Chapter 1

Purpose and Need

Background

The 2000 fire season was undoubtedly one of the most challenging on record. By early October, more than 6.8 million acres of public and private lands burned—more than twice the 10-year national average. The magnitude of these fires is the result of two primary factors: a severe drought, accompanied by a series of storms that produced thousands of lightening strikes followed by windy conditions. In addition, the long-term effects of almost a century of aggressively suppressing all wildfires has led to an unnatural buildup of brush and small trees in many forests and rangelands. It is also noted that since 2000, four fire seasons since have exceeded the magnitude of the 2000 season.

In 2000, in response to a request by President Clinton, the Secretaries of Agriculture and the Interior developed an interagency approach to respond to severe wildland fires, reduce their impacts on rural communities, and assure sufficient firefighting capacity in the future. This report[*] outlined a strategy to reduce wildland fire threats and restore forest ecosystem health in the interior West. The strategy builds on the premise that within fire-adapted ecosystems, reducing fuel levels and using fire at appropriate intensities, frequencies, and time of year are key to: restoring healthy, resilient conditions; sustaining natural resources; and protecting people. On September 9, 2000, President Clinton accepted the recommendations contained in the Report and directed the two Secretaries to implement those actions. The National Fire Plan for the USDA Forest Service (NFP)[†] represents our response to the President's charge and subsequent funding requests to Congress.

NATIONAL FIRE PLAN

The National Fire Plan addresses five key points: Firefighting; Rehabilitation and Restoration; Hazardous Fuel Reduction; Community Assistance; and, Accountability. The fuel management and reduction focus is critical to the Plan. It addresses overly dense forest vegetation that is the result of decades of fire exclusion from those lands. Fuel management activities will incorporate all types of treatments necessary to change stand

[*] *Managing the Impacts of Wildfires on Communities and the Environment: A Report to the President In Response to the Wildfires of 2000* (availabe on http://www.na.fs.fed.us/nfp/overview/overview.htm).

[†] see the National Fire Plan internet site for more information: http://www.na.fs.fed.us/nfp/

condition classes (which reflect the level of damage that would result from a wildfire on those lands) from higher risk condition classes to lower risk condition classes, and to maintain those areas in which a desirable condition class has been established. In addition, activities will focus on Wildland-Urban Interface[‡] (WUI) areas to reduce risk to people and property. The Cohesive Strategy[§] stated, "The first priority for restoration will be the millions of acres already roaded and managed landscapes that are in close proximity to communities." The Cohesive Strategy went on to set four priorities: Wildland-urban interface, readily accessible municipal watersheds, threatened and endangered species habitat, and maintenance of existing low risk Condition Class 1 areas. The Hoback Junction Fuels Reduction project is proposed in response to the fuels reduction element of the National Fire Plan and the Cohesive Strategy, and the need to create greater defensible space adjacent to the WUI.

Existing Condition

EXISTING VEGETATIVE CONDITIONS

Existing vegetative conditions found within the project area vary between several proposed treatment areas, near subdivisions and private lands adjacent to the Bridger-Teton National Forest. The following table briefly illustrates these differences:

Treatment Area *	Existing Vegetation (Approximate Acres)
River Mechanical	Douglas Fir (13) , Lodgepole Pine (3),
Deer Creek Mechanical	Douglas Fir (15),Spruce/Fir Mix (2), Mountain Big Sagebrush (5)
Palmer Creek Mechanical	Douglas Fir (51), Mountain Big Sagebrush (3)
Horse Creek Prescribed Burn	Aspen (479), Aspen/Conifer Mix (11), Douglas Fir (296) Grass/Forb (14), Lodgepole Pine (350), Mountain Big Sagebrush (643), Mountain Shrub (20), Sage/Bitterbrush (22), Silver Sage/Shrubby Cinquefoil (6), Spruce/Fir (36) Willow (26)
South Fork Prescribed Burn	Aspen (54), Douglas Fir (184), Grass/Forb (136), Lodgepole Pine (59), Mountain Big Sagebrush (1074), Mountain Shrub (179), Sage/Bitterbrush (151), Willow (23)
Palmer Creek Prescribed Burn	Aspen (91), Douglas Fir (386), Lodgepole Pine (96),

[‡] WUI includes those areas of resident human populations at immiment risk from wildfire, and human deveopments having special significance. These areas may include critical communications sites, municipal watersheds, high voltage transmission lines, observatories, church camps, scout camps, research facilities, and other structures that if destroyed by fire would result in hardship to communities. These aeas encompass not only the sites themselves, but also the continuous slopes and fuels that lead directly to the sites, regardless of the distance involved.

[§] Protecting People and Sustaining Resources in Fire-Adapted Ecosysems: A Cohesive Stragtegy, October 2000 (Laverty et al., 2000) (available on http://www.fireplan.gov/cohesive.cfm)

	Mountain Big Sagebrush (405), Sage/Bitterbrush (11), Spruce/Fir Mix (420), Willow (3)

This information is based on the 2007 Bridger-Teton National Forest Vegetation Map. The following figures show treatment units on topographic maps for the project.

