

# Chapter 2

## ALTERNATIVES

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### 2.1 INTRODUCTION

This chapter describes and compares the alternatives considered by the Forest Service for the **Kraft Springs Project**. It includes a discussion of how alternatives were developed, a description and map, a list of design features and other features common to all alternatives, alternatives considered but not studied in detail, and a comparison of these alternatives focusing on the issues. Chapter 2 is intended to present the alternatives in comparative form, sharply defining the issues and providing a clear basis for choice among options by the responsible official and the public (40 CFR 1502.14).

Some of the information used to compare alternatives in the tables at the end of Chapter 2. Section 2.6, is summarized from Chapter 3-Environmental Consequences. Chapter 3 contains the detailed scientific basis for establishing baselines and measuring the potential environmental consequences of each of the alternatives. For a full understanding of the effects of the alternatives, readers will need to consult Chapter 3.

**Readers Tip!**

The tables presented in the Comparison of Alternatives [Section 2.6](#) is a concise executive summary of the effects of the alternatives on the project objectives, issues, and other related resource areas.

### 2.2 ALTERNATIVE DEVELOPMENT PROCESS

The Forest Service interdisciplinary team (IDT) used information from scoping, including the issues identified for the project (*See Chapter 1*), in conjunction with the field-related resource information, to formulate alternatives to the proposed action. The proposed action and each action alternative presented in this EA provide a different response to the issues; one alternative may respond to more than one issue. Each action alternative is also designed to meet the stated purpose and need for the Kraft Springs Project, and the project-specific desired conditions. In addition, alternatives considered but eliminated from detailed study are presented in this chapter. The alternatives analyzed in detail, and those alternatives considered but eliminated from detailed study, constitute the range of alternatives for this analysis.

Each alternative studied in detail represents a site-specific proposal developed through intensive interdisciplinary evaluation of current and desired conditions, based on field verification. Project

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area identification and design also made use of high-resolution topographic maps and a large quantity of resource data available in geographic information system (GIS) format.

## 2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

Federal agencies are required by NEPA to rigorously explore and objectively evaluate all reasonable alternatives and to briefly discuss the reasons for eliminating any alternatives that were not developed in detail (40 CFR 1502.14). Public comments received in response to the Proposed Action provided suggestions for alternative methods of achieving the purpose and need. Some of these alternatives may have been outside the scope of the project intent, duplicative of the alternatives considered in detail, or determined to be components that would cause unnecessary environmental harm. Therefore, other alternatives were considered, but dismissed from detailed consideration for reasons summarized below.

### 2.3.1 ALTERNATIVE: USE OF PRESCRIBED FIRE ONLY

An alternative was proposed that would use only prescribed fire as a management activity to reduce the long-term fuel hazards. This alternative was considered; however, this alternative would not reduce fuels in the immediate short-term. Prescribed fire would only be effective after the fire-killed trees fall to the ground in 1-2 decades. Project objectives require that an immediate short-term fuel reduction treatment is needed to avoid large acreages of dead timber falling to the ground and becoming unmanageable in the long-term. Prescribed fire would be widely used to accomplish maintenance treatments in approximately 1-2 decades. For these reasons, this alternative was eliminated from detailed study.

## 2.4 ALTERNATIVES CONSIDERED IN DETAIL

There are three (3) alternatives considered in detail for this analysis:

**Table II-1: List of Alternatives**

1.	<b>Alternative #1-No Action</b> , is the baseline for comparing the other alternatives. The proposed management actions would not occur in the project area at this time, and the project area would remain subject to natural events and ongoing management activities.
2.	<b>Alternative #2-Proposed Action</b> , is the initial proposal for treatments, developed to initially meet the Purpose and Need for action and accomplish the project objectives.
3.	<b>Alternative #3-Noncommercial Fuel Reduction</b> , is the alternative developed in response to concern over effects of commercial salvage and temporary road construction.

The action alternatives represent different means of satisfying the purpose and need by responding with different emphases to the issues discussed in Chapter 1. Maps of the alternatives considered in detail are provided in [Appendix A](#). Alternative #1, the no-action alternative, represents the current condition of the project area and no specific map is presented. Larger-scale maps of the action alternatives are contained in the project planning record.

## **2.4.1 ALTERNATIVE #1-NO ACTION**

The Council on Environmental Quality (CEQ) regulations (40 CFR 1502.14d) requires that a "no action" alternative be analyzed. This alternative represents the existing and projected future condition against which the other alternatives are compared. The management activities that are proposed would not occur; however, it does not preclude ongoing activities in this or other areas, or management proposals for the area at some time in the future. Alternative 1 is the same as the current condition after the Kraft Springs Fire and the current post-fire intensity conditions are displayed in [Appendix A, Map A-1](#).

## **2.4.2 ALTERNATIVE #2-PROPOSED ACTION**

The proposed action alternative would treat approximately **16,050** acres of stands burned by moderate and high intensity fire in the Long Pines Land Unit during the 2002 Kraft Springs Fire. The initial management objectives are to reduce hazardous fuels in the form of dead and dying trees, provide for reforestation of forested lands, recover the economic value of the dead and dying trees, and to restore and stabilize the existing road system. All management tools, including salvage of merchantable material, cutting, piling, and burning of non-merchantable material were considered in the development of the proposed action. Commercial salvage would use only ground-based tractor yarding. Temporary roads would be used to access the commercial salvage units, and those temporary roads would be decommissioned after treatment activities. No new specified road construction would be needed. Road improvement would occur on main system roads in the Long Pines Land Unit.

Detailed color maps showing the management activities planned for the proposed action are found in [Appendix A, Maps 1-3a](#). The proposed activities for this alternative include the project design features ([See Section 2.5](#)) described later in this chapter. The activities for the proposed action are summarized in [Table II-2](#) and are discussed in more detail in following sections.

