

Chapter 1

Purpose and Need

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1.1 INTRODUCTION

The USDA Forest Service, Custer National Forest-Sioux Ranger District has prepared this Environmental Assessment (EA) on the potential effects of long-term wildland fire hazard reduction activities in the **Kraft Springs Fire Hazard Abatement and Restoration Project** area (See [Figure I-1](#)).

The project area is located in Carter County, Montana and Harding County, South Dakota, and is within the Sioux Ranger District-Custer National Forest. The Sioux Ranger District office is in Camp Crook, South Dakota; however, the lands managed are located in both South Dakota and Montana (See [Figures v-1a, vi-1b](#) on previous pages). The Sioux Ranger District is made up of several isolated forested “islands” and the Long Pines Land Unit is one of those forested islands. The entire Long Pines Land Unit is approximately 70,100 acres (National Forest System Lands: 65,900 acres; private lands: 4,200 acres). The Kraft Springs Project area is the same as the Long Pines Land Unit boundary.

Treatments proposed in this analysis are to reduce long-term fire hazard problems with fuel loading from dead and dying trees caused by the 2002 Kraft Springs Wildfire. Continuous, heavy wildland fuel loadings are a major concern in forest plant communities that were historically shaped by relatively frequent, low intensity fires, and where Forest Plan management goals emphasize timber resource. These situations significantly reduce future fire suppression capabilities as well as firefighter safety. Salvage cutting of dead and dying commercial timber is one of the fuel treatments proposed to recover some economic value while reducing a large volume of future wildland fuels. This EA discloses the direct, indirect, and cumulative environmental impacts and any irreversible or irretrievable commitment of resources that would result from the proposed action and alternatives.

The Interdisciplinary Team (IDT) used a systematic approach for analyzing the proposed project and alternatives to it, estimating the environmental effects, and preparing this EA. Planning was coordinated with the appropriate federal, state, and local agencies, and local federally recognized tribes.

Copies of the (EA) and any final Finding of No Significant Impact/ Decision Notice (FONSI/DN) may be obtained from the Sioux Ranger District, District, P.O. Box 37, Camp Crook, South Dakota 57724. For information phone # 605-797-4432, or email

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jrclark@fs.fed.us. Electronic versions of this EA and any final FONSI/DN can be found on the Internet at: <http://www.fs.fed.us/r1/custer/>. Additional documentation, including more detailed analyses of project area resources may be found in the project planning record located at the Sioux Ranger District Office in Camp Crook, South Dakota.

1.1.1 PROJECT AREA DESCRIPTION

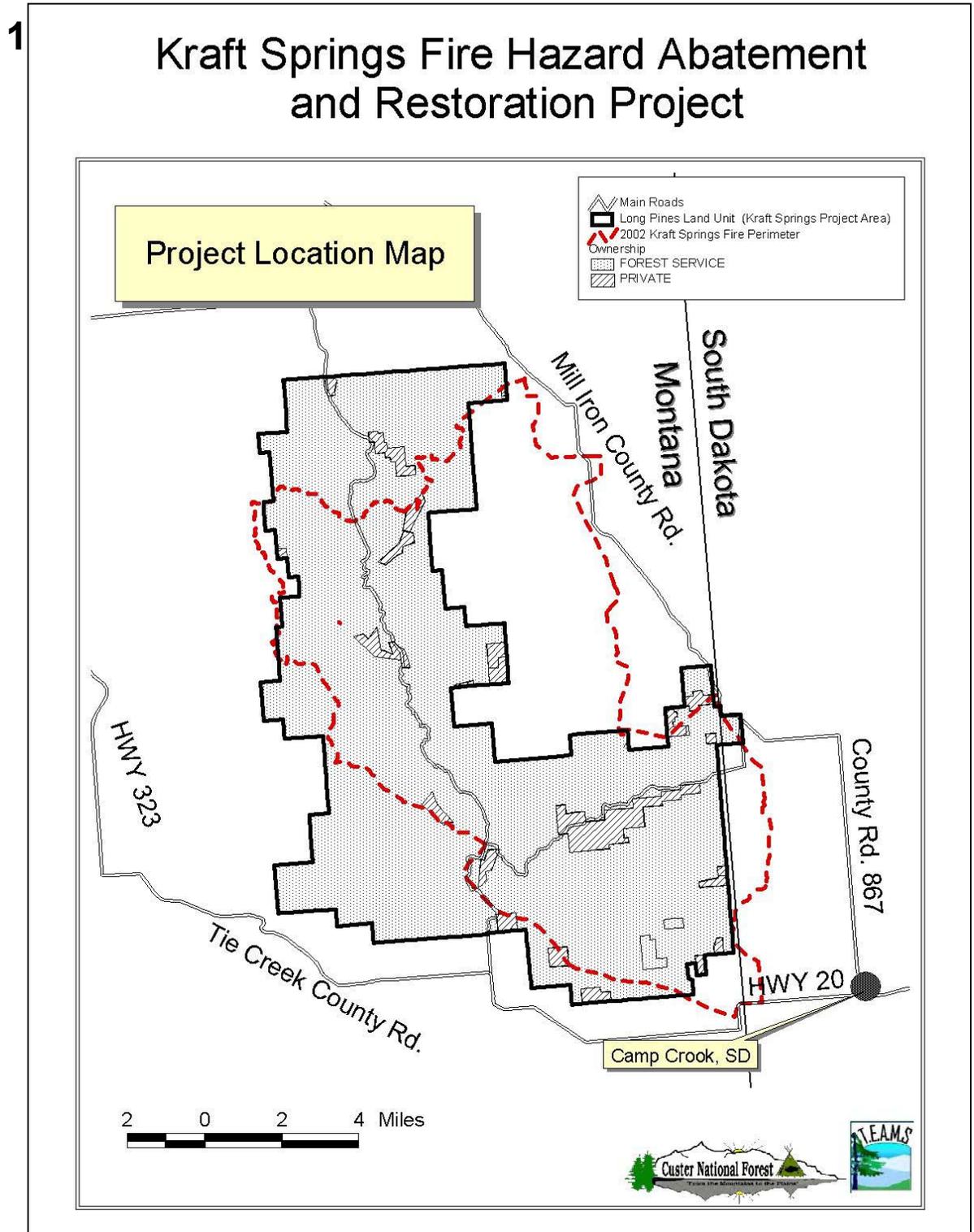
The Long Pines Land Unit is almost completely within Carter County, Montana, with a very small acre amount in Harding County, South Dakota. Camp Crook, South Dakota is the closest town, approximately five (5) miles to the southeast. Access to the area from Camp Crook is on Forest Roads 3118 and 3119. Access from the town of Ekalaka, Montana is via Forest Roads 3117 and 3818. Private ranchlands and some State lands surround the Long Pines Land Unit. Several parcels of private lands are located within the Long Pines Land Unit. Several of the inholdings contain occupied residences (Schell Long Pine Ranch, Hoherz Ranch, and a summer home (6 units) resident area). These private lands and occupied residences are an important focus for the post-fire fuels reduction treatments proposed for this project.

