cases, roads may be used as landing areas. Areas with concentrations of live trees and larch and Douglas-fir snags over 18 inches DBH would be avoided to the greatest extent possible. Approach and departure flight paths may need live and/or dead tree falling to facilitate safe helicopter operations.

APPENDIX B

PROJECT DESIGN FEATURES

Many concerns expressed in the scoping period are best addressed through development of design features that are common to all action alternatives (Alternatives B through D) and that specifically avoid or reduce potential environmental impacts. These design features as described below are an integral part of my Selected Alternative, and therefore are considered requirements.

Timing of Activities

Forest products from the proposed harvest units will be offered in several sale packages beginning in the late fall of 2008. Completion of harvest activities will be expected within two to three years after any given sale contract is awarded. All projects other than salvage logging, such as tree planting, will be completed as soon as possible. Timing of other activities for particular resources are detailed below.

Heritage Resources

Field investigation in accordance with the National Historic Preservation Act is ongoing. This includes consultation with the State Historic Preservation Office, the Advisory Council on Historic Preservation, and local Native American Tribes.

If previously unknown heritage resources are encountered during implementation of the project, activities at the site will be halted and the forest archaeologist will be notified immediately. Activities will not resume until adequate protective measures are developed and specified in the field.

Special timber sale contract provisions will be included in any timber sale contract that requires identification and protection of known resources and allows modification or cancellation of the timber sale or other contracts if necessary to protect resources discovered while project implementation is in progress.

Wildlife

Old Growth Habitat

No old growth habitat or recruitment old growth habitat will be entered for timber salvage (Project File Exhibits Q-5 and Q-7). This includes areas where the status of old growth or recruitment old growth is still uncertain at the time of project implementation. All areas of

proposed salvage where old growth or recruitment values were uncertain were field-reviewed for old growth habitat attributes in 2008 (Project File Exhibits Q-1 and Q-2). The post-fire mortality guidelines (Table B-1 below and Project File Exhibit P-15) provide criteria for determining the amount of live trees in these areas.

Wildlife Security

Hunting, transporting of hunters, and transporting of game will be prohibited by timber, road building, or other contract workers while working on or off roads closed to motorized vehicle use by the general public.

All newly constructed temporary roads will be closed by sign or gate to public motorized use during and after road building and other activities.

All existing roads currently closed to public motorized use will remain closed to the public by sign or gate during implementation of all proposed activities. From September 1 through the end of the general hunting season, gates will be closed after each vehicle and locked at the end of each work day.

Threatened, Endangered, and Sensitive Wildlife

All contractors and others implementing the project will be required to comply with a food-storage and sanitation order, as outlined by contract or permit.

If any of the following are found within or close to any timber salvage unit or temporary road location, operations within that unit or on that road will cease until the Forest Service wildlife biologist is notified and activities are modified, if necessary:

- Active denning sites used by grizzly bears, wolves, lynx, fishers, or wolverines;
- Active nesting sites used by bald eagles or northern goshawks;
- Active rendezvous (pup rearing) sites used by wolves; and/or
- Concentrations of boreal toads.

If nests of black-backed woodpeckers or concentrations of this species are observed during salvage operations in or adjacent to units, Forest Service wildlife biologists are to be notified.

No live sapling or multi-story lynx feeding habitat will be entered for timber salvage (Project File Exhibit Rt-8). Salvage in current potential lynx habitats (”other” and “multistory feeding”) will occur only where leave tree marking or modified prescriptions will retain habitat characteristics. The post-fire mortality guidelines (Table B-1 below and Project File Exhibit P-15) provide criteria for determining the amount of live trees in these areas.

Deciduous trees and shrubs might be planted in conjunction with conifer plantings to increase wildlife security cover. These plantings will take place in and near riparian areas.