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**Table II-2: Alternative 2-Proposed Action Treatments**

<b>Fuel Treatments</b>	<b>Acres</b>
Fuel reduction using a of combination of commercial salvage with non-commercial fuel treatments	<b>6,260</b>
Non-commercial fuels reduction (immediate)	<b>1,980</b>
Non-commercial fuels reduction (delayed)	<b>2,650</b>
Tree planting on acres with no commercial or non-commercial treatments	<b>5,160</b>
Tree planting on acres with commercial and non-commercial treatment	<i>(2,700)<sup>1</sup></i>
<b>Total Acres Treated</b>	<b>16,050</b>
<b>Road Management Activities</b>	<b>Miles</b>
Temporary Roads	<b>20.5</b>
Restoration/Improvement of Existing Roads (NFP funding)	<b>67.0</b>
Maintenance of Existing Roads <sup>2</sup>	<b>82.0</b>

<sup>1</sup> These acres are included in the commercial and noncommercial treatment acres and do not contribute to the figure for total acres treated.

<sup>2</sup> Existing roads used for the proposal is 82.0 miles; however, of that, approximately 18.0 miles would be improved under the NFP road treatments proposal and are included in that figure of 67.0 miles. Existing roads used for the proposal and not improved under NFP proposal is approximately 64.0 miles. These miles of existing roads used for the project would have required maintenance to allow use for access and treatment activities.

## 2.4.2.1 FUEL TREATMENT PRESCRIPTIONS AND DEFINITIONS

### Fuel Treatment using Commercial Opportunities that include Salvage

Dead and dying trees would be harvested on approximately 6,260 acres that were affected by a moderate to high intensity wildfire. All trees with a live crown (green) greater than or equal to 50 percent would be left standing<sup>1</sup>. Logging residue and dead trees not meeting merchantability standards would be treated to reduce the future fire hazard. This material would be reduced to a post treatment surface fuel loading of woody material less than or equal to 3 inches in diameter, similar to NFFL<sup>2</sup> Fuel Model 2 or 9 (< 4 tons/acre), by means of whole tree yarding, machine piling, prescribed burning, or a combination thereof. The post-treatment CWD fuel loading would be reduced to 10-15 tons per acre and scattered as discontinuous separate pieces across the landscape

This treatment is not intended to preclude opportunities to treat these large fuels by some other method of disposal. A number of methods of disposal that could be used include skidding and decking the material in landings, chipping, burning, and removing from the site.

<sup>1</sup> USDA Forest Service and State and Private Forestry. 2000. Post-Fire Tree Survivability and insect interactions. 10 p. Deterioration of Fire-killed Conifers. 11 p. In Forest Health Protection. Report 2000-13.

<sup>2</sup> National Forest Fire Laboratory, Missoula MT.

## **Non-Commercial Fuel Treatment--Immediate**

Dead and severely damaged trees would be felled and treated to reduce the future fire hazard on approximately 1,980 acres. This material would be reduced to a post treatment surface fuel loading of woody material less than or equal to 3 inches in diameter, similar to NFFL Fuel Model 2 or 9 (< 4 tons/acre) by means of whole tree yarding, machine piling, prescribed burning, or a combination thereof. The post-treatment CWD fuel loading would be reduced to 10-15 tons per acre and scattered as discontinuous separate pieces across the landscape. Treatment of these areas could begin in 2003.

## **Non-Commercial Fuel Treatment--Delayed**

Dead and severely damaged trees would be felled and treated to reduce the future fire hazard on approximately 2,650 acres. Treatment of these areas, except for roadside trees, would be delayed until at least 2008 to provide habitat for snag dependent species in the short-term. This material would be reduced to a post treatment fuel loading similar to NFFL Fuel Model 2, or 9 (< 4 tons/acre) of woody material less than 3 inches in diameter, by means of machine piling, whole tree yarding, machine piling, prescribed burning, or a combination of methods. The post-treatment CWD fuel loading would be reduced to 10-15 tons per acre and scattered as discontinuous separate pieces across the landscape. Dead trees within 75 feet of system roads would be treated starting in 2003 to reduce the potential safety hazard to people using the roads.

## **Planting**

On areas where natural regeneration of ponderosa pine is not expected to occur within a timely period due to the lack of an adequate seed source, tree seedlings would be planted. It is estimated that approximately 7,860 acres would require planting. Of that figure, approximately 5,160 acres would not require any fuel treatment prior to planting. The remaining 2,700 acres proposed for planting would require fuel treatment prior to planting, and are included in the acreage figures for those treatment types above. Areas planted would generally be the east, northeast, north, and northwest aspects of forested lands affected by stand replacement event.

### **2.4.2.2 ROAD MANAGEMENT ACTIVITIES AND DEFINITIONS**

No new specified road construction would be needed to access treatment areas. Approximately 67.0 miles of existing specified roads would be restored/improved using NFP funding. Approximately 82.0 miles of maintenance would occur on existing roads<sup>3</sup>. Approximately 20.5 miles of temporary road spurs would be needed to access treatment areas. Temporary roads would be closed and rehabilitated after management activities were completed.

All roads used to facilitate the commercial fuel treatment operations would receive pre-haul maintenance, haul maintenance, post-haul maintenance, or a combination thereof. Road maintenance activities include where applicable surface blading, dust abatement, slide removal and slump repair, surfacing repair, shoulder maintenance, ditch cleaning, maintenance of minor

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<sup>3</sup> See note under table II-3 for a discussion on NFP roads improved and exiting roads used for the proposal.

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drainage structures, clearing roadway vegetation, cutting roadside vegetation, seeding, maintenance of major drainage structures, maintenance of miscellaneous structures, maintenance of traffic signs, and vegetation establishment.