The Sioux Ranger District is located in the southeast corner of Montana and the northwest corner of South Dakota. Camp Crook, South Dakota, population 65, is situated along the Little Missouri River and is the location of the Sioux Ranger District Office. The closest town with substantial services is Buffalo, South Dakota, about 20 miles to the east of Camp Crook, South Dakota. Belle Fourche, South Dakota, is about 80 miles to the south. The Black Hills of South Dakota is about 100 miles south of Camp Crook. The Sioux Ranger District is composed of eight separate land units of Federal land and has often been described as "islands of pine in a sea of grass." This is an appropriate description as the National Forest lands are higher elevation hills of ponderosa pine rising above rolling grasslands. The eight land units include: Chalk Buttes, Ekalaka Hills, and Long Pines in Montana, and the West Short Pines, East Short Pines, North Cave Hills, South Cave Hills, and Slim Buttes in South Dakota.

The Sioux Ranger District has large areas of clay soils and some badlands. Underlying material is siltstone or shale that weathers to a fine textured surface soils. The climate for the area is continental, with short, hot summers and long, cold winters. Moisture regimes are semi-arid, with an average annual precipitation of 14 inches per year. Elevations on the Sioux Ranger District vary from 3,121 feet at Camp Crook, South Dakota to 4,100 feet at Tri-point Lookout in the Long Pines Land Unit, Montana.

There are two classified National Landmarks on the District, the Castles, and Capitol Rock. The Castles, located in the Slim Buttes Land Unit in South Dakota, are a massive limestone uplift that resembles a medieval castle. Capitol Rock, located in the Long Pines Land Unit in Montana, is a massive white limestone uplift that resembles the Nation's capitol building. There are numerous opportunities for dispersed recreation activities such as hunting, hiking, horseback riding, mountain biking, snowmobile riding, and cross-country skiing throughout the District. There are no designated hiking trails but most of the ridges are open and provide spectacular panoramic views.

Figure I-1: Project Location Map with Kraft Springs Fire Perimeter



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BACKGROUND

1.2.1 KRAFT SPRINGS FIRE – 2002

In August-September 2002, the Kraft Springs wildfire burned approximately 65,550 acres, and 40,711 of those acres were on National Forest System lands in the Long Pines Land Unit. In addition, approximately 22,250 acres were on private lands within or adjacent to the Long Pines Land Unit and smaller acres for adjacent BLM land (50 acres) and State Lands (1,000 acres) (See Appendix A, Map 1). Of the Forest Service acres burned, approximately 62% were forest vegetation types and 38% were grassland vegetation types. The Kraft Springs Fire area is located near Camp Crook, South Dakota. The area of effect is located within Carter County, Montana (about 95%) and in Harding County, South Dakota (about 5 %).