Riparian Wildlife Habitat

Standing and downed trees within 75 feet of wetlands (not streams) will not be removed for bark beetle concerns or other reasons. If bark beetle larvae are present, the beetles may be removed or killed by debarking or other methods that do not include felling or removal of the tree or log. Standing trees within 75 feet of wetlands will be left standing wherever they are not a safety hazard. Logs of all species that have any part extending into wetlands or wetland edges will remain in place. Wetlands will be identified by presence of wetland vegetation and marked during non-winter seasons.

If trees or snags of any species that are within a tree length of wetlands are felled for safety reasons, they will be directionally felled towards the wetland.

After logging, all slash within 75 feet of wetlands will be left in place and will not be piled, burned, or further scattered.

Sensitive Plants

Populations of sensitive plants will be evaluated and protected as necessary if located during project planning and project implementation. Proposed ground disturbing activities will be located no closer than 300 feet to the population of sensitive plants. A contract clause will be incorporated into all timber sale contracts specifying that the contract will be modified to protect these plants if located during implementation.

Noxious Weed Control

Features listed under the Soils section below will also serve to reduce the risk of noxious weed establishment and spread. Specific actions related to noxious weed concerns include the following:

- Off-road equipment use associated with timber harvest and road maintenance will be power scrubbed or steam cleaned on the undercarriage and chassis to remove all soil, plant parts, seeds, vegetative matter, or other debris that could contain or hold seeds before transport to and from the project area. All subsequent move-ins of equipment to the project area will be treated in the same manner as the initial move in. "Off-road equipment" includes all logging and construction machinery, except for log trucks, chip vans, service vehicles, water trucks, pickup trucks, cars, and similar vehicles. During periods of operations with snow cover (ten inches minimum) or frozen ground, washing of equipment as described above is only required upon entering the project area but not when leaving.
- Reestablish vegetation on bare ground created at log landings with a Montana-Certified weed free grass ground cover (seed mix of native plants will be specified by the Forest Botanist), as soon as feasible after disturbance to provide for site protection until native species are established.
- Herbicides will be sprayed within the road prism along designated haul routes (Exhibit M-3) before log hauling begins and after all purchaser activities are completed, with the exception of roads used in the first winter of the contract. These roads used in the

first winter of the contract will be treated for weeds before subsequent summer activities begin. The road prism is defined as the road and associated toe of the fill to the top of the cut slope, including the running surface and turnouts. Treatments will only occur during the periods from June 1 to July 15 or September 1 to September 30. Treatment of invasive plants will be consistent with the strategy outlined in the Flathead National Forest Noxious and Invasive Weed Control Decision Notice and Finding of No Significant Impact (May 2001).

- Obliteration of new temporary roads should occur to discourage future access and create a vegetation community which will resist infestations. Revegetate with native shrubs or native seed mix (specified by the Forest Botanist) after topsoil is replaced as soon as feasible after disturbance to provide for site protection until native species are established. Temporary roads built on historic templates will have the first 100 feet obliterated where these roads meet a road open to public motorized use to discourage the spread of weeds by unauthorized entry. Roads will be obliterated as soon as access is no longer needed.
- The Forest Weeds Coordinator or Forest Botanist will provide noxious weed informational materials of target species for distribution to contracted workers in the project area emphasizing the importance of spread prevention measures and communication of infestations to Forest personnel.
- Unburned noxious weed vegetation, seeds, and root systems potentially remain in low to moderate vegetation burn severity areas that had timber harvest activity previous to the Brush Creek Fire. Winter logging these units will help reduce noxious weed spread. Units with proposed tractor or tractor/swing operations close to existing populations of noxious weeds are proposed for winter logging (see Table A-1).