### **Road Improvement Activities (funded by NFP)**

The Snow Creek Road, Speelmon Creek Road, Exie Road, Capital Rock Road, Plum Creek Road and Pendleton Road are collector roads, which provide primary access within the Long Pines Land Unit and the project area. The operational and objective maintenance level of these roads is level 3 – suitable for passenger vehicles. These roads are not currently maintained to level 3 standards because the design, drainage and surfacing of these roads are not adequate. [Table II-3](#) shows the collector roads that would be reconstructed under the Proposed Action.

**Table II-3: Collector Roads Reconstructed**

Road Number	Road Name	Maintenance Level	Miles
3048	Pendleton	3	1.9
3116	Capital Rock	3	8.3
3117	Snow Creek	3	16.9
3118	Plum Creek	3	8.0
3119	Exie	3	4.6
3818	Speelmon Creek	3	5.0
Total			44.7

Reconstruction needs on these roads are a high priority to bring the roads up to standard and provide resource protection. Lack of sufficient drainage and surfacing material is a concern on the unsurfaced portions of these roads. Additionally, sections or in some cases the entire length of these roads need additional road width, turnouts, reshaped ditches, additional ditch-relief culverts, and culvert replacements for both capacity and length. Un-surfaced segments would be surfaced with gravel.

The existing system of local roads provides sufficient access for resource management needs including recreation, range and fire access. The operational and objective maintenance level of the local roads is generally level 2 – suitable for high clearance vehicles, with a few being level 1 – closed to vehicular traffic. Many of the level 2 roads are not currently maintained to standard, largely due to a lack of funding, but also in part, because design and drainage are not adequate. [Table II-4](#) shows the local roads that would be reconstructed under the Proposed Action.

**Table II-4: Local Roads Reconstructed**

Road Number	Road Name	Maintenance Level	Miles
3045	Foster	3	3.5
3057	Slick Creek	2	1.5
3059	Devils Canyon	2	5.6
3060	Aborgast	2	1.8
3061	Mowbry	2	4.7
3086	North Slick Creek	2	1.3
3117C	Iron Springs	2	0.4
3117G	Rustler Divide	2	2.7
3117E		2	1.2
Total			22.7

Reconstruction activities would bring these roads up to standard while protecting soil and water resources. Design attributes for the reconstructed local roads include: use of native surfacing, minimized use of culverts in favor of rolling dips (armored with pit run gravel), use of existing road width, out-sloping of road where needed, designing roads for limited use and high clearance vehicles, and minimized use of turnouts.

The development, use and reclamation of the aggregate sources needed for road surfacing and for completing the spot surfacing and armoring work on system roads, is a part of the road management activities.

### **Definitions for Road System Terms**

***New Specified Road Construction*** – Activity that results in the addition of forest classified road miles (36 CFR 212.1).

***Reconstruction of Existing Roads*** – Activity that results in improvement or realignment of an existing classified road as defined below:

- **Road Improvement** – Activity that results in an increase of an existing road’s traffic service level, expansion of capacity, or a change in original design function.
- **Road Realignment** – Activity that results in a new location of an existing road or portions of an existing road and treatment of the old roadway (36 CFR 212.1).

***Maintenance of Existing Roads*** – The ongoing upkeep of a road necessary to retain or restore the road to the approved road management objective (FSM 7712.3).

***Temporary Roads*** – Roads authorized by contract, permit, lease, other written authorization, or emergency operation, not intended to be a part of the forest transportation system and not necessary for long-term resource management.

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## 2.4.3 ALTERNATIVE #3-NONCOMMERCIAL FUEL REDUCTION

Alternative 3 was developed in response to concerns over the use of commercial salvage and temporary road construction needed to implement those treatments, and the potential effects on soils, sediment and wildlife. For this alternative only non-commercial fuel treatments would be used and no temporary roads would be needed. NFP road reconstruction proposals would be the same as in Alternative #2-Proposed Action. The proposed activities for this alternative include the relevant project design features described in [Section 2.5](#).

### 2.4.3.1 CHANGES FROM PROPOSED ACTION - ALTERNATIVE #2

The approximately 6,260 acres of commercial/noncommercial fuels treatments in Alternative #2 would be changed (approximately 50-50) to either noncommercial-immediate or noncommercial-delayed fuel treatments as defined in Alternative #2. Additionally, 20.5 miles of temporary roads and 82 miles of road maintenance would be dropped from this alternative. All other activities and applicable project design features would remain the same as Alternative #2.

### 2.4.3.2 ACTIVITIES PROPOSED FOR ALTERNATIVE #3

The actions described in [Table II-5](#) will move the project area towards the desired condition with non-commercial fuels treatments and planting on approximately 16,050 acres. Detailed color maps showing the management activities planned for Alternative #3 are found in [Appendix A: Maps #2a-3a](#). Reforestation activities and NFP road improvement activities are the same as Alternative #2.

**Table II-5: Alternative 3 Treatments**

<b>Fuel Treatments</b>	<b>Acres</b>	<i>Change from Alt. 2</i>
Fuel reduction using combination of commercial salvage and non-commercial treatment	<b>0.0</b>	-(6,260)
Non-commercial fuels reduction (immediate)	<b>5,165</b>	+3,185
Non-commercial fuels reduction (delayed)	<b>5,725</b>	+3,075
Tree planting on acres without non-commercial treatments	<b>5,200</b>	0
Tree planting on acres with non-commercial treatment	<b>(2,700)<sup>1</sup></b>	0
<b>Total Acres Treated</b>	<b>16,050</b>	0
<b>Road Management Activities</b>	<b>Miles</b>	<i>Change from Alt. 2</i>
Temporary Roads	<b>0.0</b>	-(20.5)
Reconstruction of Existing Roads (NFP funding)	<b>67.0</b>	0
Maintenance of Existing Roads	<b>0.0</b>	-(82.0)

<sup>1</sup> These acres are included in the noncommercial treatment acres and do not contribute to the figure for total acres treated.