Figure 1.1 Hoback Junction Mechanical Treatment Units

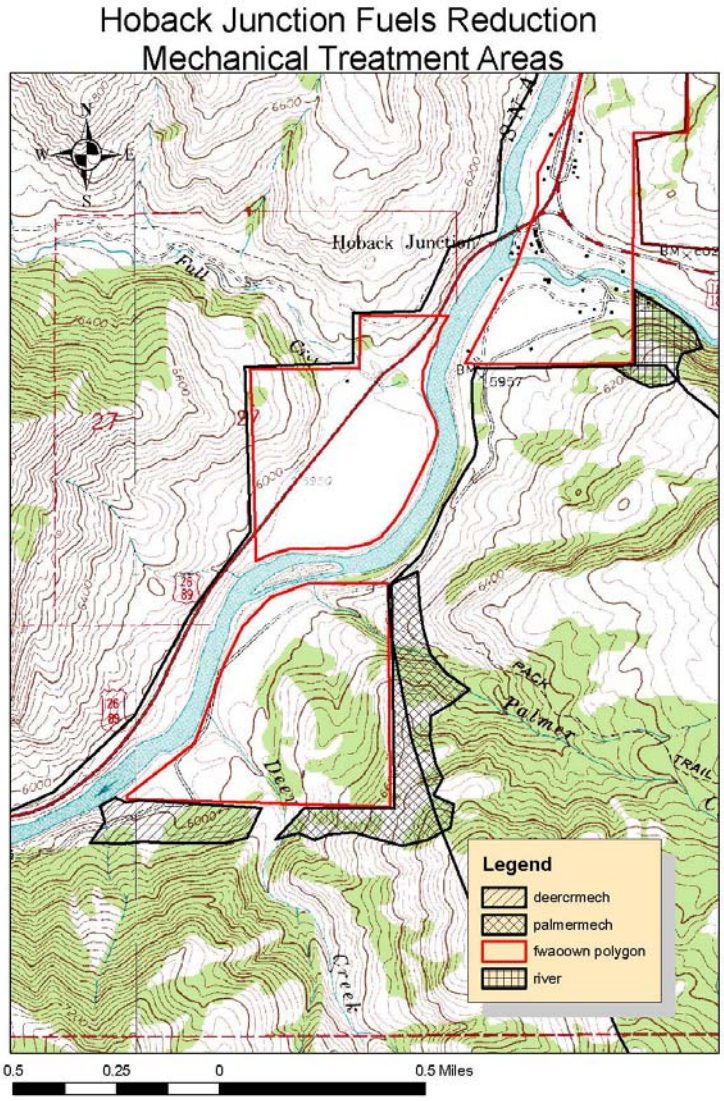


Figure 1.2 Horse Creek Prescribed Burn

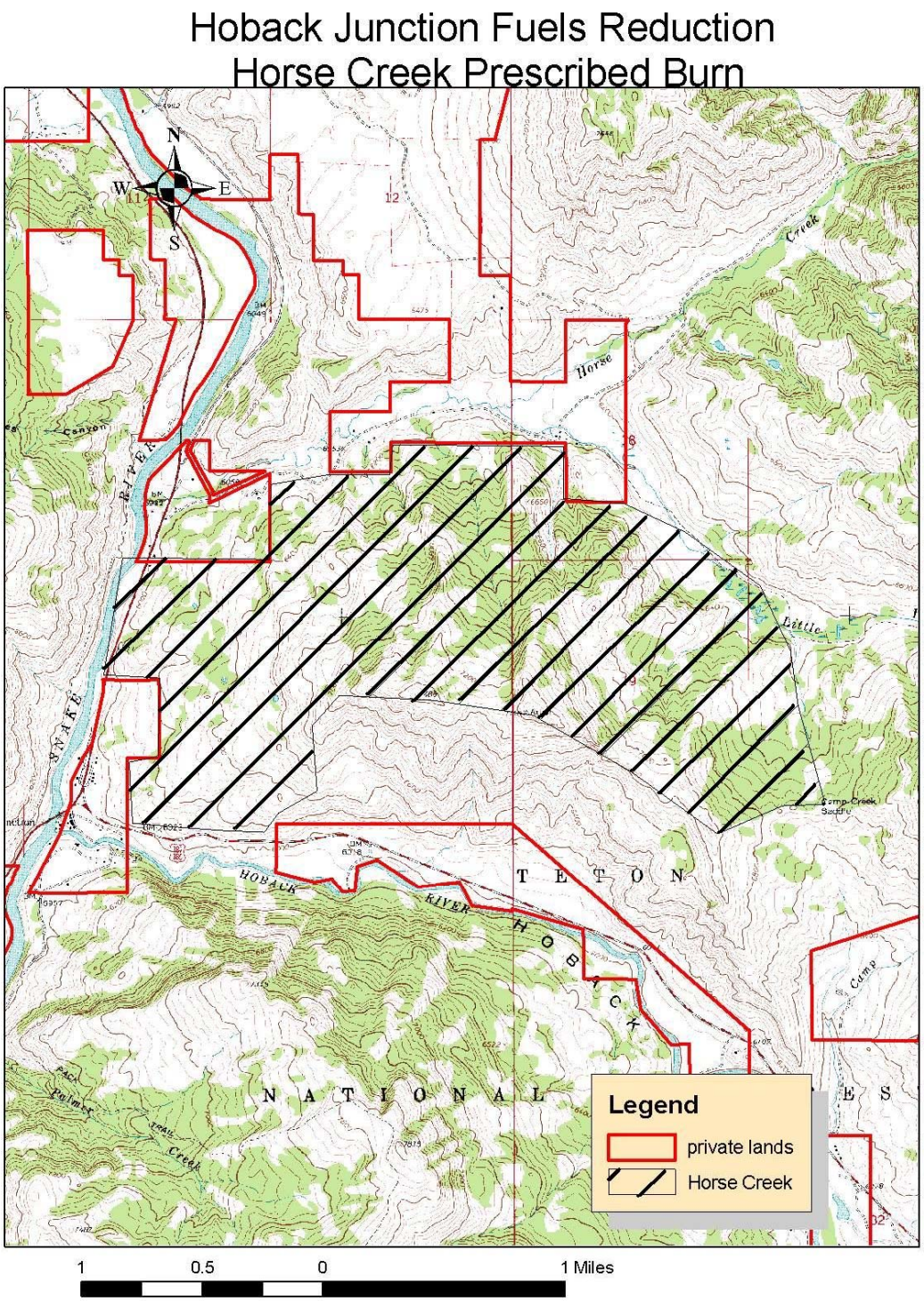


Figure 1.3 Palmer Creek Prescribed Burn

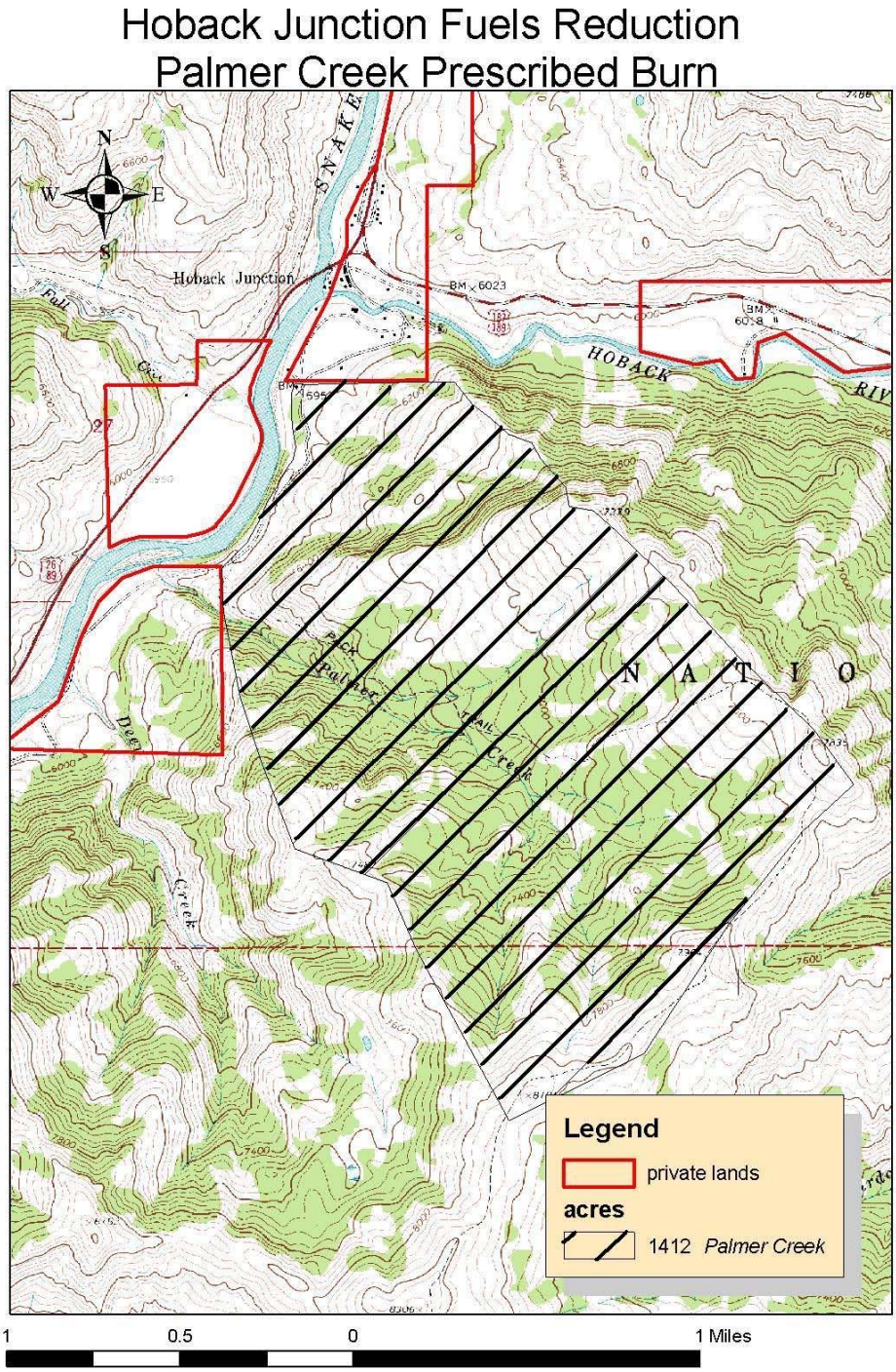
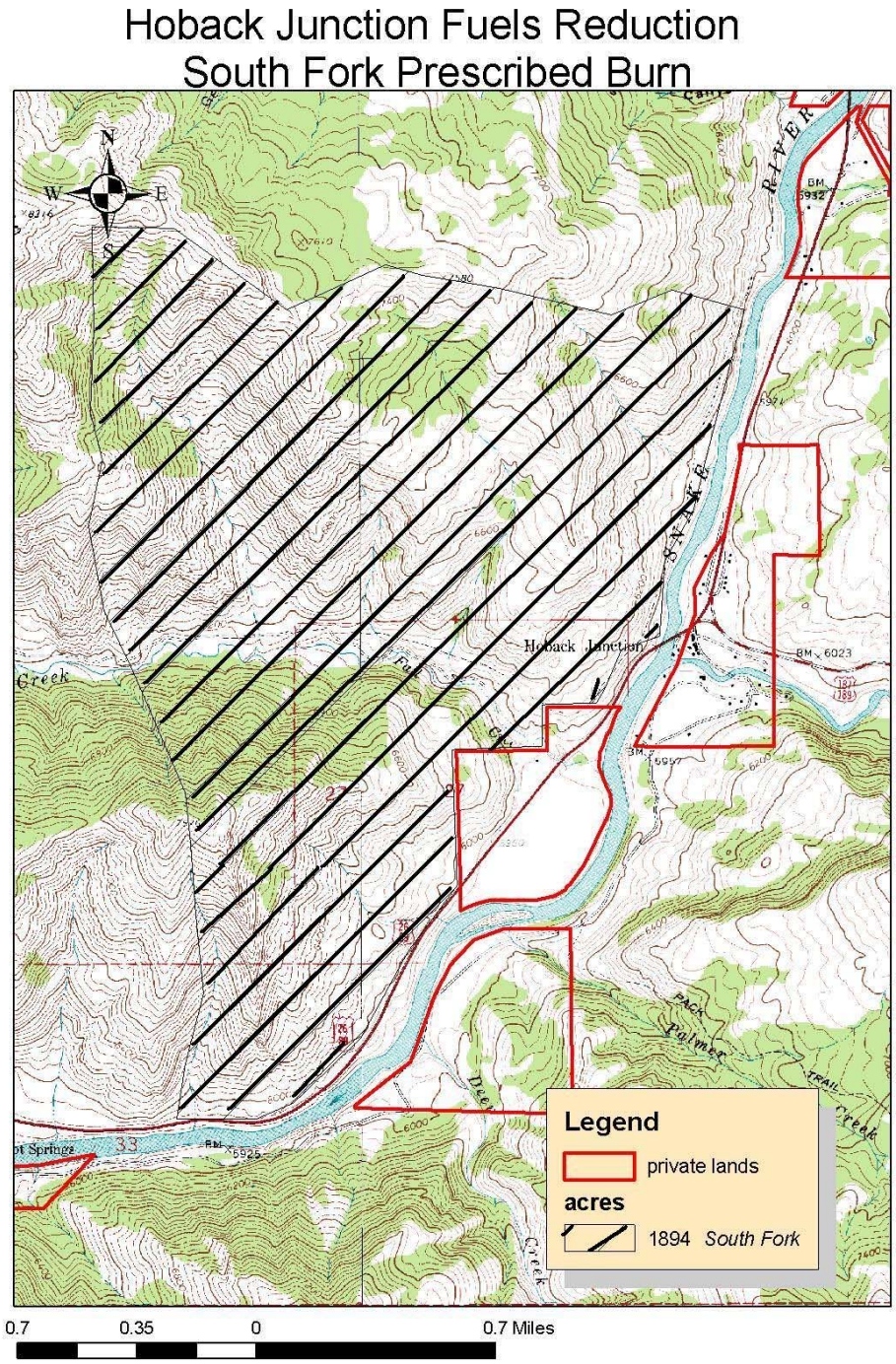


Figure 1.4 South Fork Prescribed Burn



EXISTING CONDITION (continued)

The proposed treatment areas have private structures located nearby on private ground or directly adjacent to project areas. Identified areas have fuel characteristics, which contribute to high flammability and resistance to control by fire crews. Conditions include but are not limited to high volumes of dead and down woody material, closely spaced trees with interlocking crowns, numerous small trees in the understory, and conifer encroachment in aspen stands.

Wildfires in these wildland urban interface areas are very difficult and costly to manage, as seen in the summer of 2001 Green Knoll fire. The 2003 East Table Fire in the Snake River Canyon presented complexity issues related to high recreational use and high use State Highway travel. Structures in the urban interface represent a large capital investment, and the owners expect that they will be protected. Protecting these areas is complex and costly. Most important, fires in the wildland urban interface pose a significant safety risk to federal, state and local firefighters assigned to suppress them.

Purpose of Action

The Hoback Junction Fuels Reduction project is proposed at this time to respond to goals and objectives of the National Fire Plan and the Bridger-Teton National Forest Land and Resource Management Plan (Forest Plan) (USDA Forest Service 1991). The goal of the proposed action is to increase the amount of defensible space on USFS lands which are adjacent to private lands. Comparison of the existing condition of the project area and the desired conditions from the Forest Plan indicates a need for:

- reduced forest fuels loading;
- reduce fuels continuity;
- reduced ladder fuels;
- reduced potential fire intensities;
- reduced risk to life, property, and natural resources;
- increased margin of safety for fire suppression crews;

Desired Condition

The Bridger-Teton National Forest Land and Resource Management Plan sets a fire protection standard that "provides an appropriate fire protection and use program that is economically efficient, responsive to land management objectives and provides for public safety and property values" *(*Forest Plan amendment of 2004*).* This fire protection and use program is developed through the Forest Fire Management Plan (FMP) which provides operational direction for implementation of the Forest's land management plan.

The interdisciplinary FMP is developed and implemented in coordination with local, state, and other federal agencies.