Air Quality

Landing pile burning is the only prescribed burning action proposed with this project. Prior to prescribed burning, a burn plan will be prepared for each prescribed burn. Air quality sensitive areas, such as the Bob Marshall Wilderness Complex, Glacier National Park, Flathead Valley, Kootenai National Forest, and Cabinet Mountain Wilderness will be identified in each specific burn plan. Prescribed burning resulting from this project will be scheduled when smoke will not accumulate in unacceptable concentrations. Burn timing will also be planned to minimize effects on these smoke sensitive areas. Extended meteorological and spot weather forecast on mixing height, atmospheric stability, and wind speed will be required prior to burning to ensure that federal and state ambient air quality standards are met.

The Flathead National Forest cooperates with the State Air Quality Bureau and is a member of the Montana/Idaho State Airshed Group. This coordination ensures that, during project implementation, burning only occurs under conditions that will protect air quality and meet state and national standards.

Snags and Downed Wood

Amendment 21 of the Flathead Forest Plan specifies minimum numbers of snags, snag replacement trees, and pieces of downed wood to be left, or requires the preparation of site-

specific snag and downed wood prescriptions. Although the minimum diameters are not always present in a given stand, the intent of the Forest Plan will be met or exceeded (Exhibits Q-10 and Rd-13). To provide for snag and downed wood habitat needs, as well as living tree canopy and large trees, the following will be prescribed:

- Minimum retention diameters by species to keep the largest snags and most of the live trees within salvage units. A snag/live tree prescription group was assigned to each unit. For more information, see Appendix A and Project File Exhibit Rd-13.
- Retain all black cottonwood, quaking aspen, paper birch, and ponderosa pine live trees and snags.
- All of the live trees and designated snags will be left standing wherever possible, unless they need to be felled for reasons such as hazard trees, landing locations, skid trails, and skyline corridors.
- Trees felled for safety reasons will be left on site.
- Leave all unmerchantable snags or live trees standing wherever possible, if safe to do so.
- Sign and paint all high-quality wildlife trees left within 200 feet of a road open to wheeled motorized use by the public.

Slash Reduction

Some salvage harvest units may require whole tree yarding to the log landing due to excessive amounts of stem and top material. Individual unit harvest prescriptions will be prepared to reflect slash accumulation potential and reduction needs.

Retention of Live Trees

The Selected Alternative will primarily remove trees killed by the Brush Creek Fire and trees likely to die because of severe fire injury or bark beetle infestation. Live trees that are not infested with bark beetles or that exceed diameters specified for snag and snag replacement will be left in the salvage units. In many units, live trees that are smaller than the specified diameters will be removed. In addition, some of the larger live trees designated for retention will likely be cut to facilitate logging operations, such as in landings, skid trails, or temporary road locations, or for safety reasons. Some of the trees proposed for removal appear to be alive, but they are dying. These include trees with no sign of fire damage on the bole or crown but that have extensive root damage or Douglas-fir and spruce trees that are infested or highly likely to become infested with bark beetles.

The post-fire mortality guidelines (Project File Exhibit P-15 and summarized in the following table) provide criteria for determining which trees are likely to live. The guidelines are based on research that followed trees for up to five years after fires and on observations after fires on the Flathead and Bitterroot National Forests over the last eight years. For Douglas-fir, they include predictions for Douglas-fir beetle caused mortality in addition to direct fire-caused mortality. In some units with a high number of trees that are currently alive, a modified mortality guide will be used to retain Douglas-fir expected to survive the direct effects of the fire. Because these Douglas-fir trees are susceptible to bark beetles, these units will be

protected with anti-aggregating pheromones, if funding is available. These guidelines will be used to develop site-specific silvicultural prescriptions and to identify areas with relatively few trees killed by the fire, as described above for old growth and Canada lynx habitat concerns.

Table B-1. Selected Alternative Post-Fire Mortality Guidelines.