**2.4.3.3 FUEL TREATMENT PRESCRIPTIONS AND DEFINITIONS**

The descriptions, acres, and definitions for Alternative #3 are the same as those for Alternative #2, except that only non-commercial fuels treatments (immediate and delayed) would occur.

**2.4.3.4 ROAD MANAGEMENT ACTIVITIES AND DEFINITIONS**

The descriptions, miles, and definitions for Alternative #3 are the same as those for Alternative #2, except that no temporary roads would be used, and no road maintenance would be needed for commercial access.

**2.5 PROJECT DESIGN FEATURES AND MONITORING**

The analysis documented in this EA discloses the possible negative and beneficial impacts that may occur from implementing the actions proposed under each alternative. Project design features have been incorporated into the alternative design to reduce impacts on resources. Project design features are an integral part of the alternative activities and an example is the use of noxious weed free seed for revegetation of roads and disturbed soil. These design features were guided by direction from the Custer National Forest Plan, Montana Streamside Management Zone BMP’s, Montana Forestry BMP’s, Soil and Water Conservation Practices BMP’s, FS-Region 1 Noxious Weed BMP’s, FS-Scenery Management System Handbook and applicable Forest Service Manuals and Handbooks.

**2.5.1 PROJECT DESIGN FEATURES**

Table II-6 includes a complete list of specific project design features.

**Table II-6: Project Design Features**

Project Design Feature (By Resource Area)	Description of Project Design Feature
<b>Fuels</b>	
FU-1	Where fuel reduction by piling and burning is necessary, consider low-ground pressure equipment such as a grapple/excavator. Mechanical piling by this means can significantly lessen damage to residual trees, and discriminately leave partially decomposed woody material on the site for long-term productivity.
FU-2	Leaving some small “patches” of regeneration that start to appear within the next ten years during on-going maintenance treatments. Occasional patches of regeneration within a ponderosa pine stand mimic the natural historic landscape.
FU-3	Leave partially decomposed woody material and solid larger size bolewood, with a total loading in the range of 10 – 15 tons per acre. Ideally, these are lengths of bolewood are scattered throughout the surface fuel bed. Dead standing snags should account as component of this loading, even though it may not occur immediately. <i>(Reference Down Woody Biomass Table in Soils Specialists Report, identifying a variety of diameters and number of pieces equivalent to recommended 10 – 15 tons/acre).</i>
<b>Watershed/Soils</b>	
WS-1	Utilize applicable Forest Plan standards and guidelines, Montana Streamside Management Zone BMP’s, Montana Forestry BMP’s, and the Soil and Water Conservation Practices BMP’s.
WS-2	All streams will receive a 50-foot streamside buffer. Wider buffers may be necessary where adjacent slopes are steep (See Hydrology/Soils section in Ch. 3))

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**Table II-6: Project Design Features**

Project Design Feature (By Resource Area)	Description of Project Design Feature
WS-3	Coarse Woody Material should be left at a rate of approximately 10-15 tons/acre to help the recovery of long-term soil productivity. Of that amount, approximately 5 – 8 tons should be left as Large Woody Material (ground fuels or snags, 12 inches and greater in diameter). On high and moderate burn intensity areas, the remaining material (those fuels smaller than 12 inches in diameter) should be lopped and scattered onto the soil surface.
<b>Wildlife</b>	
WL-1	If a goshawk nest is found prior to or during project implementation, it will be protected by prohibiting project activities within ¼ mile of the nest from March 15 to July 20 or fledging. The ¼ mile is line of sight distance and may be reduced if topography and vegetation provide screening. If a goshawk nest is discovered during surveys or implementation, protect it with a minimum no activity buffer of 30 acres of suitable habitat surrounding the nest site. Using the control of operations ensure that the purchaser starts cutting and hauling from the southern portion of the project area (South end of the Long Pines).
WL-2	If an active raptor nest is found prior to or during project implementation, it will be protected by prohibiting activities within ¼ mile of the nest from March 15 to July 20 or fledging. The ¼ mile is line of sight distance and may be reduced if topography and vegetation provide screening.
WL-3	All project related activities would be prohibited from February 1 to May 1 annually within ½ mile of all eagle nests (historic and newly discovered). Annual surveys following an approved protocol would be required to establish occupancy by eagles of these sites. If a nest site is found active, or surveys are not completed annually, the prohibition date would be extended to July 15. (See project record for map of affected areas.)
WL-4	All project related activities would be prohibited from March 15 to July 15 annually within ¼ mile of all merlin and prairie falcon nests (historic and newly discovered). Annual surveys following an approved protocol would be required to establish occupancy by merlin or prairie falcon of these sites. If surveys determine a nest site is inactive, this design feature would not apply. (See project record for map of affected areas.)
WL-5	All known or newly discovered sharp-tailed grouse dancing grounds (leks) will be protected by a ¼ mile no disturbance buffer from March 1 – April 15 annually. In addition, no ground disturbing activities (temporary road construction, etc) would occur within ¼ mile of these sites.
WL-6	Construct temporary roads at least 100 feet away from wet areas: seeps, springs, wet meadows, and riparian corridors.
WL-7	Decommission and seed all temporary roads within 6 months of unit completion with Forest Service approved seed mixture.
WL-8	When building temporary roads across dry grasslands, position the roads away from green trees larger than 8 inches diameter, or prohibit their cutting or removal. This would reduce potential for adverse impacts to western kingbirds and other species.
WL-9	Restrict mechanized equipment within 50 feet of wet areas: seeps, springs, wet meadows, and riparian corridors.
WL-10	Prohibit fuel treatment project activities within ¼ mile of active calving and fawning habitat from May 1 to July 1. The exception will be salvage operations during 2003-2004.
WL-11	During the Montana big game rifle season all roads within the Long Pines Land Unit will be closed to public travel with the exception of NFSR 3048 (Pendelton Road), 3116 (Capital Rock), 3117 (Snow Creek), 3117A (Lantis Springs Campground), 3118 (Plum Creek), 3119 (Exie), 3120A and 31233B (Whikham Gulch Picnic Area), and 3818 (Speelmon). This project design criteria would be implemented under a special closure order to reduce big game vulnerability until sufficient hiding cover is established adjacent to roads throughout the Long Pines. Sufficient hiding cover would probably occur within 8 to 15 years.
WL-12	Snag Retention within Commercial Salvage Units - Un-merchantable dead trees greater than or equal to 11 inches in diameter, at least 10-foot tall, and more than 75 feet from a system road would be left standing as snag habitat within treatment areas when they do not pose a safety hazard during treatment operations.

