

Benchmark Fuels Reduction Project Environmental Assessment

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LEWIS AND CLARK NATIONAL FOREST

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BENCHMARK FUELS REDUCTION PROJECT ENVIRONMENTAL ASSESSMENT

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SECTION 1

PURPOSE AND NEED FOR ACTION

A. INTRODUCTION

The Forest Service has prepared this Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the action and no action alternatives.

Document Structure

The document is organized into three sections and supporting information:

Section 1 outlines the project area, the purpose of and need for the proposed project, how the *Benchmark Project* relates to the Forest Service's Forest Plan and the scope of the proposed action and analysis.

Section 2 presents detailed descriptions of the *proposed action* and public involvement, identifies significant issues and describes alternatives to the proposal (including taking no action).

Section 3 describes the natural and human environments potentially affected by the proposed action and no action alternative, and discloses what potential effects are anticipated.

Following Section 3 is an appendix that includes Best Management Practices; a list of preparers of the EA; a list of agencies, organizations, and persons involved in public involvement; a list of literature cited; and a glossary of terms.

The EA is supported by information in the project file. It includes field investigations and notes, public involvement information, and other documents used for developing alternatives and background for the resource specialist's analysis. These records are available for public review. The preparing office for the EA is the Lewis and Clark National Forest Supervisor's Office in Great Falls, Montana.

The analysis processes for this project are based on the consideration of the best available science. The manner in which best available science is addressed can be found throughout the disclosure of rationale found within this EA and the project file.

Copies of this EA are available from the Lewis and Clark National Forest Supervisor's Office (1101 15th Street North, Great Falls, MT 59401), and at the Rocky Mountain Ranger Station (1102 North Main, Choteau, MT 59422). Copies may also be requested by calling (406) 791-7700, or (406) 466-5341 #104. The project file is located at the Lewis and Clark Forest Supervisor's Office in Great Falls.

B. BACKGROUND

The area encompassed by the Benchmark Fuels Reduction Project was included in a large scale land survey completed by H.B. Ayres in 1899. It is evident from Ayres report that fire played a significant role over the area. One of the areas he described as having recently been impacted by fire, was the Ford Creek drainage—an area included in the Benchmark Fuels Reduction Project.

Since H.B. Ayres survey of the Lewis and Clark Forest Reserve in 1899, the area that is now included in the Benchmark Fuels Reduction Project has been subject to historical processes common to lands throughout the West. Following the fires of 1910, the Forest Service adopted a policy that emphasized aggressive fire suppression (Pyne 1982). Over time, this policy of fire suppression has led to unnatural accumulations of fuels across western landscapes in general—a phenomena that is evident along the Wood and Ford Creek drainages on the Rocky Mountain Ranger District.

The condition of fuels located within the boundaries of the Benchmark Fuels Reduction Project is well illustrated on maps of Fire Regime and Condition Class (Maps A-7 and A-8). One way of understanding an area's fuel condition is through Fire Regime Condition Class (FRCC). A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning (Fire Regime 2007). Condition Class refers to the degree of departure from this natural fire regime, and is separated into high, low, and moderate departure. Areas of high departure are of chief concern in identifying potentially dangerous fuels conditions and possess the following attributes:

Fire regimes [of high departure] have been substantially altered from their natural (historical) range. The risk of losing key ecosystem components is high. Fire frequencies have departed from natural frequencies by multiple intervals. Dramatic changes occur to one or more of the following: fire size, intensity, severity, and landscape patterns. Vegetation attributes have been substantially altered from their natural (historical) range (Fire Regime 2007).

Fire Regime and Condition Class have been utilized, in conjunction with other resources, to define boundaries and treatments for the Benchmark Fuels Reduction Project. Along the Wood Creek and Ford Creek drainages, areas of high departure in Condition Class are extensive. Almost all buildings and improvements in the Benchmark Fuels Reduction Project area are located in or near ground that has been classified as having a high departure in Condition Class (Map A-7).

Fuel modeling is another method of assessing the condition of fuels across a given landscape and has been utilized in defining the Benchmark Fuels Reduction Project. Specifically, fire managers utilized maps of the District's landscape, with vegetation represented by its corresponding Fire Behavior Fuel Models, to identify areas of concern. This data was gathered and displayed utilizing remote-sensing technology (Map A-6).

Vegetation along Wood and Ford Creeks is categorized as fitting into Fire Behavior Fuel Models 1, 2, 5, 8, and 10. Of these models, fuel model 8 and 10 are important to any assessment of fire danger in the vicinity of structures, improvements, and centers of human

activity. On the Rocky Mountain Ranger District, vegetation in these fuel models includes conifer species that can support crown fires of high intensity. Active crown fires in these fuel types are extremely resistant to all methods of fire control. In particular, fuel model 10 can present characteristics that render fire control very difficult even under moderate environmental conditions (e.g. relatively low wind speeds).

Another indirect consideration in assessing fuel conditions in the vicinity of the Benchmark Road is the likelihood of a fire start. Fire history for the area provides the basis for analyzing the potential for such a start (Map A-5). Since H.B. Ayres completed his survey of the Lewis and Clark Forest Reserves, fires have been aggressively suppressed in the Benchmark area. Both lightning and humans have been the source of unwanted fire ignitions in the Benchmark area. Most of these ignitions have been suppressed at relatively small acreages. Exceptions include the Benchmark fire of 1945, and the Ford Creek Fire of 2006. In addition, three large fires have made minor incursions into the project area boundary: the Canyon Creek Fire of 1988, the Ford Creek Fire of 2006, and the Ahorn Fire of 2007 (Map A-5). The Lewis and Clark Forest's Fire Management Plan directs a "A Complete Fire Suppression Strategy" for all fire starts in the vicinity of the Benchmark Road (LCF Fire Management Plan 2008).