Through the proposed action the desired condition would exhibit the following:

- Thinning of forested fuels and the understory, and removal of dead and down fuels to reduce the potential intensity of wildfires.
- Rejuvenating aspen stands (lessening conifer encroachment) to reduce the potential intensity of wildfires, and providing a safer environment for firefighters to efficiently undertake suppression actions.
- Limiting fire spread to lower intensity ground fire that can be suppressed more effectively by ground based firefighting resources, under all but the most severe weather conditions.
- Torching of trees, and the potential for a fire to develop into a crown fire will be reduced.
- Reducing fire suppression costs significantly, and increasing the likelihood for controlling the fire before it reaches private structures.
- Providing more options to managers and line officers responding to wildland fires within or encroaching on the project area.
- Increasing long-term scenic variety through encouragement of aspen stands and other deciduous shrubs; this would serve to maintain and in places improve the scenic quality of the Recreational River corridors.

Additional details of the comparison between existing and desired conditions for the analysis area are located in the project record and in Chapter 3 of this Environmental Analysis.

Proposed Action

The Bridger-Teton National Forest is proposing vegetative treatments on up to 5304 acres of National Forest System Land in response the purpose and need for action. Actions included in this proposal are:

- *93* acres of thinning to lessen ladder fuel concentrations and raise canopy base heights. Refer to the alternatives section for a description of levels of treatment.
- 93 acres of dead and down fuel loading reduction to < 7 tons per acre.
- 93 acres of Pile burning to remove residual slash.
- Broadcast burning on up to 5211 acres to achieve fuels management objectives. Actual acres receiving broadcast burn treatments will be much less due to identified soil stability issues and protection of Lynx habitat, but areas identified will remain part of the proposed project to illustrate the need for treatment in these areas. Project maps clearly show the areas of concern.

Table 1.1 Treatment Unit Physical Descriptions and Proposed Implementation Methods

TREATMENT AREA	POTETNTIAL TREATMENTS	LOCATION	DEVELOPED AREAS NEARBY	POTENTIAL ACRES
Hoback River Mechanical	Mechanical Thinning	T39N, R116W NW sec 26, south of Hoback river	Southern Hoback Junction	16
Deer Creek Mechanical	Mechanical Thinning	T39N, R116W Sw sec 34	Deer Creek subdivision	23
Palmer Creek Mechanical	Mechanical Thinning	T39N, R116W Eastern sec 34	Palmer Creek subdivision	54
Horse Creek Prescribed Burn	Broadcast Burn	T39N, R116W Secs 13,23,24 T39N, R116W Secs 18,19,30	Horse Creek Station Area, north Hoback Junction	1905
South Fork Prescribed Burn	Broadcast Burn	T39N,R116W Secs 21,22,27,28	Jay King subdivision and surrounding	1894
Palmer Creek Prescribed Burn	Broadcast Burn	T39N, R116W Secs 26,35,36 T38NR116W North secs 1,2	Palmer and Deer Creek subdivisions, southern Hoback Junction	1412

Chapters 2 and 3 have a complete description of the Proposed Action, specific mitigation measures, monitoring requirements, etc.

The “proposed action” resulted from a thorough interdisciplinary analysis of the desired and existing conditions within the area before the NEPA process began. Several possible treatment options resulted from this analysis, however, only two were chosen to be brought forward in this Environmental Analysis (EA). The proposed action presented to the public was studied and disclosed. This gave the public and other agencies specific information on which to focus comments. Using these comments (see discussion of Significant Issues later in this chapter), and information from preliminary analysis, the interdisciplinary team then developed alternatives to the proposed action. These are discussed in detail in Chapter 2.

Decision Framework

Based on the environmental analysis in this EA, the Jackson District Ranger will decide whether and how to reduce fuel loading in the Hoback Junction project area in accordance with Forest Plan goals, objectives and desired future conditions. The District Ranger will decide whether to implement an action alternative, a modified action

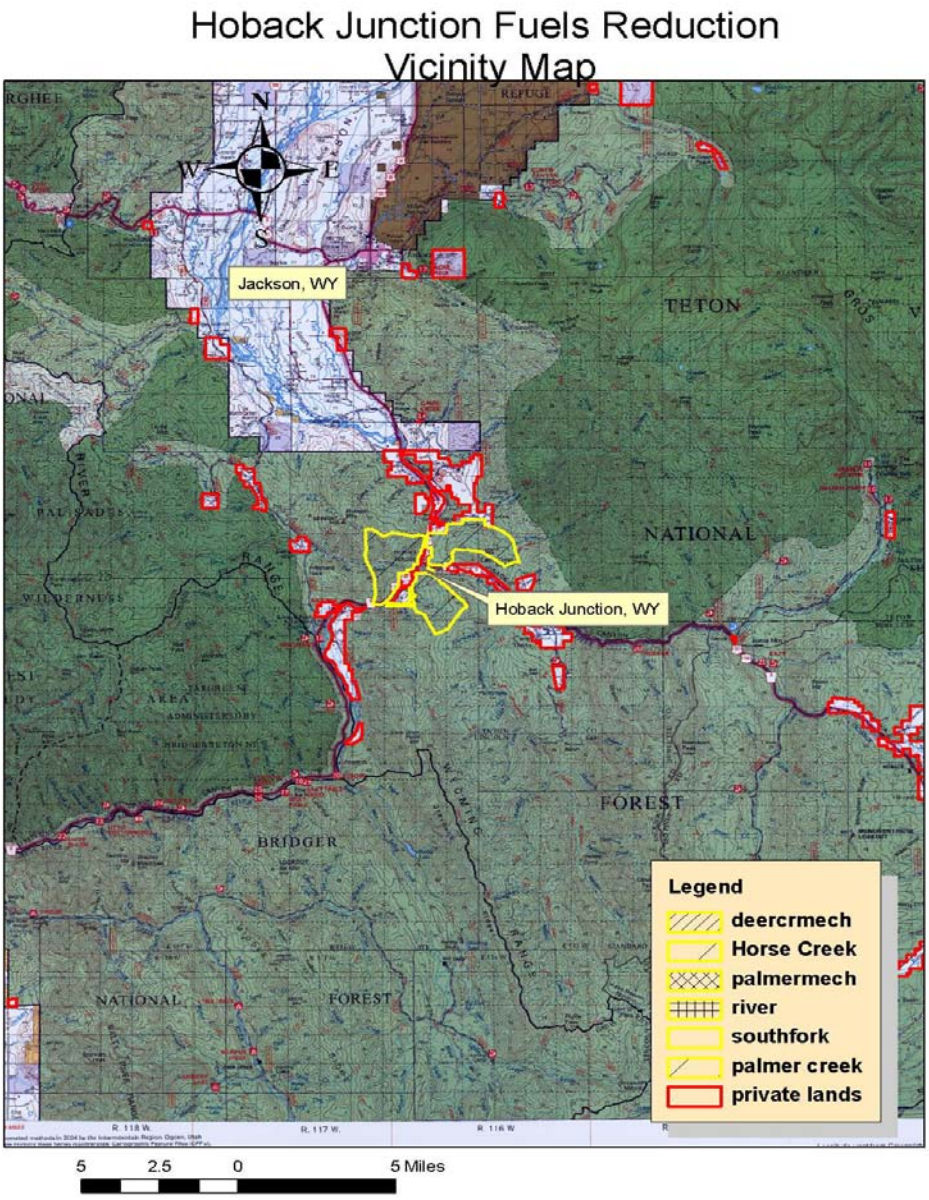
alternative, or the no action alternative. If an action alternative is selected, it will include:

- The location, design, and scheduling of the proposed thinning, burning, and other activities or connected actions;
- Mitigation measures, coordination and monitoring requirements.

Project Area

Proposed treatments are located on Bridger-Teton National Forest lands adjacent to Private lands near the Hoback Junction area of Wyoming.

Figure 1.5 – Vicinity map for Hoback Junction Fuels Reduction Project.



Relationship to Forest Plan

The Forest Service has two types of decisions: programmatic (e.g., the Forest Plan) and project level which implements the Forest Plan. The Hoback Junction EA is a project-level analysis; its scope is confined to addressing the significant issues and possible environmental consequences of the project. It does not attempt to address decisions made at a programmatic level.

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 Bridger-Teton National Forest. Where appropriate, the Hoback Junction EA also tiers to the Forest Plan

Final Environmental Impact Statement (USDA Forest Service 1991), as encouraged by 40 CFR 1502.20.

Forest Plan Management Areas

The Forest Plan uses management areas to guide management of the national forest lands within the Bridger-Teton National Forest. Each management area provides for a unique combination of activities, practices and uses. The Hoback Junction project area lies within three management areas. Goals, objectives and desired conditions are summarized below. The Forest Plan (Chapter 4) contains a detailed description of each management area.

Description of Forest Plan Management areas:

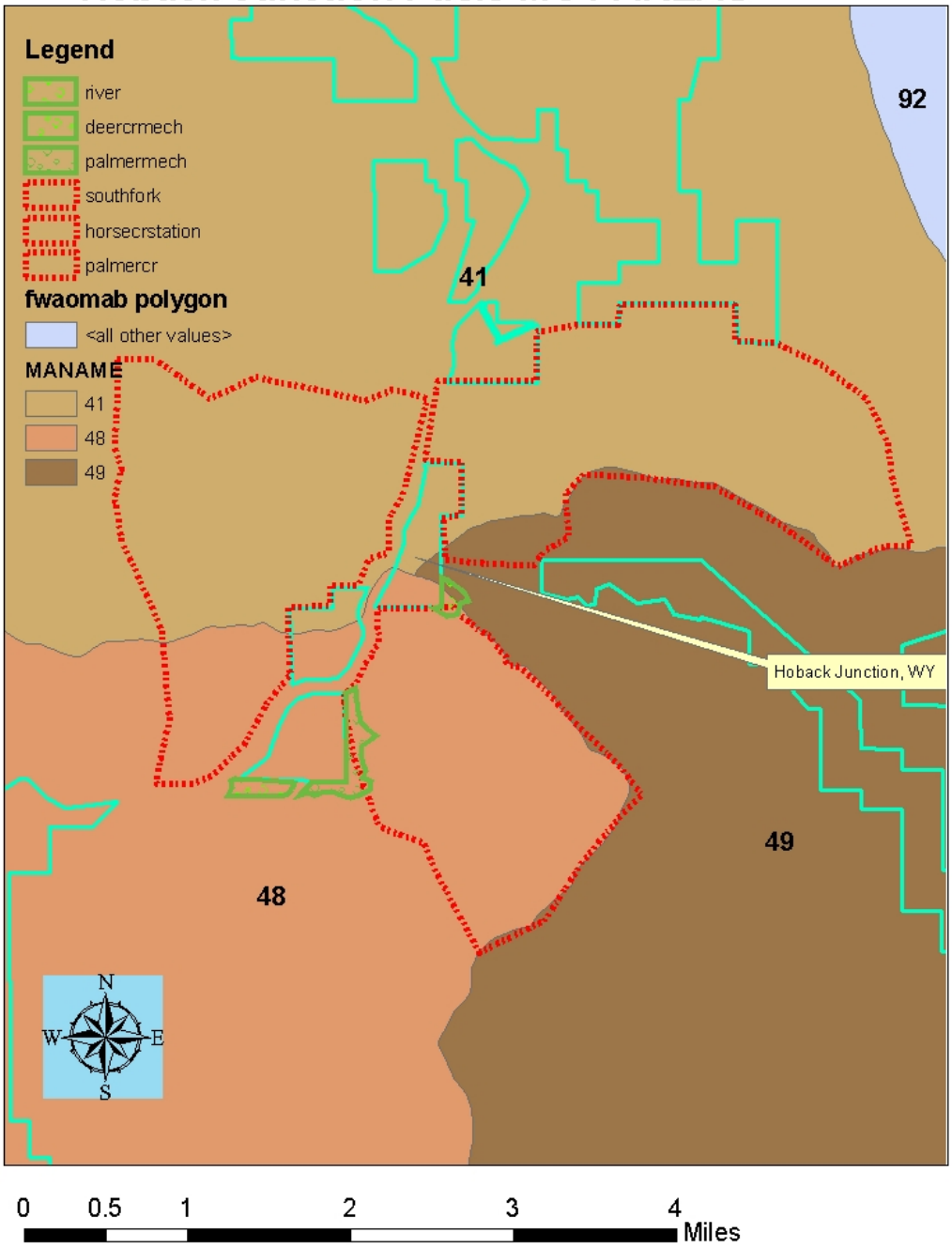
- 41 (Jackson Hole South): Located on the Jackson Ranger District of the Bridger-Teton National Forest, west of the Gros Ventre Wilderness and surrounding the Town of Jackson.
- 48 (Snake River Canyon): Located on the Jackson Ranger District of the Bridger-Teton National Forest, north of the Greys River area and west of the Willow Creek area.
- *4*9 (Willow Creek): Located on the Jackson Ranger District of the Bridger-Teton National Forest, south of the Gros Ventre Wilderness and adjacent to the Cliff Creek and Snake River areas.