**Table II-6: Project Design Features**

Project Design Feature (By Resource Area)	Description of Project Design Feature
<b>WL-13</b>	Snag Retention within Noncommercial-Immediate and Noncommercial-Delayed Units - During treatment of these areas, where still present up to 6, with a minimum of 2, snags per acre greater than or equal to 11 inches in diameter (with preference being given to leaving the largest diameter snags available) would be left standing to provide long-term habitat for cavity nesting species. The intent is to manage snag density on a treatment unit basis and not on an acre basis. As such, snags could be grouped in small "patches" or "leave islands" within the noncommercial units as long as the overall snag density meets a minimum of 2 per acre within these units. Snags would not be retained within 75 feet of system roads to reduce the potential safety hazard to people using the roads.
<b>WL-14</b>	Restrict project activities to 25% or less of the deer winter range from December 1 to April 30 annually. The winter of 2003-2004 would be excluded from these requirements, to minimize loss of commercial value of salvaged material.
<b>Archeology</b>	
<b>AR-1</b>	All heritage field inventories will be completed for temporary roads, and landing locations. In addition to already completed surveys, there would be field inventory on 183 acres proposed for fuel treatment using salvage, 807 acres proposed for fuel treatment using a combination of mechanized with hand cutting and piling, and 645 acres of proposed planting.
<b>AR-2</b>	All sites within ground disturbing units will be reviewed by the Forest Archaeologist and individual treatment prescriptions assigned prior to ground disturbing activities.
<b>AR-3</b>	Forest Archaeologist will monitor all approved treatments. Forest Archaeologists will be notified prior to conducting the approved treatments.
<b>AR-4</b>	All activity fuels will be piled outside the perimeter of all heritage sites. No mechanized equipment will be allowed to operate within the heritage site boundaries unless specifically allowed by the prescribed site treatment.
<b>Noxious Weeds</b>	
<b>NX-1</b>	All off-road commercial harvest and road building equipment will be cleaned (washed) prior to coming on to the project area.
<b>NX-2</b>	Seed, straw, and other materials for rehabilitation will be certified noxious weed free.
<b>NX-3</b>	An approved seed mix would be used, as needed, on landings, rock sources, temporary roads, classified and un-classified roads, and similarly disturbed sites after activities occur.
<b>Visual Resource</b>	
<b>VR-1</b>	Implement activities in such a way as to avoid straight lines and consistently regular spacing of leave trees.
<b>Recreation</b>	
<b>RE-1</b>	Before treatment activities begin, inform the public that work is going to begin in order for them to avoid travel in the area.
<b>RE-2</b>	During treatment activities, sign the road access points into the Long Pines to inform people work is going on so they can avoid it if possible.

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## 2.5.2 MONITORING ACTIVITIES

The following monitoring activities would occur for the Kraft Springs Project:

**Table II-7: Monitoring Activities**

Monitoring (By Resource Area)	Description of Monitoring Activity
<b>Watershed/Soils</b>	
WS-m1	Implementation and effectiveness monitoring should be conducted to determine if project design features are being implemented and whether or not they are effective in protecting soil and water resources. <u>Responsible Staff:</u> Forest or District Soils/Hydrologist.
<b>Wildlife</b>	
WL-m1	Continue to monitor existing landbird monitoring transects. <u>Responsible Staff:</u> Forest or District Wildlife Biologist
WL-m2	Continue sharp-tailed grouse monitoring and surveys. <u>Responsible Staff:</u> Forest or District Wildlife Biologist
WL-m3	Continue goshawk surveys and monitoring. <u>Responsible Staff:</u> Forest or District Wildlife Biologist
<b>Archeology</b>	
AR-m1	The Forest archaeologist will monitor the sites receiving protective treatments during project implementation and upon completion of the project to assure the preservation and protection of the heritage resources and determine the success of the proposed treatments. <u>Responsible Staff:</u> Forest or District Archaeologist
<b>Noxious Weeds</b>	
NX-m1	Monitor for noxious weeds on a yearly basis until project activities are completed. <u>Responsible Staff:</u> Forest or District Range Conservationist

## 2.5.3 SALE AREA IMPROVEMENT OPPORTUNITIES

The following is a list of proposed activities that would have potential to be funded with KV funds from any commercial salvage sale receipts.

1. Noxious weed inventory using GPS<sup>4</sup> technology and treatment using IPM<sup>5</sup> strategy.
2. Interpretive work on culverts and other improvements constructed during the CCC<sup>6</sup> period.
3. Fencing of hardwood draws to restrict cattle movements in those sensitive areas.

<sup>4</sup> GPS= Global Positioning System technology.

<sup>5</sup> IPM= Integrated Pest Management

<sup>6</sup> CCC= Civilian Conservation Corps

## 2.6 COMPARISON OF ALTERNATIVES

This section provides a comparative summary of the alternatives. The project activities and outputs, project objectives, and effects of the alternatives on the issues are displayed in the following tables. The discussions of effects are summarized from Chapter 3, which should be consulted for a full understanding of these and other environmental consequences. The tables below provide an overview comparison of information from the alternative descriptions and Chapter 3 relevant to the issues. A brief discussion comparing the alternatives follows the tables.