C. PROJECT AREA

The Benchmark Project area is located in Lewis and Clark County and is approximately 13 air miles southwest of Augusta, Montana (refer to Map 1-1). Major drainages included in this area are the South Fork of the Sun River, Ford Creek, and Wood Creek. The project area is within Townships 19 and 20 North, Ranges 9 and 10 West. The total project area includes approximately 10,593 acres.

D. PURPOSE AND NEED

The purpose of this initiative is to reduce hazardous fuels that pose a risk to human life, recreation residences, permitted guest lodges, Forest Service administrative sites, and campgrounds in the vicinity of the Benchmark Road. In addition, the project is intended to reduce the risk hazardous fuels pose to humans and private residences adjacent to the National Forest's eastern boundary (see T 19N, R9W, Sections 1 and 12).

This action is needed, because a number of recreation residence owners have expended significant time and money to reduce hazardous fuels on their permitted lots; however, Forest lands adjacent to these tracts remain untreated. The lands surrounding recreational residence tracts and permitted lodges in the Benchmark area are characterized by high and moderate departures in Condition Class. Natural barriers to fire spread are infrequent and fuels occur in a continuous manner both to the north and south of the Benchmark road. Moreover, the alignment of major drainages in the area is conducive to supporting large fires, driven by prevalent winds from the west. These treatments are intended to influence the direction of fire spread (away from recreation residents, lodges, campgrounds, and administrative sights), reduce overall fire intensity, and provide conditions conducive to effective fire management actions.

This action responds to the goals and objectives outlined in the Lewis and Clark National Forest (LCF) Forest Plan, and helps move the project area towards desired conditions described in that plan.

In addition, the Benchmark Fuels Project complies with National Fire Plan direction and 10-Year Comprehensive Strategy goals to reduce risk of catastrophic wildland fire to people, communities, and natural resources while restoring forest and rangeland ecosystems to closely match their historical structure, function, diversity, and dynamics. The Benchmark Fuels project accomplishes these goals by removing or modifying wildland fuels to reduce the potential for severe wildland fire behavior through commercial thinning and prescribed fire treatments in stands adjacent to recreational residences in the project area.

E. PROJECT SCOPE

Forest Service planning takes place at several levels: national, regional, forest and project. The Benchmark *Project* is a project-level analysis; its scope is confined to addressing the significant issues and possible environmental consequences of the proposed action. It does not attempt to address decisions made at higher levels. It does, however, implement direction provided at those higher levels.

Scope of the Analysis

The Council of Environmental Quality regulations implementing the National Environmental Policy Act of 1969 (NEPA) require that all federal agencies consider the following three types of actions to determine the scope of an EIS (40 CFR 1508.25):

Connected Actions are closely related actions that automatically trigger other actions that may require NEPA analysis; cannot or would not proceed unless other actions are taken previously or simultaneously; or are interdependent parts of a larger action and depend on the larger action for their justification.

Connected actions are part of the proposed action. The proposed action includes all activities that are needed to complete the proposed project and provide for resource protection during and after project completion. Connected actions contained in the proposed action include:

- Tree harvest and thinning
- Site preparation and fuel reduction activities, including broadcast burning, jackpot burning, pile burning, slashing, and chipping
- Natural regeneration or tree planting
- Monitoring of activities (e.g. reforestation success, soil impacts, weeds, contract administration monitoring, etc.)

Similar actions are actions with similarities to other actions that provide a basis for evaluating their environmental consequences together, such as similar timing or geography. A number of similar actions have been identified and evaluated in the analysis of environmental consequences (Section 3). These are current and reasonably foreseeable actions identified at the end of Section 2.

Cumulative actions are past, present, and reasonably foreseeable actions that may have cumulatively significant impacts when considered along with the proposed action. Actions considered in the cumulative effects analysis are presented in more detail in at the end of Section 2. Further documentation of cumulative effects may be included in the project file.

F. RELATIONSHIP TO THE FOREST PLAN

Forest Plan Direction

The Lewis and Clark National Forest Management Plan (Forest Plan) embodies the provisions of the National Forest Management Act (NFMA), its implementing regulations, and other guiding documents. The Forest Plan sets forth the direction for managing the land and resources of the Lewis and Clark National Forest. This EA tiers to the Forest Plan Final Environmental Impact Statement and Record of Decision (USDA 1986a, USDA 1986b), in compliance with 40 CFR 1502.2.

Forest Plan Management Areas

The Forest Plan uses “management areas” to guide management of the National Forest System lands. Each management area (MA) provides a unique combination of activities, practices, and uses. Section 3 of the Forest Plan contains detailed descriptions of each management area. Proposed treatment areas within the Benchmark Project fall within three management areas: Management Areas E, H, and O. The project area also includes Management Area G, though no treatments are proposed to occur in this Area (Map A-1 displays the management areas within the project area boundary). The management goals for Areas E, H, and O follow:

Management Area E: “Provide sustained high level of forage for livestock and big game animals.”

Management Area H: “Provide winter recreation opportunities supported by public and private developments while maintaining other resource values.”

Management Area O: “Protect, maintain, and improve resource quality while providing timber at a low intensity level to meet local needs. Manage forage for livestock at a moderate intensity level.”

This proposal includes the removal of forest products through thinning and group-select treatments. Prescribed fire will be utilized in conjunction with these activities. Some portions of the project area will receive prescribed fire treatment, without the removal of forest products. The Lewis and Clark Fire Management Plan provides direction for the removal of forest products and direction for prescribed fire utilization in Management Areas E, H, and O.

Management Area E:

- (ET2)—“Harvest un-programmed amounts of forest products including Christmas trees, firewood, ornamentals, and miscellaneous wood products through administrative use, free use permits, salvage and sanitation cutting.”