Table 1-1 Acreages within the project area of each management area.

Treatment area	**Management Area – 41** **(acres)**	**Management Area – 48** **(acres)**	**Management Area – 49** **(acres)**
Hoback River Mechanical	0	8	7
Deer Creek Mechanical	0	50	0
Palmer Creek Mechanical	0	54	0
Horse Creek Prescribed Burn	1799	0	106
South Fork Prescribed Burn	1531	363	0
Palmer Creek Prescribed Burn	0	1412	0

Figure 1.6 - Management areas within the project area.

Hoback Junction Fuels MGT AREAS



Jackson Hole South, or Management Area 41

The Jackson Hole South, or Management Area 41 (MA41), delineates National Forest Lands east, west and south of the southern extent of Jackson Hole. Portions of the Horse Creek and South Fork Prescribed Burn units are within Management Area 41.

Desired Future Conditions for Treatments within Management Area 41 or Jackson Hole South

Desired Future Condition 12:

Portions of the Horse Creek and South Fork Prescribed Burns treatment areas lie within Desired Future Conditon (DFC) area 12. The management emphasis for DFC 12 is to provide important habitat for big-game such as winter ranges, feedgrounds, calving areas, and security areas. Mangement provides for habitat capability and escape cover, and maintained semi-primitive non-motorized opportunities that emphasize big-game hunting activities.

General prescriptions for DFC 12 related to Recreation, Visual Quality, Wildlife, Vegetation, and Fire Management are as follows. Recreation and other human activities are managed to meet needs of the big-game species. Visual Quality Objectives are Retention and Partial Retention. Habitat is managed to achieve the game and fish populations, harvest levels, success, and recreation-day objectives identified by the Wyoming Game and Fish Department (WYGF) and agreed to by the Forest Service. Specific guidelines for wildlife habitat should can also be referenced in the Bridger – Teton National Forest Land and Resource Management Plan. Vegetation is managed to enhance range and watershed condition while providing forage for livestock and big game. Timber is managed to preserve and enhance critical big-game habitat. Utilization of firewood and other wood products is encouraged in ways compatible with maintaining wildlife values. Fire management emphasizes preservation and enhancement of habitat, particularly through prescribed fire.

Desired Future Conditions for Treatments within Management Area 48 or Snake River Canyon

Desired Future Condition 2A:

Portions of the Palmer Creek Mechanical and Palmer Creek Prescribed Burn treatment area lies within Desired Future Conditon (DFC) area 2A. The management emphasis for DFC 2A is to maintain or enhance Primitive and Semi-primitive Non-motorized dispersed recreation opportunities.

General prescriptions for DFC 2A related to Recreation, Visual Quality, Wildlife, Vegetation, and Fire Management are as follows. Recreation management emphasizes the physical and social setting to provide Primitive and Semi-primitive, Non-motorized opportunities. Visual Quality Objectives are for Retention. Diverse fish and wildlife

habitat types should be maintained in each watershed to provide sufficient habitat to meet WYGF population objectives and distribution of native wildlife including non-game, small game, big game, fish, and Threatened and Endangered species. Vegetation is managed to enhance range and watershed condition while providing forage for livestock and big game. Timber is managed to meet specific recreation objectives. Few, if any opportunities exist to provide wood fiber for firewood and other uses. Fire management emphasizes a natural appearing landscape.

Desired Future Condition 12:

Portions of the Palmer Creek and South Fork Prescribed Burns as well as the Hoback River, Palmer Creek and Deer Creek Mechanical treatment areas lie within Desired Future Conditon (DFC) area 12, which was described previously.

Desired Future Condition 3: River Recreation – No treatments are proposed to take place within this DFC, but it does bisect the project area (Snake River).

Desired Future Conditions for Treatments within Management Area 49 or Willow Creek
Desired Future Condition 12:

Portions of all treatment areas lie within DFC area 12. The management emphasis for DFC 12 is to provide important habitat for big-game such as winter ranges, feedgrounds, calving areas, and security areas. Management provides for habitat capability and escape cover, and maintained Semi-primitive Non-motorized opportunities that emphasize big-game hunting activities.

General Fire Protection and Fuels Standards Common to all DFC's:

Fire and Fuels standards and guidelines call for an appropriate fire protection and use program that is economically efficient, responsive to land management objectives and provides for public safety and property values. Maintainence of fuels in Wildland Urban Interface areas so that fires occuring in these areas remain at lower intensities under all but the most severe burning conditions helps to meet these standards and guidelines. The proposed fuels treatments for the Hoback Junction project would help to meet standards and guidelines detailed in the Forest Plan and Bridger-Teton National Forest Fire Management Plan.

A map depicting DFC's for the Hoback Junction project can be found within Chapter 2 Figure 2.1.

Best Available Science

Projects implementing land management plans and plan amendments…must be developed considering the best available science. Projects proposed and carried out must be consistent with the forest plan and show consideration of "best available science."

Sources for obtaining the best available science for this project include the following:

1. 2007 Bridger –Teton National Forest Vegetation Map.
2. 2008 Bridger – Teton National Forest Fire Management Plan.
3. Northern Rockies Lynx Management Direction Record of Decision. USDA Forest Service. March 2007.
4. 2001 USDA – FS and USDOI Report – Urban Wildland Interface Communities within the Vicinity of Federal Lands that are at Risk From Wildfire.
5. High resolution Topographic maps and resource data available through Geographical Information Systems (GIS) and databases.
6. Standard Fire Behavior Fuel Models: A Comprehensive Set For Use With Rothermels Surface Fire Spread Model. Scott and Bungan. June 2005. RMRS-GTR-153.
7. LANDFIRE (Landscape Fire and Resource Management Planning Tools Project) www.landfire.gov. GIS data.
8. Cost estimates – professional judgement estimate based on previously implemented projects and the cost thereof, projected based on estimated complexity to implement the project.
9. NF landscape Management Handbook, Volume 2, #642, page 301.
10. Historical fire records for the Bridger – Teton National Forest. Example. Data found through KCFAST. http://famweb.nwcg.gov
11. Cited literature, inventory and monitoring data and professional opinions of the IDT which consisted of specialists in fuels and fire behavior, vegetation management, soils, wildlife, recreation, cultural resources, and visual quality.

The project record contains the detailed reports prepared by the specialists.

Public Involvement

Scoping

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 comment at various stages of the environmental analysis process. Although scoping is to begin early, it is really an interactive process that continues until a decision is made. In addition to the following specific activities, the Hoback Junction project has been listed on the Bridger-Teton National Forest Schedule of Proposed Actions since September of 2006. To date, the public has been invited to participate in the project in the following ways.

Public Mailing

This project was first listed in the Forest Quarterly report in September of 2006. On March 21, 2007, a letter updating the project and requesting comments was sent to approximately 220 individuals, groups or agencies that either expressed interest in the Hoback Junction Fuel Reduction Project, are adjacent landowners, or were deemed

likely to hold an interest in the project. nine comments were received from the March 21, 2007 letter, and were generally supportive of the project. Concerns expressed included potential impacts from project implementation to:

- visual quality and scenic integrity
- impacts to recreation such as trail and backcountry use
- smoke impacts from prescribed burning,
- soils stability and water quality issues related to prescribed burning,
- threats to values related to prescribed burning.

* One party commented on the project after the initial scoping and public meeting (1st communication via email 10/28/2008). These concerns have been considered and the individuals contact information retained on the project mailing list. The concern was related to commercial timber harvest and associated effects.

The concerns identified have been addressed through modification of project design. One personal visit to the treatment area occurred with an adjacent landowner. His concerns with treatments along his private boundary will be addressed during project implementation. If additional landowner concerns arise after the decision they will be addressed on a case by case basis. Any modifications will remain in line with the scope of this document and the decision or a supplement will be prepared. A Forest Interdisciplinary Team consisting of a hydrologist, fisheries biologist, soil scientist, wildlife biologist, silviculturist, fuels specialist, recreation specialist, heritage resource specialist, and team leader reviewed the comments and conducted a review of the proposed project. This Interdisciplinary Team also took a field trip to the project area on May 3, 2007. The Interdisciplinary Team concluded that the proposed action would not have significant effects on the quality of the human environment.

The Hoback Junction area is identified in the 2001 USDA –FS and USDOI report – Urban Wildland Interface Communities Within the Vicinity of Federal Lands That Are at High Risk From Wildfire. The project area is a high priority for fuels treatments in Teton County, WY.

This project has been developed through collaboration with the adjacent landowner, Teton County Wyoming, Teton Conservation District, and Forest Service Personnel.

Local News Media

Announcements about the project were printed in the Jackson Hole Daily Guide, and a press release was done during the initial scoping phase. Notice was also sent to the Casper Star Tribune on March 24, 2007.