The fire was started by a lightning storm on August 30, 2002, and burned from the southern part of the Long Pines Land Unit to the northern portion in just a few days. Much of the area experienced a stand-replacing wildfire and many of the green-forested stands remaining in the northern portion of the Long Pines Land Unit were subjected to a moderate or high intensity wildfire. The subsequent Burned Area Emergency Restoration (BAER) report¹ provided a summary of the fire effects on the landscape that occurred during the fire and some emergency actions were implemented for public safety and road rehabilitation needs.

1.2.2 NORTH LONG PINES PROJECT – 2001-2002

Prior to the Kraft Springs fire an ongoing analysis and project proposal development was occurring on the Long Pines Land Unit. This project proposal was called the North Long Pines Project, and the purpose was to protect the forest stand structure diversity (mid-aged and mature forest stands) by reducing the fuel/fire hazard (See Figure I-2) to the existing



Figure I-2: Dense stand of ponderosa pines showing high fire hazard conditions, NLP Project.

green forested stands left intact after the Brewer fire of 1988 (see below for details on Brewer fire). A scoping letter dated July 25, 2001 notified the public that the Sioux Ranger District was considering this specific project analysis in the northern portion of the Long Pines Land Unit and requested information about the area.

Unfortunately, the North Long Pines Project area was largely consumed by the 2002 Kraft Springs wildfire and the North Long Pines proposal is being replaced by the Kraft Springs Project proposal.

¹ Burned Area Emergency Rehabilitation (BAER) Report-Kraft Springs Fire. Sept. 2002. Custer NF, Sioux Ranger District. 96 pp. Unpublished report on file at the Custer NF.



Figure I-3: Photo of an area affected by the 1988 Brewer Fire, showing the results of a stand-replacing wildfire. Photo taken in July 2002.

1.2.3 BREWER FIRE - 1988

The Brewer fire occurred in 1988 and burned approximately 58,220 acres in the Long Pines Land Unit and adjacent private landholdings. Much of that burn area (approximately 24,500 acres) experienced stand replacement wildland fire that converted some stands of mature and mid-aged forested stands to early grass-forb-shrub-seedling stages (See Appendix A for map). [Figure I-3](#) is a photo of a portion of the Brewer Fire that was impacted by a stand-replacing wildland fire.

1.3 PURPOSE AND NEED FOR ACTION

The 2002 Kraft Springs wildfire affected large areas of green forested stands and previously burned and planted areas from the 1988 Brewer Fire in the Long Pines Land Unit. (See [Appendix A, Map 1](#)). Approximately 70 percent of Kraft Springs Fire burned over the same area burned in the 1988 Brewer Fire. As a result of the Kraft Springs Fire, a potential wildland fire hazard will be created similar to the fuel situation following the 1988 Brewer Fire. Estimated fuel loading at the ground surface ten years after the Brewer Fire was in upwards of 32 tons per acre² of Coarse Woody Debris (CWD)³ (See [Figure I-4](#) below).

A similar fuel loading (est. 30-40 tons per acre) is expected to occur in areas that experienced a high or moderate intensity burn from the Kraft Springs fire. CWD in excess of 25-30 tons per acre results in high fire hazard due to the high resistance to control (Brown et al. in press). CWD loading of 5-20 tons per acre scattered as discontinuous separate pieces across the landscape is considered the optimum range for maintaining a low fire hazard. The primary objective of this project is to reduce existing fuels and avoid future high fuel loads that would result from trees killed by the Kraft Springs Fire.



Figure I-4: Example of heavy fuel loading after the 1988 Brewer Fire, photo taken in Dec. 2002, in an area not affected by the August 2002 Kraft Springs Fire.

² Information based on fuel transect data 2002 and fuel observations made by District staff since 1988 Brewer Fire.

³ CWD is defined as standing or down woody material generally greater than > 3" diameter.

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1.3.1 PROJECT OBJECTIVES

The specific project objectives are listed below for the Kraft Springs Project:

- Reduce the long-term CWD fuel loading from dead and dying trees from an estimated 30-40 tons per acre to a range of 10-15 tons of CWD per acre.
- Recover the economic value of dead and dying merchantable 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.

1.3.2 EXISTING AND POTENTIAL CONDITIONS: FIRE HAZARD

The Kraft Springs fire resulted in large blocks of forested area impacted by stand-replacing wildfire. Fire intensity was the criteria used by the BAER Fire Recovery Team in mapping the Kraft Springs Fire. High intensity fire is where all the trees are killed with the fine fuels consumed, resulting in a stand that is completely “black”. Moderate intensity fire is where many of the trees are killed or dying, but the fine fuels (needles, small diameter branches) are still present on the trees, giving the stand a “brown” appearance. Low intensity fire is where most trees are still green and have survived the fire, however some small patches of trees may be dead with either a black or brown appearance. See [Figures I-5 and I-6](#) for examples of moderate and high fire intensity from the Kraft Springs fire.