- (PS12A)—“Prescribed fire with planned ignitions will be used in this management area for the enhancement and maintenance of resources.”

Management Area H:

- (ET2)—“Harvest un-programmed amounts of forest products including Christmas trees, firewood, ornamentals, and miscellaneous wood products through administrative use, free use, permits, salvage, and sanitation cutting, while maintaining or enhancing other resource values.”
- (PS12a)—“Prescribed fire with planned ignitions will be used in this management area for the enhancement and maintenance of resources.”

Management Area O:

- (un-programmed Timber)—“Harvest un-programmed amounts of forest products including Christmas trees, firewood, ornamentals, and miscellaneous wood products, through administrative use, free use, permits, salvage, and sanitation cutting.”
- (Programmed Clear cutting, EP3d; Shelter wood Cutting, EP3e; and Selection Cutting; EP3f)—“Both even-aged and uneven-aged systems will be used within the area, consisting of individual tree and group selection methods, shelter wood harvest, small clear cuts (1-5 acres) and commercial thinning.”
- Prescribed fire with planned ignitions will be used in this management area for the enhancement and maintenance of resources.”

G. DECISION TO BE MADE

Based on findings in this EA, the responsible officials would decide whether and how to reduce fuels, improve wildlife habitat, salvage insect killed timber, and build/obliterate roads. This decision will include:

- Location, design, and scheduling of the proposed fuels and timber harvest activities, including the silvicultural practices.
- Road management activities
- Mitigation measures and monitoring requirements, if any
- Whether to defer any or all of the actions at this time
- A finding of no significant impact (FONSI)

For this analysis and the resulting decision, the Rocky Mountain Ranger District Ranger will be the responsible official for the decision.

SECTION 2

ALTERNATIVES

A. INTRODUCTION

This section describes the proposed action considered by the Forest Service for the *Benchmark Fuels Reduction Project*. It includes a discussion of how the alternative was developed, a description and map, features common to the proposed action and no action alternatives, and a comparison focusing on the significant issues and monitoring. Section 2 is intended to present the alternatives, define the issues, and provide a clear basis of choice among options for the decision makers and the public (40 CFR 1502.14).

B. ALTERNATIVE DEVELOPMENT PROCESS

The Lewis and Clark National Forest has undertaken collaborative efforts with the public and private interest groups beginning in April 2004. Collaborative meetings between the Lewis and Clark National Forest, the public and adjacent landowners began at that time. The focus of these meetings was how to best collaborate on reducing risk of catastrophic fire through fuels treatments/wildland urban interface projects.

The Benchmark Fuels Reduction Project was listed in the Lewis and Clark National Forest's Schedule of Proposed Actions (SOPA) in July 2004 to allow the public to become aware of the impending plans to analyze the Benchmark area for fuel reduction activities. The Benchmark Project has appeared quarterly in the SOPA since July 2004. This SOPA list is displayed nationally and locally on the internet sites for the Forest Service's Washington Office and the Lewis and Clark National Forest.

The scoping process for the Benchmark Project began in May 2006. A formal scoping letter was mailed to 241 individuals, interest groups, organizations, tribes and other governmental agencies in May 2006. The scoping comment period extended from May 1, 2006 – July 1, 2006. A scoping news release was submitted to the Great Falls Tribune and Choteau Acantha announcing the public scoping period. Scoping produced six e-mails and 2 letters during the formal scoping period. An additional two letters and five e-mails pertaining directly to the project were received by the end of the calendar year. All of these comments were made available to interdisciplinary team members and contributed to the development of "significant issues."

In addition, as part of the public involvement process, the agency held several public meetings to elicit public input on this project. Meetings were held on April 29, 2004 in Augusta, Montana, April 30, 2004 in Choteau, Montana, May 7, 2004 in East Glacier, Montana, May 15, 2006 in Augusta, Montana and July 1, 2006 in Great Falls, Montana. These meetings aided in identifying areas that would benefit from fuels treatment projects and illicit input and concerns from members of the public.

On June 22, 2006 twenty five members of the public attended a field trip to the project area to review proposed treatments and garner additional input from recreation residence permit holders, members of conservation and preservation groups, as well as members of the general

public. As a result of this trip, adjustments were made to the boundaries of proposed units in the vicinity of the Aspen Tract. These changes reflected specific concerns of recreation residents for the retention of vegetation that provided screening for the lot from the Benchmark Road, and the retention of vegetation that discouraged unauthorized motorized access to Aspen Tract lots.

The input of members of the Benchmark Fuels Reduction Interdisciplinary Team was also utilized in developing alternatives. For the Action Alternative, the expertise and advice of individuals on the Interdisciplinary Team influenced the location of treatment unit boundaries, the timing of proposed treatments and, in several cases, resulted in the elimination of treatment units. These adjustments were made in response to the early recognition of wildlife and soils issues that could not be mitigated.

Throughout the development of this project, cooperating governmental agencies, conservation groups, and members of the public were updated on the status of the project. These updates were delivered to employees of Montana Fish, Wildlife, and Parks and the Natural Resource and Conservation Service (NRCS). Correspondence with the NRCS aided in identifying and mitigating potential impacts to snow course sites in the Benchmark drainage. In addition, managers updated members of the Sun River Working Group, the Front Range Conservation and Education Group and the Coalition for the Rocky Mountain Front at scheduled meetings. Letters were sent to recreation residents, along with groups and individuals listed on the Benchmark mailing list to advise them of changes and/or delays in the planning process for the project. Finally, Interdisciplinary team members responded to individual requests for information on the project and answered questions concerning potential impacts resulting from proposed treatments.