Public Meetings

A public meeting was held on March 26, 2007 at the Hoback Junction Fire Station to give interested parties a chance to discuss the project with the Forest Service. Fifteen

people attended. One written comment was received from the public meeting, the individual expressed the need for a heavier treatment in the forested fuels (more overstory canopy thinning), this comment is addressed in alternative development.

Meetings with Agencies, Communities, Native Groups and Others

The fire and fuels management staff met with and discussed options for fuels work in the proposed project area with officials from the Jackson Hole Fire/EMS, US Fish and Wildlife Service. Correspondence has been undertaken with the State of Wyoming Office of Federal Land Policy, including the State Historic Preservation Office and Wyoming Game and Fish Department. Wyoming Game and Fish had a representative present on the field trip of May 3, 2007. A wide spectrum of Non-Governmental Organizational groups were sent the scoping package which was also sent to private landowners adjacent to the project area.

Fuels Reduction Website

Information about the Hoback Junction Fuels Reduction project is posted on the Bridger-Teton National Forest website.

30-Day Comment Period on EA

The 36 CFR 215 appeal regulations require a 30-day notice and comment period for Environment Assessments before a decision can be made. Responses to comments will be added as an Appendix to the Decision Notice.

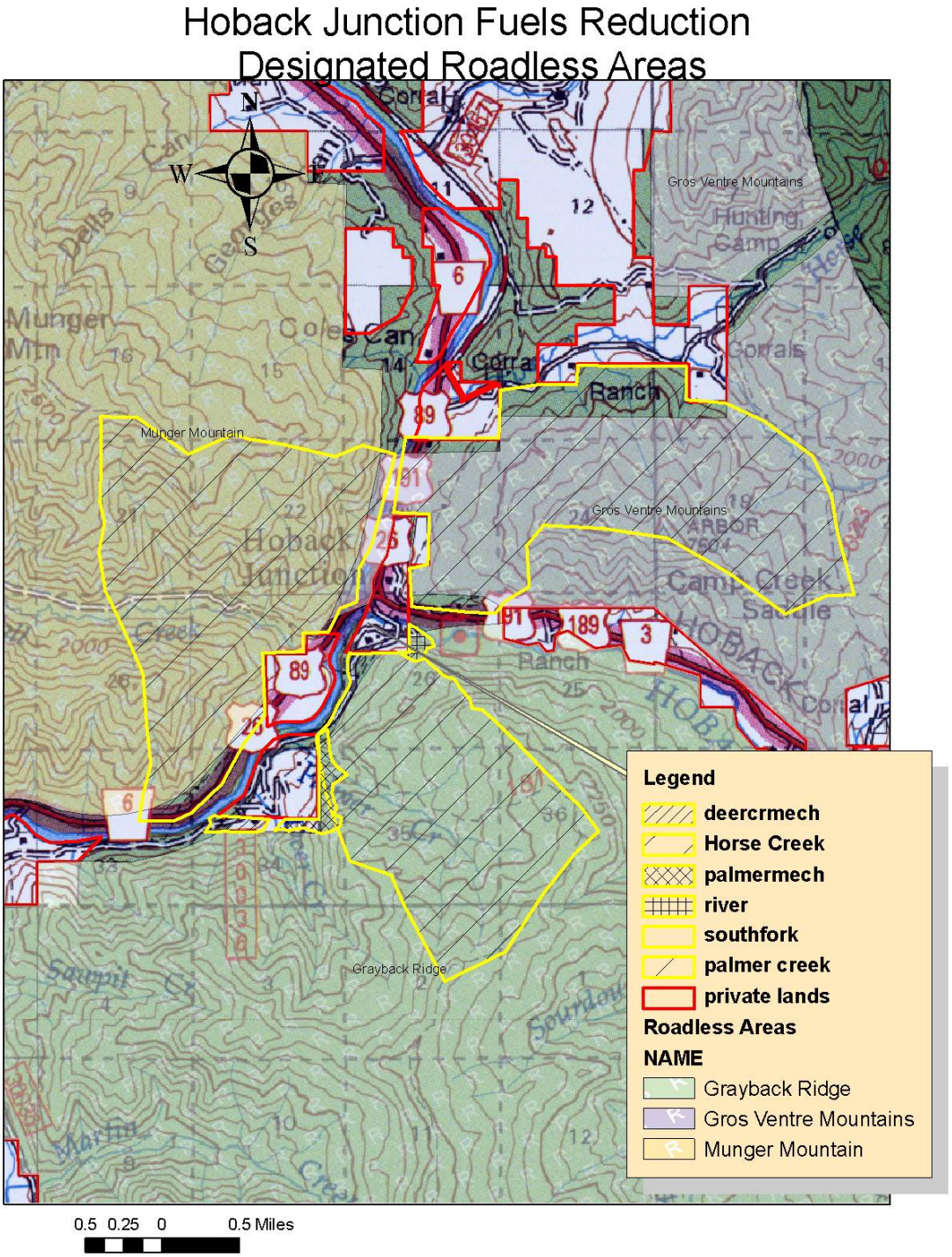
Issues

Scoping (internally and through direct mailings to the public) and public involvement activities are used to identify unresolved issues about the effects of the proposed action. The following issues were determined to be within the scope of the project decision as prescribed in 40 CFR 1502.2. Issues are addressed through the proposed action, alternatives to the proposed action, mitigation measures, and design criteria. Issues are discussed below.

1. **Extent of treatment**:
   Public comment was in favor of thinning of the stands within the project area. For mechanical treatment interest in large scale heavier treatments (timber harvest) has been voiced both negatively and in favor of such. Issues related to the roadless designation of much of the project area as well as terrain and access issues have precluded implementing a large scale mechanical treatment involving timber harvest and road construction.
2. **Soil Stability**:
   Soil Stability issues have been identified by IDT members as well as the public in some portions of the project area.
3. **Roadless Areas**:

Approximately 93% of the project area lies within the Grayback, Munger Mountain and Gros Ventre Mountains inventoried roadless areas. Figure 1.7 below depicts roadless areas in the Project area.

Figure 1.7 Designated Roadless Areas within the project area.



4. **Visuals**:
   Concerns exist for impacts on the visual quality of the project area. The Visual Quality Objective for this area is Retention. This visual quality objective provides for management activities which are not visually evident. Under Retention activities may only repeat form, line color, and texture which is frequently found in the characteristic landscape. Changes in their qualities of size, amount, intensity, direction, pattern, etc., should not be evident. (NF Landscape Management Handbook, Volume 2, #642, Page 30). Treatments would be adjacent to private lands as well as along many forest trails, and some treatments would be visible from the Highway interchange in Hoback Junction. This concern relates directly to the level of treatment proposed in this fuels reduction project.

5. **Trails and recreation use**:
   As stated in number 4 above many of the treatment areas are located within trails corridor areas. Issues relate to impacts to existing trails and backcountry use areas and also availability of trail access during project implementation. An impact to use of the area by hunters and outfitters during hunting season has been identified.

6. **Wildlife effects**:
   Potential effects to Threatened and Endangered Species and other wildlife species have been identified as issues and will be addressed in design criteria and mitigations in the Biological Assessment and Evaluation. Specific species of concern include Canadian Lynx, Bald Eagles, Neotropical Migratory songbirds, owls, goshawks, reptiles and amphibians, and pine martens.

7. **Threats to Values**:
   Some publics have voiced concerns over the risk of Prescribed Burning as related to private lands, structures adjacent to burn units and public health and safety as related to smoke propagation.

Other Issues

The following issue or resource concern is important and was considered in the determination of issue significance. It was, however, determined to be a request for information or other process concerns, that isalready resolved through existing law, regulation, or policy, and is beyond the scope of this analysis. Issues already addressed through other processes such as the Forest Plan (are contained in “Items Common to All Alternatives” in Chapter 2.) The complete analysis of issue identification and resolution is located in the project record.

1. Increased OHV (Off Highway Vehicles) access and use in the project area was cited as a potential negative impact from project implementation. Increased OHV access could potentially increase the spread of noxious weeds, disturb wildlife and increase erosion. This project will not change access opportunities through implementation. No new roads or trails will be created, nor will any currently closed roads be opened or improved, thus,

access for OHV's will not increase as a result of increased access resulting from project implementation. Legal motorized wheeled access is designated on the Motor Vehicle Use Map for the Jackson Ranger District. Unrestricted motorized cross-country travel is not permitted. The issue was described in the Visual Quality specialists report (referenced in Chapter 3) as is the potential increased spread of noxious weeds as a result of potential increased OHV access.

Federal and State Permits, Licenses, and Certifications

To proceed with the proposed project as addressed in this EA, various permits must be obtained from federal and state agencies. The following permits will be obtained.

State of Wyoming Air Quality Permits will be obtained before any prescribed burning takes place in the project area.

Applicable Laws and Executive Orders

Shown below is a partial list of federal laws and executive orders pertaining to project-specific planning and environmental analysis on federal lands. While most pertain to all federal lands, some of the laws are specific to Wyoming**.** Disclosures and findings required by these laws and orders are contained in Chapter 3 and the Decision Notice for this EA.

Multiple-Use Sustained-Yield Act of 1960

National Historic Preservation Act of 1966 (as amended)

Wild and Scenic Rivers Act of 1968, amended 1986

National Environmental Policy Act (NEPA) of 1969 (as amended)

Clean Air Act of 1970 (as amended)

Endangered Species Act (ESA) of 1973 (as amended)

Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974 (as amended)

National Forest Management Act (NFMA) of 1976 (as amended)

Clean Water Act of 1977 (as amended)

American Indian Religious Freedom Act of 1978

Archeological Resource Protection Act of 1980

Cave Resource Protection Act of 1988

Executive Order 11593 (cultural resources)

Executive Order 11988 (floodplains)

Executive Order 11990 (wetlands)

Executive Order 12898 (environmental justice)

Executive Order 12962 (aquatic systems and recreational fisheries)

Executive Order 13186 (Migratory Bird Treaty Act)

Snake Headwaters Legacy Act of 2009
Roadless Area Protection Executive Order 2001

Project Record Availability

Additional documentation, including more detailed analyses of project-area resources, may be found in the project record located at the Jackson Ranger District in Jackson, Wyoming . Some of these documents are referenced throughout the EA by author or record number in brackets. These records are available for public review pursuant to the Freedom of Information Act (5 U.S.C 552).

Chapter 2

Alternatives

Introduction

This chapter describes and compares the alternatives considered by the Forest Service for the Hoback Junction project. It includes a discussion of how alternatives were developed, an overview of mitigation measures, monitoring and other features common to all alternatives, a description and map including specific mitigation measures of each alternative considered in detail, and a comparison of these alternatives focusing on the significant issues. Chapter 2 is intended to present the alternatives in comparative form, sharply defining the issues and providing a clear basis for choice among options by the responsible official and the public (40 CFR 1502.14).