Figure I-5: Example of moderate intensity burn, showing “brown” canopy appearance. Trees may be dead depending on crown scorch, cambium heat effect, and other environmental factors such as drought and insects.



Figure I-6: Example of a high intensity burn, showing “black” appearance. Trees are dead due to 100% crown scorch, bole charring, and root damage.

Future fuel loads on a given site are dependent on a variety of factors, including fire intensity, the amount of fire-caused tree mortality, and the size and distribution of those trees. Forest stands that burned at moderate and high intensity will result in continuous heavy fuel conditions over large areas, 1-2 decades from now.

In **high intensity**⁴ burned areas there are many continuous acres with dead standing trees or snags which will eventually fall over and become part of the ground surface fuel layer. Presently there are very little ground surface fuels, and in the case of previous multi-storied stands, only the bolewood and some branches on mid-size trees remain. All foliage and even some smaller size branches/twigs were consumed. The smaller diameter trees (< 3”) would become surface fuels within the next five years. Larger size branches and even a few larger diameter trees would become surface fuels within the next ten years. Grasses and forbs will contribute as part of the surface fuels to carry fire spread.

In the **moderate intensity** burned areas, the dead, attached foliage would become the ground surface fuel layer within the next 3-5 years. Presently, very little of the existing ground surface fuels remain, and most foliage and some smaller size branches/twigs on smaller diameter trees were consumed. Branches and occasional larger diameter trees would fall over within the next 10 years. The foliage and small diameter branches/twigs could serve as a fire carrier if a wildfire occurred. Grasses and forbs would contribute as part of the surface fuels to carry fire spread.

In **low intensity** burned areas, some surface fuels and most foliage with some being scorched, still remain. The scorched foliage will most likely be surface fuel within the next three years. Smaller diameter trees (<-3”) that were killed are likely to fall over within the next five years. Grasses and forbs would contribute as part of the surface fuels to carry fire spread.

The forested stands that existed in the project area prior to the Kraft Springs fire where mostly affected by high and moderate intensity fire. [Table I-1](#) summarizes the acres affected by the Kraft Springs Fire.

Table I-1: Summary of Fire Intensity/Acres in Kraft Springs Fire

Fire Intensity Map Unit	Forest Service Acres	%of Forest Service Lands
1 - High Burn Intensity: Grassland	15,182	37%
2 -High Burn Intensity: (<i>Brewer Fire areas reburned</i>)	10,174	24%
3 - High Burn Intensity: (green timber)	3,725	9%
4 - Moderate Burn Intensity: (green timber)	11,493	29%
5 - Low Intensity Burn	137	<1%
Total	40,711	

Left untreated, large numbers of dead and dying trees are expected to fall to the ground in 1-2 decades, as was the case following the 1988 Brewer Fire, and will cause an increase in the

⁴ Fire Intensity definitions are from Kraft Springs Fire BAER Report, Sept. 2002. Those definitions are described in more detail in Appendix B-1.

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long-term fire hazard on the acres affected by high and moderate fire intensity. Fuel load data of large woody fuels in portions of the Brewer fire that did not reburn during the Kraft Springs Fire were estimated at >32 tons per acre.

Based on field observations and stand volume data, it is estimated that the high and moderate intensity burned areas in the Kraft Springs project would result in 30-40 tons per acre of CWD falling to the ground within 1-2 decades. Fire hazard and resistance to control reach high ratings when CWD exceed 25 to 30 tons per acre in combination with small woody fuels of 5 tons per acre or more (Brown et al 2001). Therefore, 25-30 tons per acre of CWD will be used as a threshold for this analysis, and fuel loads exceeding that are considered high hazard.

See [Appendix A, Map 1](#), for the distribution of stands affected by high, moderate, and low fire intensity in the Kraft Springs Project Area.

1.3.3 DESIRED CONDITIONS-LONG-TERM: FIRE HAZARD

The desired conditions for the Kraft Springs project area is for stands with a fire hazard rating of low, and would be characterized by the following:

- CWD would have an optimum range of 10-15 tons per acre, scattered as individual pieces across the landscape. Fuel loading of <3” diameter fuels would be as described in a NFFL⁵ Fuel Model 9 (Anderson, 1982) with less than 3.5 tons per acre.

Other desired goals of the DFC⁶ are to achieve a “fire-safe” forested area to benefit firefighter and public safety, ensure sustainability of forest resources, and provide protection to adjacent private property. The following criteria describe conditions of a fire-safe forest:

- Surface fuel conditions that limit surface fire intensity.
- Forest stands comprised of fire-tolerant trees of appropriate size and structure.
- Low probability that crown fire will initiate or spread through the forest canopy.