Species	Diameter (DBH)	Moderate to Deep Bole Char: % of root crown circumference *	Remaining Live Crown Ratio	Mortality Probability (immediate or delayed)	Salvage Guideline
Larch or Ponderosa Pine	All	≥50%	(n.a.)	High	Available for removal, depending on snag prescription
		<50%	<30%	High	
			≥30%	**Low**	**Leave Tree**
Douglas-fir	25"+	(n.a.)	(n.a.)	High	Available for removal, depending on snag prescription
	15-24.9"	>0%	(n.a.)	High	
		0%	<30%	High	
			≥30%	**Low**	**Leave Tree**
	<15"	≥25%	(n.a.)	High	Available for removal, depending on snag prescription
		<25%	<30%	High	
			≥30%	**Low**	**Leave Tree**
All Other Species	All	>0%	(n.a.)	High	Available for removal, depending on snag prescription
		0%	<30%	High	
			≥30%	**Low**	**Leave Tree**

* For bole char, see Hood, et al. 2007, "Assessing Post-fire Douglas-fir Mortality and Douglas-fir Beetle Attacks in the Northern Rocky Mountains Supplement." Gen. Tech. Rep. RMRS-GTR-199.

Reforestation

All salvage units will be reforested through either natural regeneration or tree planting of native conifer species (western larch, Douglas-fir, western white pine, lodgepole pine, Engelmann spruce, or ponderosa pine). This will restore the productive capacity of the land in a timely manner and ensure desired species diversity in the future forest. Refer to Appendix A for projected planting areas and amount of acres.

Scenic / Visual Resources

In order to reduce the short-term visual impacts of slash residue and salvage harvesting in close proximity to "foreground viewing areas" or "middle-ground viewing areas," the following actions will be taken:

- Dispose of burn piles along open roads and trails within two years of piling.
- Emphasize low cut or angle cut stumps in the immediate foreground (100 feet) along Trail 171 (Ingalls Mountain Trail), Trail 252 (Elk Mountain Trail), and Trail 258 (Dunsire Pass Trail).

- Rehabilitate log landing areas next to open roads. Dispose of slash, scarify, and plant native vegetation where necessary to establish new vegetation.
- Trees marked with paint for retention or boundaries visible within 100 feet of Trails 171, 252, and 480 will be repainted with black paint as needed or painted trees will be removed as logging is completed.

Public Firewood Gathering

Currently, a temporary closure order is in place that restricts firewood cutting in the Flathead National Forest portion of the Brush Creek fire area. The Selected alternative will extend this closure order restricting public firewood cutting throughout proposed salvage sale operations. Personal use firewood gathering will not be allowed by contractors or other workers on roads closed to use by the general public.

Soil, Water, and Fisheries

Detrimental soil disturbance from salvage actions could result in decreased site productivity and increased sediment delivery to streams, especially on soils burned with high severity. Specific concerns related to project activities include excessive compaction, erosion, and potential loss of coarse woody material that maintains micro-site habitat and long term soil productivity. All proposed units will have field review by a soil scientist and/or field technicians to evaluate current conditions and prescribe adequate design features to maintain soil productivity.

Management practices designed to maintain soil productivity and prevent accelerated erosion are shown below. These requirements will be incorporated into timber sale contracts through the inclusion of the contract clauses.

- Summer ground-based harvest will be restricted to units with slopes less than 25 percent and with predominantly low soil burn severity. Tractors may operate on some areas that exceed 25 percent slope with concurrence of the soil scientist. Within units that have retained green or lightly-burned foliage but are girdled, in-woods processing to retain a slash mat for equipment will be required to minimize compaction, prevent soil deformation and rutting, and to reduce erosion potential. The depth of the slash mat will vary depending on local conditions. Back hauling slash from the landing will only be allowed to supplement in-woods slash sources.
- Equipment operation in summer will only occur when soils are at an acceptable level of dryness, as determined by the timber sale administrator based on site-specific sampling. Dry soils are determined using the hand squeeze method (USDA Program Aid Number 1619). Clumping or muddy color on fingers and rutting exceeding two inches in depth indicate conditions are too wet for operation.
- Winter harvest operations with ground-based equipment will be restricted to slopes less than 40 percent and will be allowed on all soil burn severities.
- Winter logging requires that there be enough snow to prevent muddy water from mixing into the snow where equipment operates. This will require about ten inches of snow. The depth of snow varies with the snow conditions. It takes more dry powder

snow than wet dense snow to protect the soil surface. Soils must be frozen enough to prevent deformation of the soil surface where equipment operates.