**Table II-8: Comparison of the Alternatives: Project Objectives, Activities, and Outputs**

Project Objectives	Alt. #1: No Action	Alternative #2 Proposed Action	Alternative #3
Fuels reduction on stands with dead and dying trees <i>(Measured in acres treated)</i>	0.0 acres	10,890 acres	10,890 acres
Recover economic value of fire-killed timber <i>(Measured in Direct Benefits dollars)</i>	\$0	\$1,018,140	\$0
Reforest pine stands with tree planting <i>(Measured in acres planted)</i>	0 acres	7,860 acres	7,860 acres
Restore and stabilize road system <i>(Measured in miles of road restoration/improvement)</i>	0.0 miles	67.0 miles	67.0 miles
Project Activities and Outputs	Alt. #1: No Action	Alternative #2 Proposed Action	Alternative #3
Commercial fuel reduction treatments	0.0 acres	6,260 acres	0.0 acres
Non-commercial fuels treatments-immediate	0.0 acres	1,980 acres	5,170 acres
Non-commercial fuels treatments-delayed	0.0 acres	2,650 acres	5,730 acres
Tree planting for reforestation	0.0 acres	7,860 acres	7,860 acres
Temporary roads	0.0 miles	20.5 miles	0.0 miles
Road Improvement (NFP funding) of system roads	0.0 miles	67.0 miles	67.0 miles
Road maintenance	0.0 miles	82.0 miles	0.0 miles
MMBF timber harvested	0.0 MMBF	9.6 MMBF <sup>7</sup>	0.0 MMBF
Economic Indicators	Alt. #1: No Action	Alternative #2 Proposed Action	Alternative #3
Present Value Cost	\$228,000	\$8,908,750	\$9,304,180
Present Value Revenue	\$0	\$1,018,140	\$0
Present Net Value (PNV)	-\$228,000	-\$7,189,200	-\$8,520,580

<sup>7</sup> MMBF= Million Board Feet of timber.

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**Table II-9: Comparison of the Alternatives: Issues and Indicators**

Issues and Indicators	Alt. #1 No Action	Alternative #2 Proposed Action	Alternative #3
<b>Issue # 1:</b> Commercial salvage and temporary roads <u>Indicator:</u> acres of commercial salvage <u>Indicator:</u> miles of temporary roads <u>Indicator:</u> % security cover <u>Indicator:</u> Average annual tons sediment delivered to stream channels	0.0 acres 0.0 miles (See Issue #3 below) (See Issue #6 below)	6,260 acres 20.5 miles (See Issue #3 below) (See Issue #6 below)	0.0 acres 0.0 miles (See Issue #3 below) (See Issue #6 below)
<b>Issue # 2:</b> Snag management for wildlife species <u>Indicator:</u> % of project area with >= 2 snags/acre	18.4%	8.9%	18.4%
<b>Issue # 3:</b> Wildlife security cover <u>Indicator:</u> Open road density during big game season <u>Indicator:</u> % security cover	2.1 miles/sq. mile 7%	0.4 miles/sq. mile 66%	0.4 miles/sq. mile 66%
<b>Issue # 4:</b> Noxious weeds <u>Indicator:</u> Potential increase in acres	UK	340 acres	335 acres
<b>Issue # 5:</b> Soil productivity <u>Indicator:</u> High risk of Detrimental Soil Disturbance <u>Indicator:</u> % of area with Detrimental Soil Disturbance <u>Indicator:</u> CWD left on-site in tons/acre	0% High Risk 0% 30-40 tons/acres	10% High Risk 10% 10-15 tons/acres	10% High Risk 10% 10-15 tons/acres
<b>Issue # 6:</b> Sediment <u>Indicator:</u> Average annual tons sediment delivered to stream channels	0.0 tons of sediment	21.0 tons of sediment	20.0 tons of sediment
<b>Issue # 7:</b> Woody draws <u>Indicator:</u> Measures to protect woody draws (both current proposal and foreseeable National Fire Plan proposals.	Several NFP measures to monitor and protect woody draws	1. Areas with available dead trees would be jackstrawed on edges of woody draws. 2. Several NFP measures planned	1. Areas with available dead trees would be jackstrawed on edges of woody draws. 2. Several NFP measures planned
<b>Issue # 8:</b> Effects on tree planting on livestock grazing use in Management Area B <u>Indicator:</u> Acres of tree planting in MA B	0.0 acres of tree planting in MA B	7,860 acres of tree planting in MA B	7,860 acres of tree planting in MA B

**Table II-10: Comparison of the Alternatives: Other Resource Areas**

Other Resource Indicators	Alt. #1 No Action	Alternative #2 Proposed Action	Alternative #3
Wildlife TES or MIS species <sup>1</sup>	No significant effects on wildlife or fish species or habitat	No significant effects on wildlife or fish species or habitat	No significant effects on wildlife or fish species or habitat
Rare Plants- TES species <sup>2</sup>	No effect	Non-significant impacts on 2 Sensitive species	Non-significant impacts on 2 Sensitive species
Heritage Resources	No impacts	No Impacts to heritage resources	No Impacts to heritage resources
Recreation	Short-term restrictions	Short-term restrictions	Short-term restrictions
Visuals	No effect	Changes from current, however, Forest Plan Guidelines would be met	Changes from current, however Forest Plan Guidelines would be met.