A “fire-safe” forest should not be misinterpreted as fireproof. There will be wildland fires, especially in most western forests that have a history of natural ignitions and a natural fire regime. A criterion for a fire-safe forest is where ground crew fire suppression tactics can manage fire behavior. According to experience and fire behavior related studies performed by the Fire Research Lab in Missoula, Montana, ground surface spreading fires, with flame lengths not exceeding 4 feet at the flaming front can effectively and safely be managed and contained by hand crews. A four-foot flame length represents the maximum heat intensity at which hand crews can still be effective and safely implement tactics near the head of the fire, i.e. existing or constructed firelines, water use from engines, hot-spotting, mop-up, and routine fire perimeter patrol. The desired fuel load conditions described above would result in a fire-safe condition for fire suppression crews.

⁵ National Forest Fire Laboratory, Missoula MT.

⁶ DFC = Desired Future Condition.

1.4 PROPOSED ACTION IN BRIEF

A proposed action results from a thorough analysis of the desired and existing conditions of an area. The proposed action finally presented to the public should be well defined and gives the public and other agencies specific information on which to focus comments. Actions included in this proposal are only summarized briefly here; however, Chapter 2 has a detailed description of the proposed action and design criteria. Detailed maps showing the activities planned for the proposed action are found in [Appendix A, Maps #2 to #2c](#).

The Custer National Forest-Sioux Ranger District is proposing hazardous fuels reduction treatments that include: fuels reduction using a combination of commercial salvage and non-commercial fuel treatment (6,260 acres), temporary roads (20.5 miles) for commercial salvage, fuels reduction using only non-commercial fuel treatment (immediate 1,980 acres, delayed 2,650 acres), planting trees (7,860 acres) and major road reconstruction/improvement (67.0 miles) of existing specified roads in response to the purpose and need for action.

1.5 RELATIONSHIP TO FOREST PLAN AND OTHER MANAGEMENT DIRECTION

The Kraft Springs Project is proposed to respond to the direction and objectives found in the 1987 Resource Management Plan (Forest Plan) for the Custer National Forest, National Fire Plan, and the 1998 Northern Region Overview.

1.5.1 CUSTER NATIONAL FOREST PLAN

The Forest Plan embodies the provisions of the National Forest Management Act of 1976, its implementing regulations, and other guiding documents. The Forest Plan sets forth in detail the direction for managing the land and resources of the Custer National Forest. Where appropriate, the Kraft Springs Project EA also tiers to the Custer Forest Plan Final Environmental Impact Statement, 1987.

1.5.1.1 FOREST WIDE MANAGEMENT DIRECTION AND MANAGEMENT AREAS

The following Forest Plan (FP) goals and objectives are selected for relevance to purpose and need for the proposed project. The project is expected to meet the Forest-wide standards and guidelines and the Management Area direction.

The Forest Plan uses Management Areas (MA) to guide management of the national forest lands within the Custer National Forest. Each management area provides for a unique combination of activities, practices and uses. The Kraft Springs project area includes the following management areas:

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Table I-2: Forest Plan Management Areas¹

Management Area	Emphasis	Acres in Project Area
Management Area B	Livestock grazing	51,930 acres
Management Area C	Key Wildlife Habitat	Undetermined acres
Management Area D	Wildlife diversity	18,300 acres
Management Area M	Riparian ecosystem	Undetermined acres
Management Area N	Woody draws	Undetermined acres
Management Area F	Recreation Sites	85 acres at two campgrounds
Management Area L	Candidate Special Interest Area	One area of 65 acres
Management Area O	Unique Features	85 acres-Capitol Rock Landmark
Management Area P	Administrative Sites	40 acres-two sites

¹Management Areas C, M and N are unmapped.

Goals, objectives, and desired conditions of each are summarized below. The Forest Plan contains a detailed description of each management area. See [Appendix A, Map #1a](#) for a map showing management areas.

Management Area B

About 75 percent of the project area is within Management Area B. The goal for this management area is to provide for the continuation of livestock grazing, implementation of intensive range management systems, and the facilitation of minerals and energy development with consideration of other resource needs. In areas not considered key for wildlife, adverse impacts to the wildlife habitat will be mitigated where feasible, but not to the exclusion of range and mineral/energy management and development activities. In key wildlife areas, the habitat may not be adversely impacted from development activities. Management area standards for wildlife emphasize maintaining existing wildlife habitats consistent with other resource needs. Standards for timber management emphasize that forested areas will be managed to perpetuate or enhance livestock forage and wildlife habitat values. Silvicultural systems may include either even-aged or uneven-aged systems. Tree planting may be used to meet management area goals. Fire management standards emphasize that planned ignitions may be used for wildlife enhancement and to restore the natural fire frequency

Management Area C

This management area includes habitats known to be important for selected wildlife species. On the Sioux Ranger District the emphasis for this management area is to manage rimrock habitat for raptor species⁷. The acres for this management area are not currently mapped, however, the rimrock areas of the Long Pines Land Unit would not be affected by the proposed activities.

⁷ Forest Plan Amendment Number 17, April 1993, changed the table on page 49 of the Custer NF Forest Plan to identify key wildlife habitat by Ranger District and species.