Issue Development Process

The ID team reviewed all internal and external comments received in response to scoping to identify significant issues, determine appropriate analysis procedures, and identify alternatives to the proposed action. Some comments were beyond the scope of this project; others were addressed by the Forest Plan or other regulatory framework, were beyond the geographical influence of this project, or did not pertain to this specific proposal. Comments and concerns that fell into these categories were not considered relevant to this project-specific assessment, and therefore were not addressed.

The remaining comments and concerns were further examined to determine how they could best be addressed in the EA. From internal and external scoping the interdisciplinary team developed the significant issues that are described below.

Four significant issues were identified in the ID team and public scoping process. Significant issues, as defined under 40 CFR 1501.7(a)(2), guide the range of alternatives and development of mitigation measures. The four issues focused the environmental disclosure on site-specific, direct, indirect, and cumulative effects that could occur under any alternative. As directed under 40 CFR 1501.7(a)(3), other impacts were also analyzed and summarized as they related to the proposal. Significant issues for the Benchmark Fuels Reduction Project proposed action include:

Issue 1: Wildlife Habitat (Northern Goshawk)

Timber harvest and prescribed fire activities may affect important wildlife habitat for Northern Goshawk in the wildlife analysis area. The Northern Goshawk is identified in the Lewis and Clark National Forest Plan as a Management Indicator Species (MIS) for old growth forest. *Some of the proposed treatments fall within Management Area E, G, and O, which have management direction to “maintain important identified wildlife habitat, including ... raptor nesting sites... and significant non-game habitat values”; and Management Area H, which has management direction to “minimize impacts on important identified wildlife habitat”.* Recent Regional guidance recommends avoiding disturbance to a prescribed area around known nesting sites, and recommends methods for analyzing impacts to post-fledging area habitat.

Wildlife Measure:

Effects to Goshawk will be measured by assessing, per Regional guidance, the quantity of nesting habitat and the composition of habitat in post-fledging areas pre-and post-treatment as compared to composition reported in the published literature.

Issue 2: Visual Resource

The proposed fuels treatment can impact the visual quality for this area. The Lewis and Clark Forest plan for Management Area (H) establishes the Desired Future Condition of the visual quality for this area.

Visual Quality Measure: The visual quality of the project will be managed around the visual sensitivity of Forest Road #235. Objectives are to meet the Retention Visual Quality Objective (VQO) in the foreground (less than ¼ mile from viewpoint) and the Partial Retention VQO in the middleground (between ¼ mile and 2 miles from the viewpoint). This direction also applies to views from developed campgrounds, trailheads, recreation lodges and recreation residences. All management activities should remain visually subordinate to the existing natural-appearing landscape of the area.

Issue 3: Soils

Proposed timber harvest activities, temporary road building and prescribed burning have the potential to detrimentally displace, compact, rut, erode and burn analysis area soils, resulting in loss of long term soil productivity.

Soils Measure: Predicted/anticipated detrimental soil impacts from timber harvest, temporary road construction, prescribed burning and existing detrimental soil impacts must not exceed 15% aerially of the treatment units in the soils analysis area. Winter harvest will reduce detrimental compaction, displacement and rutting of soils. Burning slash piles in winter would reduce detrimental burning of soils.

Issue 4: Access

Proposed activities in the Action Alternative would require access over privately owned bridges in the Double Falls and Whitewater Tracts. This access would be needed to remove

trees from Double Falls Unit #2 (a treatment unit of 42 acres). Recreation residents own, maintain, and are responsible for the inspection of these bridges. During scoping, several residents raised concerns over the impact of logging operations to these bridges, as well as to the condition of roads that access their lots from the Benchmark Road. The proposed action would include covering existing bridges with a temporary bridge, or structure, to protect the integrity of existing bridges. The treatment of Double Falls Unit #2 will be contingent upon an agreement between Forest Service officials and Recreation Residents in the Double Falls and Whitewater Tracts concerning the use of these bridge sites. This agreement would include all parties that hold ownership in these bridges and would be arrived at prior to the implementation of any treatment activities in Double Falls Unit #2.

C. ALTERNATIVES CONSIDERED IN DETAIL

Summary of Silvicultural Treatments:

Commercial Thinning:

- Mechanical thinning with 20-30 foot crown spacing between groups of retained trees.
- Creating 1/2 to 2 acre openings on 50% of the unit (this treatment would occur on independent units—it would not occur on the same units where 20-30 foot crown spacing is targeted).
- Reduce surface fuel loadings to approximately 5 tons/acre (< 3-inch, dead and live).
- Modify the fuels profile from values representative of Fire Behavior Fuel Model 10 to those values representative of Fuel Model 8.

Hand Slashing:

- Thinning will be done utilizing power saws.
- Treatment will increase the size of natural openings by removing encroaching conifers.
- Openings would be irregular in shape and distributed unevenly over the treatment area.
- Slashing would be followed by prescribed fire, once downed material adequately cures.
- Intended to establish fuelbreaks in the project area.
- Purpose is to convert areas modeled as Fuel Model 5 to Fuel Model 1.
- Promote conditions conducive to the restoration of aspen.

Broadcast Burn:

- Post activity fuels will be burned.
- Prescribed burning of stands would result in more widely spaced trees with reduced understory, promote the retention of natural grassland openings, and encourage the restoration of aspen clones through disturbance.
- Contributes to desired condition by altering stand structure and improving forage.

- Approximately 530 acres would be broadcast burned.

Summary of Alternatives in Detail

No Action Alternative

The National Environmental Policy Act (NEPA) requires the consideration of a "no action" alternative (40 CFR 1502.14d). This alternative serves as a comparison for other action alternatives. Under Alternative 1, vegetation treatment and prescribed burning activities would be deferred. No fuels reduction activities would take place to create a community protection zone. No fuel breaks would be created with the intent to increase opportunities for safe and effective fire management. This alternative would maintain the existing character of the area; however, it could contribute to the increased intensity of a natural disturbance event such as wildfire.