- Main skid trails and temporary access roads will be designated by the timber sale administrator.
- All skyline corridors will have waterbars installed and slash placed on bare soils, to provide ground cover and reduce soil erosion potential.
- Removal of non-sawlog products from proposed units with low amounts of available woody biomass will not be allowed. The district silviculturist and forest hydrologist will determine which units are available for non-sawlog product removal.
- Mechanical fuel treatments in proposed salvage areas are not planned. Any areas determined to require mechanical fuel treatments after salvage harvest operations will be accomplished with excavators to reduce soil disturbance (Flathead National Forest Land and Resource Management Plan Annual Monitoring Report, 1992, page 131-139).
- Two culverts on Road 2845 are currently creating unnecessary amounts of erosion and sediment as well as restricting fish passage. These culverts will be removed when the road is determined to be not necessary for project activities.

Applicable Best Management Practices (BMPs) will be implemented during all project activities to protect on-site soil conditions, water quality, and fish habitat. BMPs are designed to prevent or minimize non-point source pollution, and are the primary tool that is used to comply with the Clean Water Act. For this project, BMPs will focus primarily on timber harvest, road use, road construction, culvert removals and installations, and/or road reconstruction. Typical BMPs include avoiding equipment operation in wet areas (wetlands, seeps, riparian areas, etc.), designing road and skid trail systems to prevent or minimize erosion, and proper design of road/stream crossings. All BMPs are designed to protect and minimize impacts to soil productivity, water quality, and fish habitat. Refer to FEIS Appendix C for a detailed discussion of BMPs and Soil and Water Conservation Practices.

All INFISH standards and guidelines will be implemented in all alternatives to protect or enhance fish habitat. Specifically, establishment of Riparian Habitat Conservation Areas (RHCAs) are delineated in all alternatives.

Recreation

All trails will be protected during salvage harvesting. No skidding will occur down any trail. In addition, crossing a trail with heavy equipment will be minimized and trees will be felled away from the trail. Any trail crossings that may be necessary will occur at 90-degree angles to the trail. Any damage that might occur during logging and associated site preparation activities will be repaired in accordance with FSH 2309.18 Trails Standards.

Existing dispersed recreation sites used for logging operations will be rehabilitated to allow for continued recreation use after salvage is complete.

In order to allow for public safety during high-traffic periods, the following restrictions to log hauling on the Star Meadow Road FS #539 will apply in 2009: On Memorial Day weekend,

hauling will cease at 5:00 PM on Friday, May 22 through 9:00 PM Monday, May 25. On the Fourth of July holiday, operations will cease at 5:00 PM on Thursday, July 2 up to 9:00 PM on Sunday, July 5. On all weekends between July 10 and August 16, operations will cease at 5:00 PM on Friday through 9:00 PM on Sunday. There will be no restrictions in 2010 and beyond as log hauling activities will be substantially reduced after the first summer of operations.

All lands, trails, and campgrounds within sale area boundaries may be closed to public access for the duration of the sale contracts. The closures for public safety include snowmobiling and trails leading into and out of the sale area boundaries.

Public Safety / Roads

Road rehabilitation involves improving roads to meet or exceed Best Management Practices (BMPs) guidelines, a process that generally involves the installation or improvement of drainage features such as culverts. Road rehabilitation by application of BMPs on roads that we anticipate having heavy truck traffic will be completed prior to the beginning of salvage logging activities with the exception of roads used in the first winter of the contract. FEIS Appendix C includes a complete list of the project-specific Best Management Practices along with a discussion of their effectiveness.