Management Area D

About 25 percent of the area is within Management Area D and has an emphasis to maintain and improve the long-term diversity and quality of habitat for selected wildlife species. The Kraft Springs Project has an objective to maintain and improve the long-term diversity and quality of wildlife habitats. This MA contains lands considered suitable for timber management and silvicultural prescriptions will perpetuate or improve wildlife habitat and livestock forage. Tree regeneration and planting would occur on suitable lands.

Management Areas M and N

Additionally, there are inclusions of Riparian (Management Area M) and Woody Draws (Management Area N) scattered throughout the project area. The acres for these Management Areas are currently unmapped. The goal for these management areas are similar to Management Area D and will provide for healthy, sustainable plant communities in riparian and woody draws.

Management Areas F, L, O, and P

Additionally, scattered throughout the project area are small amounts of Management Area F, L, O, and P.

- Management Area F emphasis is on developed recreation sites. The Lantis Campground is located in T2S, R61E, Section 25; while Wickham Gulch Picnic area is located T3S, R62E, Section 16.
- Management Area L emphasis is on Research Natural Areas and Special Interest Areas. Forest Plan Amendment 18 changed the White Rock Spring candidate Research Natural Area to a candidate Special Interest Area. The White Rock Spring candidate SIA is located in T2S, R61E, Section 35 and is approximately 60 acres.
- Management Area O emphasis is on the protection of unique geological and scenic features of the National Natural Landmarks. Capitol Rock National Natural Landmark is located in T3S, R62E, Section 17.
- Management Area P emphasis is on administration sites. The McClary site is located in T2S, R61E, Section 36, and Tri-point located in T2S, R61E, Section 21. Tri-Point Lookout was incorrectly labeled on the Forest Plan management area maps as Management Area O, rather, it should have been labeled as Management Area P. This is a simple factual correction to the map that will be corrected by memo to the District Ranger.

1.6 PUBLIC INVOLVEMENT

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). Among other things, the scoping process is used to invite public participation, to help identify public issues, and to obtain public

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comment at various stages of the environmental analysis process. Although scoping is to begin early, it is really an iterative process that continues until a decision is made. In addition to the following specific activities, the Kraft Springs project was listed on the Custer National Forest Schedule of Proposed Actions (SOPA) in the 4th quarter 2002. The documentation of the scoping and public involvement is found in the project file. To date, the public has been invited to participate in the project in the following ways.

1.6.1 PUBLIC MAILING

On October 29, 2002, a letter was mailed to the public providing detailed information on the proposed action that the Sioux Ranger District was considering in the Long Pines Land Unit after the Kraft Springs Fire. The letter requested the public to respond by providing information on any concerns they had regarding the proposal or any other comments they wanted to submit. The letter was mailed to approximately 216 individuals and groups, including federal and state agencies, tribal governments, municipal offices, and businesses. A total of seventeen (17) responses to this scoping letter were received.

A content analysis was conducted on the scoping replies. The content analysis is a compilation of substantive comments from public scoping. The analysis shows how comments were used to develop the Purpose and Need, Issues, Alternatives to the proposed action, and any project design criteria. The complete content analysis documentation is found in the project record files.

1.6.2 LOCAL NEWS MEDIA

A newspaper article on a briefing with the Carter County commissioners about Kraft Springs Project by the Sioux Ranger District was published in the Ekalaka Eagle, MT on Jan, 24, 2003. Legal notices announcing a 30-day comment period for the environmental assessment was published in the Billings Gazette ([Feb. 14, 2003](#)), Nation Center News ([Feb. 13, 2003](#)), and the Ekalaka Eagle ([Feb. 14, 2003](#)).

1.6.3 LOCAL OR STATE OFFICIALS

A project briefing was presented to the County Commissioners for Carter County, Montana on November 18, 2002. Additionally, project scoping letters were mailed to other local and State offices and agencies in South Dakota and Montana. A complete list of Local and State officials consulted is presented in Chapter 3, Section 3.16.

1.6.4 CUSTER NATIONAL FOREST WEBSITE

The proposed action as defined in the initial scoping letter for the Kraft Springs project was listed on the Custer NF website at: (<http://www.fs.fed.us/r1/custer/>), and scoping information and maps were available to the public effective Oct. 29, 2002. The environmental assessment was available on the website effective [February 14, 2003](#). The public was notified that comments could be accepted via email using an online comment form.

1.7 ISSUES

Scoping is used to identify issues that relate to the effects of the proposed action. An issue is an unresolved conflict or public concern over a potential effect on a physical, biological, social, or economic resource as a result of the proposed action and alternatives to it. An issue is not an activity; instead, the projected effects of the proposed activity create the issue. The analysis team reviewed the scoping comments and categorized issues into two groups:

- Issues studied in detail- these are issues identified by the analysis team as important and within the scope of the project. These issues influence the analysis, suggest new alternatives, or require additional project design and mitigation features.
- Issues not studied in detail- these are issues considered, but were determined by the analysis team to be outside the scope of the project, requests for information, or resolved through existing law, regulation or policy.