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

Alternative Development Process

The Forest Service interdisciplinary team (IDT) used information from scoping, including the significant issues identified for the project (see Chapter 1), in conjunction with the field-related resource information, to formulate alternatives to the proposed action. The proposed action and each action alternative presented in this EA provide a different response to the significant issues; one alternative may respond to more than one issue. Each action alternative is also designed to meet the stated purpose and need for the Hoback Junction Fuels Reduction project, and the project-specific desired conditions.

Each action alternative represents a site-specific proposal developed through intensive interdisciplinary evaluation of current and desired conditions, based on field verification. Project area identification and design also made use of high resolution topographic maps and a large quantity of resource data available in geographic information system (GIS) format.

Forest Plan Consistency

All alternatives including the proposed action are consistent with the 1991 Bridger-Teton National Forest Land and Resource Management Plan as ammended. All applicable forest-wide and management area standards and guidelines have been incorporated into all alternative design. The Forest Service uses many mitigation and preventive measures in the planning and implementation of land management activities. The application of these measures begins during the planning and design phases of a project. Additional direction comes from the Regional Guide, and applicable Forest Service manuals and handbooks.

Project-specific Mitigation

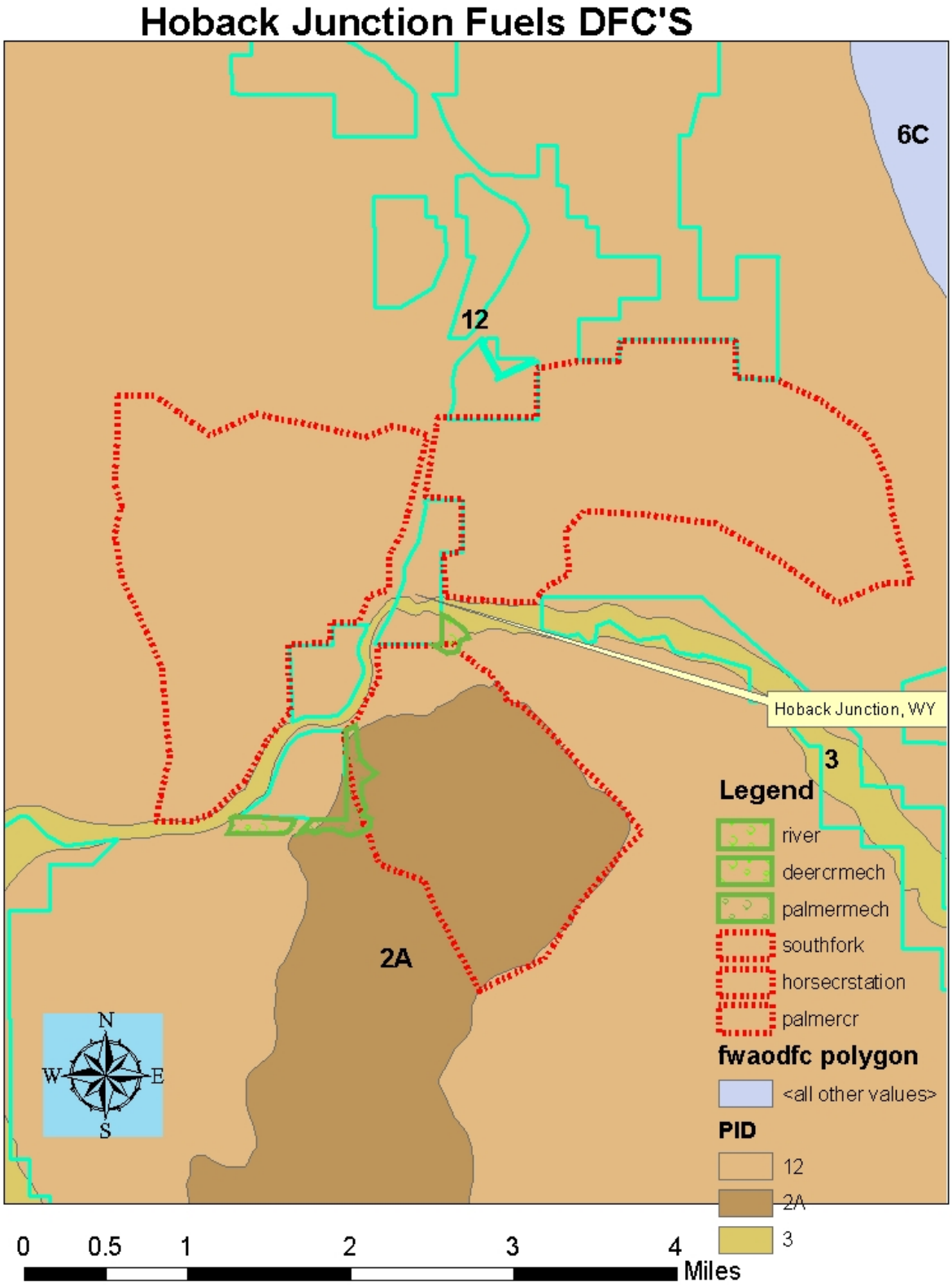
The analysis documented in this EA discloses the possible adverse and beneficial impacts that may occur from implementing the actions proposed under each alternative. Measures have been formulated to mitigate or reduce adverse impacts. These measures were guided by the direction from the Bridger-Teton Land and Resource Management Plan previously described (in this chapter and in Chapter 1).

IDT specialists use on-the-ground inventories, computer (GIS) data, and various studies to prepare their reports. Resource reports show the cause and effect relationships between the alternatives and their specific effects, and indicate mitigations to reduce or eliminate those adverse effects in the design of the alternatives. These reports are summarized and referenced in this EA in Chapter 3 and may be found in the project record. Resource concerns and mitigation measures may be refined further if unanticipated concerns are identified during the comment period.

Applicable Forest Plan standards and guidelines, the "Best Management Practices" (BMP's) used to meet the requirements of the Clean Water Act, and project-specific mitigation measures are identified in these reports. Forest Plan standards and guidelines specific to the Project are:

- No activities will occur that would jeopardize the eligibility of inventoried Roadless areas for future Congressional designation as Wilderness
- Other standards and guidelines relate to Roadless areas. Reference specific standards and guidelines applicable to DFC's (Desired Future Conditions) as stated in the 1990 Land and Resource Management Plan for the Bridger Teton National Forest. DFC's in the project area hold specific concerns for: primitive and semi-primitive non-motorized recreation and providing for wildlife habitat needs year round. Each DFC also has specific standards set for fire protection and fuels management. Previously, in Chapter 1 an overview of DFC's associated with treatment areas was outlined.

Figure 2.1 on the following page depicts DFC locations in the project area.



Monitoring

Monitoring activities can be divided into Forest Plan monitoring and project-specific monitoring. The National Forest Management Act requires that National Forests monitor and evaluate their forest plans (36 CFR 219.11). Chapter 5 of the Forest Plan includes the monitoring and evaluation activities to be conducted as part of Forest Plan implementation. There are three categories of Forest Plan monitoring: Implementation monitoring, effectivenss monitoring, and validation monitoring.

Effectiveness and validation monitoring are not typically done as part of project implementation. Implementation monitoring, and any additional project-specific monitoring, are however important aspects of the project.

Routine Implementation Monitoring
Routine implementation monitoring assesses whether the project was implemented as designed and whether it complies with the Forest Plan. Planning for routine implementation monitoring began with the preliminary design of the Hoback Junction Fuels Reduction project.

Primary Monitoring objectives set forth for this project will be to assess success of implementation. Desired results would indicate a successful reduction in fuel loadings and flammability of the treatment areas, as well as favorable public opinion of implementation procedures. Monitoring techniques will include recording photographs of treatment areas before and after treatments, simple fuel measurement transects before and after treatments, and polling of publics in the area to quantify public opinion throughout the planning and implementation phases of this project. The Fire and Fuels staff on the Jackson Ranger District will be responsible for fuels and vegetation related monitoring implementation and the Recreation staff on the Jackson Ranger District will assist in the public opinion polling. Monitoring results will be stored in the project record for the Hoback Junction Fuels Reduction project.

Other monitoring objectives would be to:

- Monitor treated sites in designated increments (as identified in the silvicultural prescription) to assess maintenance of the site to retain the stand characteristics achieved through treatments.
- Monitor treatment areas for noxious weed invasion. This should be done every 1 to 2 years, and as long as these sites would provide ground conditions for noxious weed establishment.
- Monitor any wildfire ignitions within treatment areas and wildfires burning into treatment areas to determine if treatments met objectives set forth in the purpose and need of the project.
- Required Monitoring related to Lynx Forest Plan Amendment. (refereance Biological Assesment – BA).
- Monitor the effects on scenic integrity.

Findings and Disclosures

Several of the laws and executive orders listed in Chapter 1 require project-specific findings or other disclosures. These findings and disclosures will be in the Decision Notice which will record the decision and rationale for decision by the District Ranger**.**

Alternatives Considered

Several alternatives were considered during the planning process. Alternatives consist of a no action alternative and fuels treatments to achieve the desired condition. Along with a no action alternative and the proposed action an alternative involving a much larger mechanical treatment area and timber harvest was considered. This alternative was ruled out early in the planning process due to expected significant issues and negative impacts and is not considered in detail. This alternative is described in brief as follows:

Alternative 3

This alternative would have the same purpose and need as the proposed action. The key difference would be an emphasis on more intensive thinning of the overstory and understory in mechanical units as well as some portions of broadcast burn units. Timber harvest would be a key component of this alternative. This alternative has not been considered in detail due to the following:

1. Most of the project exists in roadless areas (Grayback Ridge, Gros Ventre Mountains, Munger Mountain). Specialists and the line officer do not see the cost of timber harvest implementation vs. the benefits derived as related to the purpose and need of this project as an effective option.
2. Most terrain in the Hoback Junction area is steep and comprised of sensitive soils making larger scale timber harvest operations infeasible.
3. Related to #'s 1 and 2 above, mitigation measures foreseen related to aesthetics, soils, and roadless designation with potential wildlife mitigations as well make planning and implementing harvest operations for this project overly complex and economically unviable.
4. Most access would be through private lands and through residential areas. Public opinion to timber harvest (intense overstory and understory thinning) is mixed.

In summary, the monetary cost of implementation, mixed public opinion and varying effects of timber harvest in the project area make this alternative less viable than the proposed action.

Alternatives Considered in Detail

The proposed action (Alternative 2) is considered in detail. Alternative 1 is the no-action alternative, under which the project area would receive no fuels reduction treatments at this time, and would remain subject to natural or ongoing changes only. Alternative 1 , the no-action alternative, represents the current condition of the project area and is used as a baseline when comparing the effects of the proposed action. Larger-scale maps of the proposed treatments are contained in the project planning record.