<sup>1</sup> See Table II- 11 for full list of wildlife TES and MIS species and the effects determinations

<sup>2</sup> See Table II- 12 for a full list of plant Sensitive species and the effects determinations

**Table II- 11: Determination Summary for Wildlife Species**

Species	Status	Alt. 1	Alt. 2	Alt. 3
Bald Eagle	T	NA	NA	NA
Mountain Plover	P	NA	NA	NA
Black-footed Ferret	E	NA	NA	NA
Grizzly Bear	T	NA	NA	NA
Gray Wolf	E	NA	NA	NA
Lynx	T	NA	NA	NA
Peregrine Falcon	S	NI	NI	NI
Northern Goshawk	S, MIS	NI, Low →	MIIH, Low →	MIIH, Low →
Burrowing Owl	S	NI, Low →	MIIH, Low →	MIIH, Low →
Flammulated Owl	S	NI	NI	NI
Sage Grouse	S	NI	NI	NI
Greater Prairie Chicken	S	NI	NI	NI
Harlequin Duck	S	NI	NI	NI
Baird's Sparrow	S	NI, Low ↑	MIIH, Low ↑	MIIH, Low ↑
Sprague's Pipit	S	NI, Low ↑	MIIH, Low ↑	MIIH, Low ↑
Loggerhead Shrike	S	NI, Low ↑	MIIH, Low ↑	MIIH, Low ↑
Black-backed Woodpecker	S	MIIH, High ↓	MIIH, High ↓	MIIH, High ↓
Townsend's Big-eared Bat	S	MIIH, Low →	MIIH, Low →	MIIH, Low →
Pallid Bat	S	NI	NI	NI
Spotted Bat	S	NI	NI	NI
White-tailed Prairie Dog	S	NI	NI	NI
Black-tailed Prairie Dog	S	NI, Low →	MIIH, Low →	NI, Low →
Northern Bog Lemming	S	NI	NI	NI
Bighorn Sheep	S, K	NI	NI	NI
Fisher	S	NI	NI	NI
Wolverine	S	NI	NI	NI
Tawny Crescent Butterfly	S	NI	NI	NI
Regal Fritillary Butterfly	S	NI	NI	NI
Dakota Skipper Butterfly	S	NI	NI	NI
Belfragi's Chlorochroan Bug	S	NI	NI	NI
Boreal Toad	S	NI	NI	NI
Northern Leopard Frog	S	NI	NI	NI
Sturgeon Chub	S	NI	NI	NI
Yellowstone Cutthroat Trout	S, MIS, K	NI	NI	NI
Ruffed Grouse	MIS	Low	Low	Low
Sharp-tailed Grouse	MIS, K	Low ↑	Low ↑	Low ↑
Western Kingbird	MIS	Mod →	Mod →	Mod →
Lark Sparrow	MIS	Low ↑	Low ↑	Low ↑
Northern (Bullock's) Oriole	MIS	Low →	Low →	Low →
Yellow Warbler	MIS	Low ↑	Low ↑	Low ↑
Ovenbird	MIS	Low ↑	Low ↑	Low ↑
Rufous-sided (Spotted) Towhee	MIS	Low ↑	Low ↑	Low ↑
Brewer's Sparrow	MIS	Low ↑	Low ↑	Low ↑
White-tailed Deer	MIS, K	Low	Mod ↑	Mod ↑
Largemouth Bass	MIS	Low	Low	Low
Golden Eagle	K	Mod →	Mod ↑	Mod ↑
Merlin	K	Mod →	Mod ↑	Mod ↑
Elk	K	Low →	Mod ↑	Mod ↑
Mule Deer	K	Low →	Mod ↑	Mod ↑
Pronghorn Antelope	K	Mod ↓	Mod ↓	Mod ↓
Turkey (In MA D only)	K	Low ↑	Low ↑	Low ↑

**Wildlife Determinations**

Status T = Threatened  
 E = Endangered  
 P = Proposed  
 S = Sensitive  
 MIS = MIS  
 K = Key

NA = No Affect  
 NI = No Impact  
 MIIH = May Impact  
     Individuals or Habitat  
 BI = Beneficial Impact  
 Low = Low Persistence  
 Mod = Moderate  
     Persistence  
 High = High Persistence  
 ↑ = Improving Trend  
 ↓ = Declining Trend

**Table II- 12: Summary of Plant Sensitive Species and Impact Determinations**

Species Name	Alt. #1	Alt. #2	Alt. #3
<i>Asclepias ovalifolia</i> Ovalleaf milkweed	NI	MIIH	MIIH
<i>Carex gravida v. gravida</i> Pregnant sedge	NI	MIIH	MIIH

**Determination of impacts for plants:**

(1) No impact;  
 (2) MIIH = May impact individuals, but is not likely to cause a trend to Federal listing or loss of viability.

There would be "no impact" to sensitive species determined to be absent from the project and not included in this table.

# 2 Alternatives

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## 2.6.1 DISCUSSION: COMPARISON OF THE ALTERNATIVES

The discussion section will compare the alternatives using the same approach as the tables in the previous section, by objectives, issues, and other resources.

### 2.6.1.1 PROJECT OBJECTIVES

The project objectives included the following:

- Reduce existing and future hazardous fuels created from dead and dying trees.
- Recover the economic value of dead and dying timber.
- Provide for the reforestation of ponderosa pine stands destroyed by the fire.
- Provide for the recovery of aspen stands and woody draws.
- Restore and stabilize the existing road system.

#### Alternative 1: No Action

Alternative 1 would not meet the project objectives as noted below:

- Hazardous fuel levels would remain untreated and would result in a long-term hazardous high fire risk caused by an estimated 30-40 tons of CWD on the ground in 1-2 decades.
- No commercial salvage would occur and no economic value would be recovered from the fire-killed timber. Planning and administrative costs would result in an estimated \$228,000 expenditure.
- No acres of suitable forest would be planted and reforested immediately. Only natural regeneration would occur.
- No project activities would occur to help restore aspen and woody draws; however, future NFP proposals and monitoring would result in some recovery actions to protect aspen stands and woody draws.