Action Alternative - Proposed Action

Table 2-1. Vegetation Treatments

Unit	Acres	Treatment Description
Aspen #1	44	<ul style="list-style-type: none"> • Thinning treatment with no commercial component • Felling of young (<40 foot tall) lodgepole pine and Douglas fir • Prescribed fire treatment using broadcast or jackpot burning • Pile burning in areas of heavier fuel loading • Force account funding • Forest Service or contract crews complete the work
Aspen #2	39	<ul style="list-style-type: none"> • Commercial thinning using mechanical equipment • Approximately 20-30 foot crown spacing between groups of trees • Hand slashing & piling as needed • Piles burned once cured
Benchmark #1	236	<ul style="list-style-type: none"> • Thinning done utilizing power saws • Force account funding • Forest Service crews complete some—or all--of the work • Contracting may be used to accomplish thinning • Felling of young (<40 foot tall) lodgepole and Douglas fir over portions of the unit • Jackpot or broadcast burning treatment • Pile burning in areas of heavier fuel loading
Benchmark #2	8	<ul style="list-style-type: none"> • Commercial thinning using mechanical equipment • Approximately 20-30 foot spacing between crowns • 1/3-1/2 of trees planned for removal • Harvested material offered for sale in decks • Work accomplished through contract or by Forest Service crews • Piles burned
Benchmark #3	10	<ul style="list-style-type: none"> • Commercial thinning using mechanical equipment • Approximately 20-30 foot crown spacing between groups of trees • Hand slashing & piling as needed • Piles burned once cured
Benchmark #4	6	<ul style="list-style-type: none"> • Commercial thinning • Approximately 20-30 foot crown spacing between groups of trees • Hand slashing & piling • Piles burned

Unit	Acres	Treatment Description
Double Falls #1	1	<ul style="list-style-type: none"> • Commercial thinning using mechanical equipment • Approximately 20-30 foot crown spacing between groups of trees • Hand slashing & piling • Piles burned once cured
Double Falls #2	42	<ul style="list-style-type: none"> • Commercial thinning using mechanical equipment • Approximately 20-30 foot crown spacing between groups of trees • Hand slashing & piling as needed • Piles burned once cured
Fairmule #2	22	<ul style="list-style-type: none"> • Commercial harvest used to create openings ½ to-2 acre in size • Conifers removed within openings to favor aspen regeneration • Approximately 30%-50% of the unit would include small openings • Remainder of the unit would be untreated • Slash piles would be burned
Fairmule #3	19	<ul style="list-style-type: none"> • Commercial harvest used to remove approximately 50% of the trees • Openings of ½ to 2 acres would be created • Slash would be piled and burned
Fairmule #4	1	<ul style="list-style-type: none"> • Commercial harvest used to create approximately 20-30 foot spacing between the crowns of groups of trees • Force account funding • Forest Service crews complete work • Harvested material offered for sale in decks • Slash would be piled and burned
Ford Creek #1	193	<ul style="list-style-type: none"> • Thinning done utilizing power saws • Work accomplished by contractors or Forest Service crews • Felling of young (<40 foot tall) lodge pole and Doug fir over portions of the unit • Jackpot or broadcast burning treatment • Pile burning in areas of heavier fuel loading
Ford Creek #2	84	<ul style="list-style-type: none"> • Thinning done utilizing power saws • Work accomplished by contractors or Forest Service crews • Felling of young (<40 foot tall) lodge pole and Doug fir over portions of the unit • Jackpot or broadcast burning treatment • Pile burning in areas of heavier fuel loading
Glade Creek #1	9	<ul style="list-style-type: none"> • Commercial thinning using mechanical equipment • Thinning may be accomplished using personal use permits • Approximately 20-30 foot crown spacing between groups of trees • Hand slashing & piling as needed • Piles burned once cured
Glade Creek #2	7	<ul style="list-style-type: none"> • Commercial thinning using mechanical equipment • Thinning may be accomplished using personal use permits • Approximately 20-30 foot crown spacing between groups of trees • Hand slashing & piling as needed • Piles burned once cured
Green Timber	9	<ul style="list-style-type: none"> • Commercial thinning using mechanical equipment • Approximately 20-30 foot crown spacing between groups of trees • Hand slashing & piling as needed • Piles burned once cured
Lick Creek #1	3	<ul style="list-style-type: none"> • Commercial thinning using mechanical equipment • Approximately 20-30 foot crown spacing between groups of trees • Hand slashing & piling as needed • Piles burned once cured

Unit	Acres	Treatment Description
Lick Creek #2	4	<ul style="list-style-type: none"> • Commercial thinning using mechanical equipment • Approximately 20-30 foot crown spacing between groups of trees • Hand slashing & piling as needed • Piles burned once cured
Mule Creek #1	13	<ul style="list-style-type: none"> • Thinning done utilizing power saws • Forest Service or contract crews complete some the work • Felling of young (<40 foot tall) lodge pole and Doug fir over portions of the unit • Jackpot or broadcast burning treatment • Pile burning in areas of heavier fuel loading
Mule Creek #2	17	<ul style="list-style-type: none"> • Commercial thinning using mechanical equipment • Approximately 20-30 foot crown spacing between groups of trees • Hand slashing & piling as needed • Piles burned once cured
TOTAL	767 acres	