Alternative 1 – no action

The emphasis of this alternative is to propose no fuels reduction treatments in the Hoback Junction Fuels Reduction project area at this time. It does not preclude future actions. The Council on Environmental Quality (CEQ) regulations (40 CFR 1502.14d) require that a "no action" alternative be analyzed. This alternative represents the existing and projected future condition against which the other alternatives are compared.

The No Action alternative would have no outputs and does not meet the purpose and need for the project. The No Action Alternative does not move the project area towards the desired condition. It does however, address issues of disturbance in the area and would have no impacts on the current landscape other than the existing undesirable wildland fuels conditions in this urban interface area which would remain and continue to worsen.

Alternative 2 – proposed action

The proposed action was designed to respond to the purpose and need described in Chapter 1, the National Fire Plan, and the regional priority of treating Wildland Urban Interface areas. The actions described in table 2.3 will move the project area towards the desired condition by treating approximately 5304 acres. This alternative will focus on utilization of different types of fuels manipulation called mechanical treatment and broadcast burning. This also includes no treatments in identified areas that preserve Lynx habitat components. These fuels treatments would lessen the probability of a catastrophic wildfire. Any mechanical fuels reduction in this alternative would require piling of slash and ultimately burning of piles. Mitigation measures for this alternative are defined later in this chapter.

Table 2.3 –LEVEL OF TREATMENT FOR AREAS IN THE HOBACK JUNCTION FUELS REDUCTION PROJECT.

Treatment Area	Lynx Mitigation Areas (acres)	Soil Concern Areas (acres) ***	Mechanical (acres)	Broadcast Burning (acres)
River Mechanical	**0**	**0**	**16**	**0**
Palmer Creek Mechanical	**0**	**0**	**54**	**0**
Deer Creek Mechanical	**0**	**0**	**23**	**0**
Palmer Creek Prescribed Burn	**370 within soil concern areas (320 outside of soil**	**629**	**0**	**1412**

	concern area)			
South Fork Prescribed Burn	**0**	**491**	**0**	**1894**
Horse Creek Prescribed Burn	**0**	**770**	**0**	**1905**

*** Areas identified as having unstable soils, should be avoided during boadcast burniing activities. Some mechanical units within soil concern areas, but this treatment is not considered a risk for soil stability

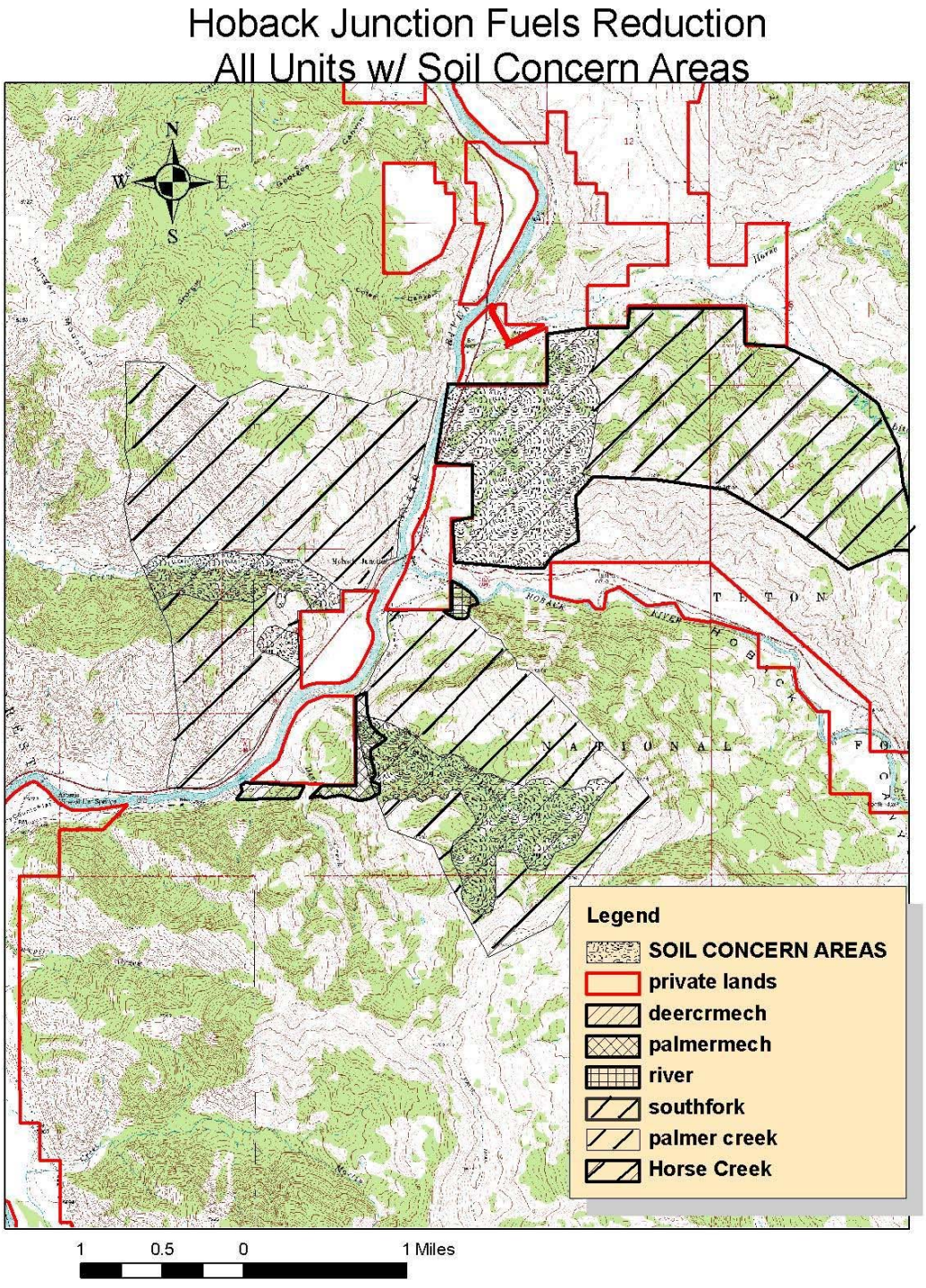
Lynx Mitigation Areas

Ignitions will not be part of project implementation within these identified areas. The use of management ignitions will only occur if deemed necessary to hold previously ignited areas within the identified project area. Proposed prescribe burn treatments in units outside the Wildland Urban Interface will not be implemented until field measurements of horizontal cover density for snowshoe hares in mature/late seral multi-storied forest stands in proposed units can be completed. Cover board transects will be assessed to identify those forest stands presently providing suitable hare habitat. Such stands will not be treated under any signed decisions made to implement the proposed project actions. Forest stands not providing suitable horizontal cover for hares could potentially be treated if feasible to burn and still maintain (protect) the existing condition of suitable hare horizontal cover. Prescribed burning of forest cover not suitable as hare habitat will not be implemented until a Supplemental Information Report to the Biological Assessment is completed on the field measurements of horizontal cover, and concurrence is received from the US Fish and Wildlife Service on a determination of effects on Canada lynx and their proposed critical habitat.

Soil Concern Areas

Ignitions will not be part of project implementation in these areas. The use of management ignitions will only occur if deemed necessary to hold previous ignitions within the identified project area. Refer to Figure 2.2 for the location of concern areas. To minimize soils impact most burning would occur in the spring season and the acreage burned would not exceed 400 acres at each entry.

Figure 2.2 Soil concern Areas for the Hoback Junction Fuels Reduction Project



Mechanical Thinning

Moderate treatment of vegetation. Reference Appendix C for photopoints showing similar treatments prior to and after a similar mechanical thinning strategy was undertaken adjacent to the Gros Ventre River Ranch on the Jackson Ranger District of the Bridger – Teton National Forest

- Reduce dead and down fuel loadings to 5 to 7 tons per acre, where the present volume exceeds this.
- Reduction of ladder fuels by thinning conifers <8" dbh in the understory, as well as limbing overstory trees to a height of 10' above ground level. Removal of smaller diameter (<8" dbh) conifers from under the dripline of mature conifers.
- Treatments in some locations will also be designed to facilitate enhanced vigor of aspen stands, through 100 % removal of conifer <9" dbh within aspen stands and up to one and a half tree lengths outside existing aspen stands.
- Residual slash will be piled. Piles will be burned after curing for approximately one calender year and when burning conditions alow.

Broadcast Burning

Through a combination of hand and aerial ignitions treat portions of the areas identified for prescribed burning. Objectives are to rejuvenate (set back succession) aspen and brush fuels, break up continuity of dense vegetation (brush and timber), maintain or enhance forest openings showing signs of conifer encroachment, and utilize fire as a method of fuels reduction. The quantified objectives include:

- 20 to 60% conifer mortality in treated mixed stands,
- retain 30 % mature aspen and convert 70% of treated aspen to earlier successional stages.
- Promote structural diversity in sagebrush stands.
- Attain following canopy closure (cc) in treated sagebrush areas: 20% @ 0-5% cc, 35% 6-25% cc, 45% > 26% cc.
- Treat areas showing signs of conifer encroachment into meadows or openings by achieving >40% conifer mortality in identified encroached areas.
- With broadcast burning will come the need for preparation of certain areas to ensure prescribed fire stays within designated unit boundaries. When feasible the treatment will occur along existing trails or in areas of thinner vegetation. It will include thinning brush along identified trails/areas as well as thinning conifer fuels, mirroring the moderate level of treatment (mechanical). A small tractor type vehicle may be utilized to accomplish this burn preparation where terrain and access allows.

Comparison of Alternatives

This section compares outputs, objectives and effects of the alternatives in terms of the significant issues for the Hoback Junction to Hoback Junction Fuels Reduction project. The discussions of effects are summarized from Chapter 3, which should be consulted for a full understanding of these and other environmental consequences. The tables below provides an overview comparison of information from the alternative descriptions and Chapter 3 relevant to the issues. This information will be used in the discussions which follow.

Table 2.4 Comparison of alternatives

	ALT. 1 NO ACTION	**ALT. 2 PROPOSED ACTION**		
No Treatment (acres)	5304	2210*		
Mechanical treatment (acres)	0	93		
Lynx Habitat – no treatment (acres)	NA	690		
Soil Concern Areas	NA	1890		
Pile burning (acres)	0	93		
Chipping or other (acres)	0	0		
Broadcast Burning (acres)	0	3001**		
Miles of Fireline needed for Prescribed Burning	0	4.25***		

*acreage of soil concern and lynx mitigation acres. Ignitions will not occur within these areas unless deemed necessary to hold ignitions within the NEPA analysis area. refer to figure 2.3 for details.