Contractors will be required to post signs along Forest Service haul roads warning the public of truck traffic and activities. Warning signs and public announcements will be used to notify the public of logging, road management, and slash disposal activities in the area.

Grading may be needed in order to maintain road drainage during project activities. Dust abatement using non-petroleum based products on open roads and blading will occur as needed on the main haul routes.

All new temporary roads constructed for salvage harvest will be obliterated immediately after the harvest activity is complete. Obliteration will consist of removing drainage features and recontouring slopes to match the previous landscape as close as possible. Temporary roads constructed on historic templates will be reclaimed after salvage harvest activity is complete. This reclamation will consist of removal of any culverts, ripping the road surface, scattering slash on the road surface, and revegetating the disturbed area with native grasses, shrubs, and trees. The first 100 feet of a temporary road constructed on a historic template will be obliterated where it meets a road open to public motorized use. All culvert installations and removals will be conducted during low stream flow (July 15 to March 1) and require a Montana Department of Fish, Wildlife, and Parks 124 Permit.

On roads closed to wheeled motorized use that are needed to access salvage units, public access will remain restricted. Timber sale contracts will contain clauses to insure that roads remain closed to public motorized use with wheeled vehicles.

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APPENDIX C

MONITORING PLAN

Introduction

As stated in Chapter 2 of the FEIS, monitoring is gathering information and observing management activities to provide a basis for periodic evaluation of Forest Plan goals and objectives. The purpose is to determine how well objectives have been met and how closely management standards have been applied during and after post-fire project implementation. Evaluation of the monitoring results assists in the review of the condition of NFS lands as required by National Forest Management Act regulations. It may result in decisions for further action, such as modifying management practices. The first section describes aquatics and soil monitoring items. Next, vegetation and wildlife habitat monitoring is summarized. Lastly, transportation monitoring is presented.

Several sources of funding exist for resource monitoring. Some items will be funded with Knutson-Vandenberg (KV) funds, while other items will be funded with appropriated funds. No assignment of funding source to the monitoring will be made at this time because future availability of funds is unknown. Priorities for annual monitoring are established and agreed upon by the ID Team and the Responsible Official, and implementation will be based on annual budgets and program direction. All legally required monitoring will be performed.

Aquatics and Soil

There are two primary elements of concern in the post-fire environment that are addressed in this monitoring plan. The first element is detrimental soil disturbance, particularly in units proposed for summer logging. The amount of detrimental soil disturbance is a key consideration in determining relative long term soil productivity. The second element is erosion and sediment delivery associated with temporary road construction and summer logging. Post-fire environments are especially vulnerable to erosion and sediment delivery. Accelerated erosion can reduce soil productivity, and sediment delivery can degrade water quality and aquatic habitats. Sheppard Creek is currently impaired and on the State of Montana's 303(d) list. In addition, Upper Sheppard Creek contains genetically pure westslope cutthroat trout. The following monitoring objectives reflect the above elements.

1. Determine the amount of detrimental soil disturbance in priority units that are salvage harvested during the summer.
2. Determine if temporary road construction and summer salvage logging are causing sediment delivery in sensitive areas.
3. Determine whether Best Management Practices (BMPs) were implemented as specified and whether individual BMPs were effective.
4. Determine condition and trend of Sheppard Creek through continued monitoring of channel morphology and aquatic habitat.

Detrimental soil disturbance will be measured in a sample of units that may be close to exceeding the soil quality standard of 15 percent. Temporary roads in sensitive areas will be visually inspected to determine if they are resulting in direct sediment delivery to stream channels. A sample of summer salvage units will be selected for on-site visual inspection. Priority units for review will include those that have a high potential for erosion and/or sediment delivery. Key BMPs will be reviewed on the same units as described above and on one to two selected haul routes. Three monitoring sites were established on Sheppard Creek in 2007 prior to the Brush Creek Fire, using the R1 AEUI protocol. Data collection at these sites will be repeated in 2009 and 2010 to determine how the creek is responding to post-fire conditions.