D. MITIGATION

Soils

- 1) Rehabilitation/decommission of landings following use. These steps would help restore soil functioning and help minimize establishment of noxious weeds. Rehabilitation/decommissioning efforts would include relieving detrimental soil compaction where needed by shallow ripping to approximately 8-12 inches in depth, respreading any bermed soil and slash across the impacted area, providing permanent drainage, seeding with a native seed mix provided by the Lewis and Clark National Forest, and scattering slash and rock over the impacted area to discourage unauthorized travel and noxious weed establishment.
- 2) Limit use of land based harvest equipment to winter periods with a minimum of 4 inches of frozen soil or approximately 20-24 inches of snow cover. Avoid skidding logs in all drainage channels. Minimize crossing drainages with logging equipment.
- 3) Limit prescribed burning of all areas to prescription conditions that would ensure light to moderate severity fires. Suggested prescription conditions that would promote light to moderate severity fires include:
 - a) Early spring or late fall/winter timing to minimize the length of time and area that is black.
 - b) Litter, duff and soil moisture conditions that limit the loss of litter and duff.
- 4) Prescribe burn in a mosaic at the scale of tens of acres to minimize erosion and reduce loss of nutrients, especially on shallow soils. Avoid burning on slopes steeper than 50 percent, particularly those steep slopes adjacent to drainages.
- 5) Limit burning of slash piles to *winter conditions* to minimize detrimental burning of soils.
- 6) Leave a minimum of 10 tons per acre down woody debris greater than 4 inches in diameter following slash treatment on all harvest units to help reestablish nutrient cycling.

- 7) Rehabilitate temporary road used to access treatment units following use. Relieve compaction where needed to approximately 6-12 inches in depth. Pull bermed material back across travel way, provide permanent drainage, place available rock and wood on surface and seed with approved native species mix.
- 8) Follow BMPs for noxious weeds as found in FSM 2000 Supplement R-1 2000-2001-1.
- 9) Monitor noxious weed spread at landings and severely burned areas with timely treatment of problem areas.
- 10) Monitor harvest/thinned areas after treatment of slash to determine detrimental soil impacts and BMP effectiveness.
- 11) Rehabilitate hand dug fireline after use. Pull bermed material back on line, provide permanent drainage and place available rock and wood on disturbed surface.
- 12) Limit mechanical harvest to slopes less than 40 percent.

Hydrology

All activities proposed for the Benchmark Fuels Reduction Project “Action Alternative” will comply with the State of Montana Streamside management zone laws and rules. All yarding will comply with the Region 1 soil quality standards. Finally, Best Management Practices will be applied to all harvest and vegetation management activities. In addition, the following mitigation measures have been specifically identified for this project.

- 1) Any small springs and wetlands not identified but found within the proposed treatment units will have a 50-foot buffer around these sensitive areas and should not be entered with mechanical equipment.
- 2) After harvest operations in Fairview Unit 3, all skid trails and landings should be scarified to promote vegetation recovery.
- 3) Slash pile burn areas should be inoculated with undisturbed soil to enhance recovery.
- 4) All treatment in units planned as commercial thinning, utilizing mechanical equipment should be accomplished in the winter periods with a minimum of 4 inches of frozen soil or approximately 20-24 inches of snow cover. Avoid skidding logs in all drainage channels. Minimize crossing drainages with logging equipment.
- 5) Stream crossings in Double Falls Units 1 and 2 should be at existing crossings with temporary bridges placed over the existing private bridges to eliminate the need to build more stream approaches and protect the private bridges. Additional sediment control should be used (waddles, silt fence) at temporary road crossings to further mitigate sediment entering stream.

Sensitive Plants

- 1) Complete field surveys in Aspen 1 and Double Falls 1 and 2 prior to project implementation to determine presence or absence of sensitive species or habitat.

- 2) If a new sensitive plant population is located in a treatment area prior to or during project implementation, the population would be evaluated, delineated, and avoided during all ground disturbing activities.

Scenic Resources

The following mitigation effects will aid in the quick recovery of the visual quality of the following units: Ford Creek #1, Ford Creek #2, Aspen Creek #1, Mule Creek #1, Benchmark #1 and Benchmark #5.

- 1) Provide complete slash cleanup within 75 feet of recreation residence lots, access roads, system trails and Forest Road #235.
- 2) Keep stump heights as low as possible within 75 feet of recreation residences, access roads and Forest Road #235.
- 3) Return all system trail surfaces to pre-treatment condition.

The following mitigation effects will aid in the quick recovery of the visual quality of the following units: Benchmark #2, Benchmark #3, Benchmark #4, Glade Creek #1, Glade Creek #2, Fairmule#1, Fairmule #4, Mule Creek #2, Lick Creek #1, Lick Creek #2, Green Timber #1, Aspen #2, Double Falls #1 and Double Falls #2.

- 1) Provide complete slash cleanup within 75 feet of recreation residence lots, access roads, system trails, Forest Road #235 and Benchmark Campground.
- 2) Minimize ground disturbance within 75 feet of recreation residents, Forest Road #235, and Benchmark Campground.
- 3) Keep stump heights as low as possible within 75 feet of recreation residences, Forest Road #235, and Benchmark Campground.
- 4) Avoid abrupt treatment edges or all units through feathering or transitioning intensity of treatment.
- 5) Vary sizes of leave groups and distances between trees and groups, seeking to keep a random, natural appearing forest that from the road never looks managed.
- 6) Return all system trail surfaces to pre-treatment condition.

The following mitigation effects will aid in the quick recovery of the visual quality in Fairmule #2. No mitigation is required for Fairmule #3.

- 1) Provide complete slash cleanup within 75 feet from Forest Road #235.
- 2) Minimize ground disturbance within 75 feet of Forest Road #235.
- 3) Keep stump heights as low as possible within 75 feet of Forest Road #235.
- 4) Avoid abrupt treatment edges or both units through feathering or transitioning intensity of treatment.
- 5) Vary sizes of leave groups and distances between trees and groups, seeking to keep a random, natural appearing forest that from the Forest Road #235 never looks managed.