1.7.1 ISSUES STUDIED IN DETAIL

The following issues are studied in detail and are addressed through the proposed action, alternatives to the proposed action, and design criteria. An indicator for measuring each issue is presented and will be discussed in the analysis and used in the alternative comparison in Chapter 2. A brief summary of each issue and its resolution will be noted below.

1.7.1.1 ISSUE #1: COMMERCIAL SALVAGE AND TEMPORARY ROADS

There is a concern that commercial salvage and temporary road construction would have an effect on soils, watershed, and wildlife.

- **Indicator**: Acres of commercial salvage.
- **Indicator**: Miles of temporary roads.
- **Indicator**: Percent of forested habitat likely providing hiding cover (see Issue # 3 below).
- **Indicator**: Estimated average annual tons of sediment delivered to stream channels (see Issue # 6 below).
- **Resolution**: Alternative #3, Non-commercial fuels treatments only, was developed to respond to this issue. No commercial salvage would occur and no temporary roads would be needed. Effects on soils, watershed, and wildlife are noted in each resource area discussion and are summarized in the Comparison of Alternatives Section 2.6 in Chapter 2.

1.7.1.2 ISSUE #2: SNAG MANAGEMENT FOR WILDLIFE SPECIES

There is a concern that the proposed action and alternatives to the proposed action may have an effect on availability of snags for snag-dependent wildlife species. The indicator below will be used to measure impacts (both positive and negative). (*Wildlife Section*)

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- **Indicator:** Percent of forested habitat with a snag (tree \geq 11 inches diameter with less than 50 percent green crown) density greater than or equal to 2 snags per acre within the planning area.
- **Resolution:** For the proposed action, the distribution of noncommercial and noncommercial – delayed units was designed to create a network of snags with a distance between “patches” of about 1 mile or less throughout the project area. This would be accomplished through unit placement combined with design features. Within the noncommercial units, all green trees (trees with greater than or equal to 50 percent green crown) and a minimum of 2 snags per acre (up to 6) would be maintained through all proposed treatments. Within noncommercial – delayed units, all existing trees (green or dead) would be maintained for a minimum of 5 years, or until they naturally fell. The action alternatives would exceed all snag retention standards and guidelines for the Custer National Forest with implementation of these design features included in this project.

1.7.1.3 ISSUE #3: WILDLIFE SECURITY COVER

There is a concern that the project area is lacking in hiding and security cover for big game wildlife during the big game hunting season. The indicator below will be used to measure impacts (both positive and negative). (*Wildlife Section*)

- **Indicator:** Density of roads open to motorized traffic by the public during the big game hunting season and calving/fawning period.
- **Indicator:** Percent of forested habitat likely providing hiding cover.
- **Resolution:** Temporary road closures would be in effect during the big game hunting season. Motorized vehicle use would only be allowed on selected main routes in the Long Pines Land Unit or for administrative access only by permits during the closure periods. Past monitoring of spring-summer vehicle use has indicated very low levels of public use would have limited impact on calving/fawning.

1.7.1.4 ISSUE #4: NOXIOUS WEEDS

There is a concern that the proposed action and alternatives to the proposed action may have an effect on the spread of noxious weeds within the project area. The indicator below will be used to measure impacts (both positive and negative). (*Range/Noxious Weeds Section*)

- **Indicator:** Potential increase of noxious weeds in acres.
- **Resolution:** Equipment used in the salvage and noncommercial activities would be cleaned per project design features. Follow-up noxious weed surveys would occur post-project and an Integrated Pest Management approach would be used to control existing noxious weed locations and any new populations.

1.7.1.5 ISSUE #5: SOIL PRODUCTIVITY

1.7.1.6 SOIL PRODUCTIVITY

There is a concern that the proposed action and alternatives to the proposed action may have an effect on detrimental soil disturbance and long-term soil productivity within the project area. A Forest Plan states that detrimental soil disturbance must not exceed 15% of area. The indicators below will be used to measure impacts both positive and negative. (*Watershed/Soils Section*)

- **Indicator:** High risk for Detrimental Soil Disturbance (%) of project area.
- **Indicator:** (%) of project area with Detrimental Soil Disturbance.
- **Indicator:** Coarse Woody Debris in tons/acres left on-site for long-term soil productivity.
- **Resolution:** Where material is available, 10 – 15 tons of CWD/acre would be left on-site for high and moderate burn intensity areas. Qualifying pieces would at a minimum, be 8 feet in length and 12 inches in diameter. All residual slash (CWD) < 12” diameter would be lopped and scattered on high and moderate burn areas. Analysis has indicated that the risk for detrimental soil disturbance would affect up to 10% of the project area, and this is below the 15% standard in the Forest Plan.