Units selected for detrimental soil disturbance monitoring include three winter-only harvest tractor units, four summer optional tractor units with in-woods processing, and cable units using skyline, ground-lead, or "excaliner" (portable skyline) logging systems. The following table lists units for monitoring units with the option to expand monitoring or select different units by the Forest Soil Scientist. Implementation monitoring will be performed within two years of sale closure. Monitoring will follow regional protocol for classifying soil disturbance, describe downed wood, and measure groundcover.

Table C-1. Selected Alternative Units for Soil Implementation Monitoring.

Unit	Acres	Logging System	Winter only
13	21	Tractor	Yes
24	14	Tractor	No
78	20	Skyline/Excaliner	No
82	15	Skyline	No
83	40	Tractor	Yes
83A	21	Tractor	No
120	60	Tractor	Yes
121	44	Tractor	No
126	40	Skyline	No
Total	**275 acres**		

Vegetation and Wildlife Habitat Monitoring

Surveys of the vegetation in the project area were conducted both before and after the fires. The existing surveys are described in detail in the Vegetation, Bark Beetle, and Wildlife sections of the FEIS.

Timber sale contract activities will be inspected to ensure contract specifications are followed. A qualified Timber Sale Contract Administration team, including Sale Administrators, Harvest Inspectors, and others will monitor leave tree and downed wood retention, protection of residual trees, erosion control and soil effects, log utilization, and other contract requirements. In addition, timber sale administration personnel will assist in monitoring for bark beetle activity, timber quality deterioration over time, and fuel treatment and reforestation needs.

Bark beetle surveys are scheduled in 2009 to estimate the amounts and locations of bark beetle and wood boring beetle activity throughout the fires. Results of these surveys will help determine if and where additional beetle treatments may be applied. They may also indicate the effects of salvage on reducing populations. If treatments, such as funnel traps and/or pheromones are used, they will be monitored and maintained which will provide estimates of relative abundance of beetles from site to site.

Post-harvest surveys will be scheduled in each salvage unit to determine how well the prescriptions were met through salvage activities or what modifications are needed to meet various resource objectives such as wildlife habitat. Monitoring items in the post-harvest exams include estimates of fuel loading, downed wood habitat, snag and live tree retention, reforestation needs, bark beetle activity, and soil conditions. Additional, more intensive surveys for snags and downed wood habitat will be included in a subset of the units to monitor compliance with Forest Plan standards.

Reforestation stocking surveys will be scheduled in every unit to monitor seedling stocking, survival, and growth following standard procedures outlined in Forest Service Handbooks.

Noxious weeds will be surveyed and monitored in all ground-disturbed areas in treatment units (slash piles, exposed soil from excavator tracks, skid trails), roads, and temporary roads. Monitoring will occur for at least three years following proposed action. Surveys and monitoring will be conducted by the Forest Botanist, Botany Crew, Noxious Weed Specialist, Weed Crew, or Silviculture Crew.

Roads will be monitored for at least three years and future treatments will be prioritized and scheduled based on funding by the Forest Weeds Coordinator.

Vegetation and Wildlife Habitat Monitoring Funding Sources

Funds for timber sale administration and noxious weed monitoring are derived from the annual agency budget appropriation. Post-harvest and reforestation surveys are funded by timber sale proceeds and/or annual budget appropriations. Insect and disease surveys are funded by appropriated and specifically allocated forest health management funds.

Transportation Monitoring

All road construction and road maintenance will be monitored to ensure compliance with specifications and to meet the intent of management practices. The Forest Service will monitor the work performed by the contractor to ensure that their methods of operation and work are in compliance with the specifications that were designed to meet the intent of the management practices. If the designed work is not meeting the objectives and management practices, a modification may have to be made by the Forest Service to change the work to meet the objectives and management practices.

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