Heritage Resources

Mitigation measures for the project as a whole to ensure meeting cultural resource regulatory and Forest Plan requirements are:

One of the cultural resource mitigations stipulated in NEPA is that no ground disturbing actions would occur until Section 106 compliance is finalized. In this manner, adverse effects would be avoided, minimized, or mitigated. Site-specific forms of site avoidance or mitigation, if necessary to comply with Section 106 will include completion of the Section 106 process prior to any ground-disturbing implementation. For this project, the completion of Section 106 process requires consultation with Montana SHPO regarding site 24LC2049; avoidance of the site or a mitigation plan agreed upon with SHPO may be necessary depending on outcome of consultation.

Inventoried Roadless

- 1) In order to lessen the potential negative visual effects to apparent naturalness, all stumps will be cut as close to ground level as possible within the boundary of the IRA.
- 2) **No permanent or temporary roads will be located in the Inventoried Roadless Area.**

Range Resources

In the short term, adjustments to grazing schedules will be required to create conditions favorable to prescribed fire application. Arrangements with permittees will be made to rest the larger treatment units in the year prior to implementation of jackpot or broadcast burning in order to promote the buildup of fine fuels. These units include Aspen Unit #1 (Ford Creek Allotment), Ford Creek Unit #1 (Ford Basin Allotment), and Ford Creek Unit #2 (Ford Creek Allotment). In addition, managers will rest Benchmark Unit #1 from administrative use in the year prior to broadcast burning. Reductions in forage will be experienced immediately after the application of fire to treatment units. This reduction will be the most significant in Benchmark Unit #1, Ford Creek Unit #1, and to a lesser extent in Ford Creek Unit #2. Additional adjustments in grazing schedules will be used to minimize the impacts of prescribed fire in the year following treatment. In particular, grazing schedules will be managed to promote the effectiveness of fireline rehabilitation, ensure the propagation and vigor of native vegetation, and minimize impacts to bighorn sheep wintering in the vicinity of Ford Creek Unit #1.

Noxious Weeds

Mitigation for the following activities are identified to mitigate the potential propagation of noxious weeds in relation to activities involving prescribed fire application, timber harvest, and contracting.

Prescribed Fire

- 1) Ensure that rental equipment is free of weed seed and propagules before the contracting officer representative accepts it.
- 2) Avoid ignition and burning in areas at high risk for weed establishment or spread due to fire effects. Treat weeds that establish or spread because of unplanned burning of weed infestations.
- 3) When possible use staging areas and helibases that are maintained in a weed-free condition.
- 4) Pre-inventory project area and evaluate weed present with regard to the effects on the weed spread relative to the fire prescription.
- 5) Rehabilitate any constructed fire line to minimize exposed soils.

Timber Harvest Operations & Stewardship Contracting

- 1) Treat weeds on projects used by contractors, emphasizing treatment of weed infestations on existing landings, skid trails, and helibases before activities commence.
- 2) Train contract administrators to identify noxious weeds and select lower risk sites for landings and skid trails.
- 3) Encourage operators to maintain weed-free mill yards, equipment parking, and staging areas.
- 4) Use standard timber sale contract provisions such as WO-C/CT 6.36 to ensure appropriate equipment cleaning (reference Appendix 1 of USDA Forest Service **Guide** to Noxious Weed Prevention Practices).

Grizzly Bear

Activities associated with treatments must be carried out between July 1 and March 31 to avoid potential disturbance in spring habitat during its period of concentrated use. This includes road building, road use, and all hand and mechanical cutting. Jackpot or broadcast burning may occur during the key spring time period (April 1 – June 30) if necessary, but should be accomplished in as short a duration as possible during that time.

Any roads constructed in association with the project must follow the above timing restrictions, must be closed to the general public at all times, and must be obliterated when treatment in that unit is completed.

All personnel involved in all aspects of the project, including any contractors, must adhere to the NCDE Special Food Storage Order (current version: Food Storage Special Order LC00-18).

Goshawk

1. No project activities may occur in known goshawk PFAs between April 15 and August 15. Affected treatments include Fairmule #2, Mule Creek, and Double Falls #2, and portions of Aspen #1 and #2, Ford Creek #1 and Ford Creek #2.

2. Where treatment is to occur within a nesting area (Double Falls #2) the known nest tree and any known alternate nest trees should not be cut. These trees should be retained within the groupings of trees to remain untreated within that unit.

Snag Retention

At least 2 snags of 10” dbh or greater per acre will be left or created in proposed treatment units.

Big Game (Bighorn Sheep, Elk, and Mule Deer)

1. Involve State Wildlife Biologist in Prescribed Fire application To Ford Creek Unit #1.
2. To avoid disturbances to elk, mule deer, and bighorn sheep on wintering ranges, it is recommended that hand treatment in the Ford Creek #1 and Ford Creek #2 Units not occur between December 1 and May 1.
3. Spring burning is recommended in the Ford Creek #1 and Ford Creek #2 Units to 1) mitigate short-term impacts on bighorn sheep and elk winter browse plants; 2) maximize opportunities for plant recovery post treatment; and 3) improve the forage base on winter range over the long term. Fall burning is not recommended because of the potential impacts to needed winter forage.
4. To mitigate adverse livestock grazing impacts, consideration should be given to putting grazing in the Ford Basin pasture of the Ford Basin allotment in “non-use” status for at least one year following burn treatment.

E. MONITORING

Vegetation

Monitoring of vegetation will occur prior to treatment and at intervals following treatment as established in the Monitoring Plan (Appendix E). The monitoring plan is intended to track the effectiveness of treatments over time. Monitoring may indicate the need to re-enter units in ten to twenty years to maintain the targeted fuel conditions (See Chapter 3, Section B).