1.7.1.7 ISSUE #6: SEDIMENT

There is a concern that the proposed action and alternatives to the proposed action may have an effect on erosion and sedimentation to project streams. The indicator below will be used to measure impacts (both positive and negative). (*Watershed/Soils Section*)

- **Indicator:** Estimated average annual tons of sediment delivered to stream channels.
- **Resolution:** All streams would receive at a minimum the required streamside management zone buffer as described by the Montana Streamside Management Zone Law. Streamside Management Zones would be widened as appropriate to retard sediment delivery to stream channels.

1.7.1.8 ISSUE #7: WOODY DRAWS

There is a concern that the effects of the Kraft Springs fire, combined with ongoing big game and livestock browsing, could retard recovery in woody draws. The indicator below will be used to measure impacts (both positive and negative).

- **Indicator:** Activities (both current proposal and immediately foreseeable National Fire Plan proposals for restoration in Kraft Springs Wildfire) affecting (both adverse and positive) woody draws.
- **Resolution:** The current proposed activities would not salvage or cut trees in woody draws. Efforts would also be made to thin and fell small diameter trees on the edges of woody draws to act as a natural barrier to livestock movements. This would happen in areas where adequate trees are available. In addition, the District has requested

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funding for additional future projects for restoration needs after the Kraft Springs Fire. Those future proposed projects include rangeland recovery monitoring of woody draws, inventory of livestock water developments that could be relocated out of woody draws, and monitoring of severely burned areas to determine if woody draws need additional management and protection for recovery.

1.7.1.9 ISSUE #8: EFFECTS OF PROPOSED TREE PLANTING ON LIVESTOCK GRAZING

There is a concern that the proposed action and alternatives, specifically the acres of proposed tree planting, may result in loss of forage for livestock use on areas where the management emphasis (MA B) is for livestock forage production. The indicator below will be used to measure impacts (both positive and negative). (*Range Section*)

- **Indicator:** Acres of tree planting in Management Area B.
- **Resolution:** Tree planting in MA B would initially be approximately 400 trees per acre. The desired objective is to have a minimum of 200 established seedlings on suitable ground. 200 seedlings per acre would meet timber objectives and would also allow for adequate range forage production. In addition, planting would occur on acres that were previously forested. On unsuitable ground (dry, hot, south aspects) only natural regeneration would occur and could be delayed up to several decades due site conditions and lack of seed source. These areas would remain in the grass-forb vegetation stage for much longer periods and provide adequate livestock forage.

1.7.2 ISSUES NOT STUDIED IN DETAIL

The following issues were considered, however they were determined to be requests for information or other process issues, were already resolved through existing law, regulation, or policy, or are beyond the scope of this analysis. Some are already addressed through other processes such as the Forest Plan.

1.7.2.1 ISSUE: INCREASED OFF-ROAD ATV USE

A concern was raised that the road building (new and temporary) activities in the proposed action may create new routes and increase illegal ATV off-road use in the area.

- **Resolution:** ATV use will be controlled by existing regulations and affected areas/roads would be signed as needed, noting restrictions on ATV use. The Northern Region Off-Road Policy addresses this issue (Off-Highway Vehicle Environmental Impact Statement and Plan Amendment for Montana, North Dakota and Portions of South Dakota, January 2001). This issue will not be studied in detail or discussed at length in the analysis.

1.7.2.2 ISSUE: AQUATIC SPECIES (FISH)

A concern was raised that the proposed action and alternatives to the proposed action may have an effect on aquatic species within the project area.

- **Resolution:** There are no perennial fish bearing streams in the project area. Therefore, this issue will not be studied in detail or discussed at length in the analysis.

1.7.2.3 ISSUE: INVENTORIED ROADLESS AREAS (IRAS)

A concern was raised that the proposed action and alternatives to the proposed action may have an effect on roadless areas.

- **Resolution:** There are no IRAs in or adjacent to the project area. There are no roadless areas located on the Sioux Ranger District, including the Long Pines Land Unit and project area (Record of Decision for the Custer National Forest Land and Resource Management Plan, p. 22; Final Environmental Impact Statement, Appendix C – Roadless Area Evaluation, p. 133; and Forest Service Roadless Area Conservation Final Environmental Impact Statement, Volume 2 – Maps of Inventoried Roadless Areas, pgs. 103 and 106. Therefore, this issue will not be studied in detail or discussed at length in the analysis.

1.8 DECISION FRAMEWORK

Based on the environmental analysis in this environmental assessment, the Custer National Forest deciding official will decide whether, and how to reduce fuel loading in the Kraft Springs Project area in accordance with Forest Plan goals, objectives and desired future conditions. The responsible official will decide whether to implement an action alternative, a modified action alternative, or the no action alternative. If an action alternative is selected, it would include:

1. Whether the proposed action will proceed as proposed, as modified by an alternative, or not at all? If it proceeds:
 - What mitigation measures and monitoring requirements will the Forest Service apply to the selected alternative?
 - Whether the project is consistent with the Forest Plan or requires a Forest Plan amendment?

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