#### Alternative 2: Proposed Action

Alternative 2 would meet all of the project objectives as noted below:

- Hazardous fuel levels would be treated and would result in a long-term low fire risk on an estimated 10, 890 acres.
- Commercial salvage would occur and an estimated \$1,018,140 in economic value would be recovered from the fire-killed timber.
- 7, 860 acres of suitable forest would be planted and reforested. Natural regeneration would occur on the rest of the Long Pines area.
- Some project activities involved with leaving areas of slash adjacent to woody draws and aspen to restrict livestock use would occur to help restore aspen and woody draws. Future NFP proposals and monitoring would result in additional recovery actions to protect aspen stands and woody draws.

## **Alternative 3: Non-commercial treatment**

The project objectives discussion for Alternative 3 would be the same as Alternative 2 with the exception of the following:

- No commercial salvage would occur and no economic value (estimated at \$1,018,140) would be recovered from the fire-killed timber.

### **2.6.1.2 ISSUES**

The project issues included the following:

- Issue # 1: Commercial salvage and temporary roads
- Issue # 2: Snag management for wildlife species.
- Issue # 3: Wildlife security cover
- Issue # 4: Noxious weeds
- Issue # 5: Soil productivity
- Issue # 6: Sediment
- Issue # 7: Woody draws
- Issue # 8: Effects on livestock grazing

## **Alternative 1: No Action**

Issues are concerns or conflicts with the actions proposed in the action alternatives (2 & 3). The discussion of issues is not relevant to Alternative 1, the No Action Alternative.

## **Alternative 2: Proposed Action**

- Issue # 1: Commercial salvage and temporary roads
  - Commercial salvage and temporary roads would be part of the alternative and this issue would not be addressed in Alternative 2.
- Issue # 2: Snag management for wildlife species.
  - Snag management issues are resolved through project design features and are applicable to both Alternative 2 and 3.
- Issue # 3: Wildlife security cover
  - Wildlife security cover issues are resolved through project design features and are applicable to both Alternative 2 and 3.
- Issue # 4: Noxious weeds
  - Alternative 2 would result in slightly more potential noxious weed acres than Alternative 3, however the acres difference is negligible, estimated at a 5-acre difference.
- Issue # 5: Soil productivity

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- Soil productivity issues are resolved through project design features and are applicable to both Alternative 2 and 3.
- Issue # 6: Sediment
  - Sediment issues are resolved through project design features and are applicable to both Alternative 2 and 3. The sediment differences between Alternative 2 and 3 is negligible, estimated at 1.0 ton of sediment difference.
- Issue # 7: Woody draws
  - When available, dead trees would be used to jackstraw around edges of fire damaged woody draws. In addition, future NFP monitoring would be used to determine if additional protection is needed for woody draws
- Issue # 8: Effects on livestock grazing
  - Livestock grazing and tree planting issues are resolved through project design features and are applicable to both Alternative 2 and 3.

## **Alternative 3: Non-commercial treatment**

The project issue discussion for Alternative 3 would be the same as Alternative 2 with the exception of the following:

- Issue # 1: Commercial salvage and temporary roads
  - Commercial salvage and temporary roads are not part of the alternative and this issue and the differences in effects are displayed.
- Issue # 4: Noxious weeds
  - Alternative 3 would result in slightly less potential noxious weed acres than Alternative 2, however the acres difference is negligible, estimated at a 5-acre difference.
- Issue # 6: Sediment
  - Sediment issues are resolved through project design features and are applicable to both Alternative 2 and 3. The sediment differences between Alternative 2 and 3 is negligible, estimated at 1.0 ton of sediment difference.

### **2.6.1.3 OTHER RESOURCES**

Other resources considered included:

- Forest Vegetation
- Wildlife TES or MIS species
- Rare Plants-TES species
- Heritage Resources
- Recreation
- Visuals

## **Alternative 1: No Action**

No impacts would occur to any other resource areas

## **Alternative 2: Proposed Action**

- Forest Vegetation
  - Alternative 2 and Alternative 3 have similar effects and the reforestation objectives are accomplished on 7,860 acres in both alternatives.
- Wildlife TES or MIS species
  - The impacts on wildlife TES or MIS species are similar for both alternatives: however there are some differences on the effects determinations between the alternatives. Those impacts and differences are not considered significant and are displayed in [Table II-11](#).
- Rare Plants-TES species
  - The impacts on plant sensitive species are the same for both alternatives. Those impacts are not considered significant and are displayed in [Table II-12](#).
- Heritage Resources
  - No impacts would occur to heritage resources and there are no differences between alternatives in effects on the heritage resource.
- Recreation
  - Minor short-term effects (temporary closures for project activities) would occur to heritage resources.
- Visuals
  - The alternatives would impact the visual quality of the project area due to the project activities and the creation of openings or the lost of tree outlines on ridge features, however the activities are in response to a large destructive wildfire. That large wildfire event changed the visual quality of the area and in the long-term the fire-killed trees would fall to the ground and the result would be the same as the short-term effect of the project activities. In the short-term and the long-term, there are no differences between alternatives in effects on the visual resource.

## **Alternative 3: Non-commercial treatment**

The discussion of effects on other resources is the same as Alternative 2 except for the following:

- Wildlife TES or MIS species
  - The impacts on wildlife TES or MIS species are similar for both alternatives: however there are some differences on the effects determinations between the alternatives. Those impacts and differences are not considered significant and are displayed in [Table II- 11](#).

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## **2.6.2 SUMMARY: COMPARISON OF THE ALTERNATIVES**

### **Alternative 1: No Action**

No project objectives would be accomplished for this alternative

### **Alternative 2: Proposed Action**

All project objectives would be accomplished. All issues except Issue #1 (Commercial Logging Effects) are resolved. No other resources would have any significant impacts.

### **Alternative 3**

The only project objective that would not be accomplished is the objective to recover the economic value of the fire-killed trees. This would result in a difference of approximately \$1,018,140 in loss of the direct economic value for this alternative. All issues including Issue #1 (Commercial Logging Effects) are resolved. No other resources would have any significant impacts.