Monitoring conducted according to the Project’s Monitoring Plan will augment noxious weed monitoring that occurs, on an annual basis, in the project area.

All prescribed fire treatments will be monitored to ascertain if objectives have been met. In the event that objectives are not met, prescription parameters in the burn plan will be reviewed. Additional slashing of units and subsequent applications of prescribed fire may be used to obtain desired results.

Soils

Monitor noxious weed spread, recovery of landings and temporary roads, and revegetation of prescribed burn areas with timely treatment of problem areas. Treatments would include measures to promote establishment of 70 percent vegetative or litter cover within 2 growing seasons or a natural level of vegetative and litter cover when it is less than 70 percent (Forest

Plan Standard F-3 (13)). Measures are anticipated to include rest from livestock grazing on prescribed burn areas.

F. KNUTSON-VANDENBERG OPPORTUNITIES

Dollars from the sale of National Forest timber can be used to finance projects under authorization of the Knutson-Vandenberg (K-V) Act of 1930 (16 U.S.C. 576-576b; 46 Stat. 527), as amended by the National Forest Management Act of October 22, 1976 (16 U.S.C. 1600 et seq.). Only projects that are within the Timber Sale Area and meet specifications in FSH 2409.19 can qualify for K-V funding (USDA Forest Service 2004a). Several projects were identified by the interdisciplinary team and are listed below.

- Post-harvest reforestation examinations (1st, 3rd, and 5th year) will be scheduled to determine reforestation progress, establishment, and certification.
- Mechanical slashing of non-merchantable material (<8 inches dbh) in harvest units.
- Noxious weed control treatments will be scheduled for 5 years within the sale area and along travel corridors.
- Rehabilitate landings, temporary roads, and skid trails (not purchaser required) to restore hydrologic and soil function in heavily impacted areas. Activities would include shallow ripping, respreading bermed soil and slash across impacted areas, providing permanent drainage, seeding with native grass and forb species, and scattering slash and rock over impacted areas.
- Post-harvest broadcast and jackpot burning.

G. ALTERNATIVES EXAMINED BUT NOT ANALYZED IN DETAIL

Wood Lake Hogback Fuel Break

In developing a project proposal for the Benchmark area, managers considered the potential location of fuel breaks. Initially managers considered areas displaying heavy loadings of fuel, arranged with a high-level of continuity across the landscape. It was felt that these areas would support the spread of stand-replacement fire from west to east. By breaking the continuity of these fuels, it was felt that managers might be able to interrupt or delay the spread of a fire moving from the west toward recreation residence tracts and private land to the east. One such area of heavy fuels occurs on the Wood Lake Hogback, on the project area's southwest boundary. Managers considered the possibility of utilizing prescribed fire to reduce fuel loading in this area. However, the fuel loadings represented on the northeast face of the Hogback, along with its aspect, would make the application of prescribed fire complex and unacceptably risky. Managers also considered utilizing mechanical treatments to modify fuels on the Hogback. It was soon realized that the removal of any fuel from the area would be complicated by its inclusion in an Inventoried Roadless Area. Removing fuel from the Hogback utilizing methods that would not entail the construction of new roads, or the re-construction of existing roads, were not considered economically feasible (for example, using helicopters to remove trees).

Treatments on Recreation Residence Lots

The 48 permitted cabins along the Benchmark Road, each occupy a lot varying in size from approximately $\frac{1}{4}$ acre to $\frac{3}{4}$ acre in size. Reducing fuels on permitted recreation residence lots was considered throughout the early development of Alternative 2. While the reduction of fuels in the immediate vicinity of structures is central to enhancing their defensibility, it was decided that the treatments proposed for alternative 2 would not involve fuels reduction on the permitted lots themselves. The rationale for this decision was based on consideration of the variety of esthetic values held by residents and the efforts of recreation residents to reduce hazardous fuels on their lots. During scoping, several members of the public—including recreation residence permit-holders—voiced concern over the potential impact of this project to esthetic values. Some recreation residents were concerned about the impact of the project in terms of retaining screening from adjoining residents and/or from public access roads and trails. To other residents, such concerns were secondary to reducing the threat of wildfire to their property. In either case, managers believe that recreation residents can effectively reduce fuels on their permitted lots, though the result of these efforts will reflect the unique values of individual cabin owners. In developing Alternative 2, District managers felt that recreation residents should retain the autonomy, and the responsibility, of managing fuels on their respective lots. Retaining this autonomy will allow permit-holders a measure of control in the immediate setting of their property. It is hoped that this autonomy will allow permit-holders to make site-specific decisions that coincide with their esthetic values and knowledge of place, while engaging in responsible maintenance of their lots.

The Rocky Mountain Ranger District has encouraged recreation residents to maintain their property and manage fuels on their lots so as to reduce the potential of property damage or loss in the event of a wildfire. Completed Defensible Space Rating Forms with thinning and pruning guidelines were sent to all Recreation Residence permit-holders in the spring of 2003. Many residents have enhanced the defensibility of their property by updating roofs with fire resistant or nonflammable materials, and by reducing hazardous fuels on their property. Residents have accomplished this work using their own time, labor, and funds, as well as applying for grants and utilizing the services of contractors. The Action Alternative, Alternative 2, proposes to use the concept of Community Protection Zones, along with fuel breaks, to complement the work of recreation permit-holders who have established “Defensible Space” around their cabins and outbuildings. Alternative 2 is intended to enhance the safety of the public and firefighters in the vicinity of residences, campgrounds, administrative sites and lodges (in Community Protection Zones), as well as to provide fuel conditions that will provide managers opportunities to control fire in the immediate vicinity of private property. The independent efforts of recreation resident permit-holders on their own lots will be essential to both the effectiveness of Community Protection Zones and to the defensibility of individual structures.