** Reduced acreage from original proposal due to mitigating effects to critical lynx habitat and ustable soil areas.

** Primarily trail improvement, low impact brushing along trails as needed.

Table 2.5 – Comparison of Alternative Effects

	ALT. 1 NO ACTION	**ALT. 2 PROPOSED ACTION**
Extent of Treatment	Temporal successional changes	Mechanical – more open understory, increased aspen Broadcast Burning – less homogony, younger age classes, increased aspen presence on landscape
Soil Stability	Current condition	Slight effect
Roadless Areas	No change	Project implementation will not effect future status
Visuals	No effect, could deteriorate over time	Enhanced, with implementation of project specific mitigations
Trails and recreation use	No effect, future wildfires could have negative impacts	Short term visitor use impacts, potential impacts to trails and trail use.

Wildlife Effects*	high severity fire could have adverse effects to large areas. Aspen could increase in stature.	lower intensity fire or light mechanical treatments increase diversity of vegetation. Aspen enhancement likely.
Threats to Values	Continued threat from wildfire	Recognized risks from prescribed burning, mitigated through implementation plans, long term risk decreased.

*reference Chapter 3.

Features Common to All Alternatives

Project specific mitigations related to the identified issues and other identified environmental factors are briefly described below. Refer to Chapter 3 for more detailed information.

Extent of Treatment

- Thin from below strategy, no road construction and no timber harvest**.**

Soil Stability

- Recommendations on season of prescribed burning and allowable acreage burned during each phase of implementation.
- Avoidance of identified sensitive areas.

Designated Roadless Area

- No roads or skid trails will be constructed.
- Stump height restrictions in mechanical units within Roadless Area <4".

Visual Quality

- <4 " stump heights where visible from homes or trails
- All slash will be piled and burned
- Landscape Architect to assist with unit layout.
- Specific to mechanical treatments: Unit boundaries to be feathered. With prescribed burning, efforts will be taken to not create unit boundary lines on the landscape, natural barriers and areas of vegetation change will be used as holding points for management ignitions where feasible.

Trails and Recreational Use

- Early public notification of project implementation through all available media.
- Minimize area and trail closures as much as possible.
- Signage of trailheads and access points to notify public of mechanical treatment and/or prescribed burning operations along trails.

- Chainsaws must be shut down within 200 feet of horses in trail areas.
- Implement projects along one trail at a time to minimize impacts to trail use.
- Implementation of mechanical treatments will not occur on weekends or on major holidays.

Wildlife

- Follow Goshawk guidelines as identified.
- Follow specifications of Special Food Storage Order (004-000-025) during project implementation.
- If any Threatened or Endangered Species (TES) nest, den or important site is found in the project area, activities may need to be curtailed or certain restrictions imposed.
- Seasonal restrictions on activities related to certain wildlife species.
- Retain at least 30% of mature shrub/grass, aspen and conifer/shrub in winter range areas.
- Implement prescribed fire in a mosaic fashion.
- Stand Replacement patches resulting from prescribed fire should not exceed 10 acres.
- Maintain 4 down logs/acre at least 12” diameter and 20 feet long.
- Retain 4 to 6 snags per acre where present.
- Retain 5 to 7 tons per acre of down woody debris where present.
- No treatment within 800 meters of Bald Eagle nest from 2/15 to 8/15.
- Identify and map wetlands, ponds, streams. No ignitions within identified riparian areas.
- Avoid igniting within spruce/subalpine fir stands in the Horse and Palmer Creek units. Allow fire spread through creeping and backing. Reference the MIS report for details, this relates to conserving habitat for pine marten.

Smoke Management

- Prescribed burning plans will address and mitigate for impacts from smoke.
- Prescribed burning will adhere to Wyoming State guidelines related to smoke emissions and prescribed burns will receive a burn permit from the State.

Sensitive Plants

- Surveys will be conducted for rare and sensitive plant species prior to project implementation.

Cultural Resources

- Cultural resources clearance has been obtained from the State Historic Preservation Office (SHPO).
- If any cultural resource sites are discovered during implementation, appropriate action will be taken in consultation with SHPO.

Threats to Values

- Implementation plans will address the inherent risks associated with prescribed burning, mitigation actions will be developed through prescription development and other identified actions.

Fisheries

- No issues have been identified related to the viability of fisheries within the project area as a result of the project**.**

Chapter 3

Environmental Effects

Introduction

This chapter provides information concerning the affected environment of the Hoback Junction Fuels Reduction project area, and potential consequences to that environment. It also presents the scientific and analytical basis for the comparison of alternatives presented in Chapter 2. All effects, including direct, indirect and cumulative effects, are disclosed. Effects are quantified where possible, and qualitative discussions are also included. The means by which potential adverse effects will be reduced or mitigated are described.

The discussions of resources and potential effects take advantage of existing information included in the Bridger-Teton National Forest Plan's FEIS, other project EA's OR EIS's, project-specific resource (specialist) reports and related information, and other sources as indicated. Where applicable, such information is briefly summarized and referenced to minimize duplication. The planning record for the Hoback Junction Fuels Reduction project includes all project-specific information, including specialist reports, and other results of field investigations. The record also contains information resulting from public involvement efforts. The planning record is located at the Jackson Ranger District Office in Jackson , Wyoming, and is available for review during regular business hours. Information from the record is available pursuant to the Freedom of Information Act.

Environmental Effects of the Issues

Fuels and Fire Hazard

Current and Desired Fuels and Flammability Properties of the Treatment Areas:

Fire Behavior Implications

Mechanical Treatments:

- Mechanical treatments as described will reduce ladder and surface fuels to an extent which will lower potential flame length and intensity given a fire spread into or start within the treatment area. This will lessen potential for crown fire adjacent to private lands in the project area.

- By lessening fuels along the private boundary, the effectiveness of suppression forces will be greatly enhanced. Lower potential flame lengths, reduced rates of spread, and reduced potential fire intensities provide for a more effective and safer suppression response.

- With mechanical treatments will follow the need for slash treatment. Slash will be piled and burned after curing for approximately 1 year. Slash is typically burned in the fall of the year after enough moisture has fallen in the area to ensure little to no fire spread from piles. Smoke emissions associated with pile burning are of a concern, and a smoke management plan will address minimizing impacts to the surrounding area by managing timing of ignitions and amount of ignitions on any given day. Impacts from smoke relate to impacts to residents, visual quality and impacts to highway safety in the Hoback Junction area. Key points to address when managing smoke impacts related to pile burning are related to actual volume and direction of drift, and timing ignitions so pile combustion is complete by days end to avoid a smoke inversion occurring in the area.

Broadcast Burning Treatments:

- Broadcast burning will reduce fuel continuities throughout treated areas. Increasing the diversity of age classes and vegetation types on the landscape will lessen the probability of high intensity fire behavior, which occurs in more homogenous vegetation with more continuous fuels.

- By treating fuels at the landscape level with broadcast prescribed fire, to achieve a vegetation mosaic, the ignition of a wildfire moving through the project area should exhibit lessened fire behavior in treated areas as a fire moves through varying types of fuels. The effect on rate of spread may be lessened or there may be no change depending on conditions. The effect on fire intensities should see a noticeable decrease based on the reduction of available fuels to support a high intensity fire where treatments occur. This type of landscape scenario will give managers more options in responding to wildland fires starting or moving into treated areas.

- Smoke emissions will be a concern with any broadcast buring activities in the project area. A smoke management plan will address minimizing impacts to the surrounding area by managing timing of ignitions and amount of ignitions on any given day. Impacts from smoke would affect residents, visual quality and highway safety in the Hoback Junction area. Key points to address when managing smoke impacts related to broadcast burning are related to actual volume and direction of drift, and timing ignitions so combustion is complete by days end to avoid a smoke inversion occurring in the area.

Table 2.1

- Reference STANDARD FIRE BEHAVIOR FUEL MODELS: A COMPREHENSIVE SET FOR USE WITH ROTHERMEL'S SURFACE FIRE SPREAD MODEL. Scott and Burgan. June 2005. RMRS-GTR-153. for a more detailed description of these fuels models.

Fuel model Descriptions	
TL1	Low load, compact conifer litter
TL3	Moderate load conifer litter
TL4	Small downed logs
TU1	Light load, dry climate timber grass-shrub
TU5	Very high load, dry climate timber-shrub
GS2	Moderate load, dry climate grass-shrub
GR1	Short, sparse, dry climate grass

- Mechanical treatments will strive to convert areas exhibiting TU5, TL4 conditions to TU1,TL1 or TL3 conditions. Mechanical treatments will also be designed to maintain TU1, TL1 or TL3 conditions where the already exist.
- Prescribed fire treatments will strive to convert areas exhibiting GS2 or TU5 conditions to GR1, TU1, TL1, or TL3 conditions (or maintain GR1, TU1, TL1, or TL3 if they already exist). It should be noted that the application of fire on a landscape level will not result in a homogenous landscape. The intention of the treatment is to provide a mosaic and/or break up the continuity of areas exhibiting GS2 or TU5 properties, not to consume all acreage with these fuels properties.

Table 2.2 – Existing fuels and flammability properties (Fuel model) of treatment areas.[1]

Treatment Area	**Existing Fuel Model Properties**	**Proposed Treatment**	**Desired Fuel Model Properties**
River Mechanical	TU5 intermixed with TU1	Mechanical	Maintain TU1 and reduce TU5
Palmer Mechanical	TU5 intermixed with TL4	Mechanical	Reduce TU5 and TL4 to TU1
Deer Creek Mechanical	TU5 intermixed with TU1	Mechanical	Reduce TU5, increase TU1
Palmer Creek Prescribed Burn	TU5, TU1, TL4, GS2, GS1, GR1	Broadcast Burn	Reduce TU5 and TL4, maintain/increase TU1, GS1
South Fork Prescribed Burn	TU5/TL4 with TU1 interspersed (where forested), GS2, GS1	Broadcast Burn	Reduce continuity of TU5, TL4 and GS2

Horse Creek Prescribed Burn	TU1, TU5, TL4 west half grass/shrub	Broadcast Burn	Maintain TU1, reduce TU5, TL4 increase Aspen vigor.

1 aquired from LANDFIRE (Landscape Fire and Resource Management Planning Tools Project, (www. landfire.gov) GIS data.

Alternative 1 (no action): Under the no action alternative, fuels and flammability properties of the project area would change under natural processes. Areas already exhibiting high flammability properties would continue to accumulate higher volumes of dead and down fuels and ladder fuels would continue to increase. Areas currently exhibiting lesser fire behavior properties would slowly change to Fuel Model TU5 or GS2. Areas of aspen with conifer encroachment would increase in flammability due to continued conifer encroachment. In general, fuels characteristics of the project area would, likely develop into timber stands or brush areas having higher potential for problem fire behavior with increased difficulty to supress. Problem fire behavior includes: higher probability for tree torching and crown fire development, increase in spot fires from lofted embers produced from torching trees, higher flame lengths, higher fireline intensities, and ultimately greater threats to private property and structures adjacent to the project area.

Alternative 2 (proposed action): Under the proposed action, fuels and flammability properties of the project area would change through management of the existing conditions, by:

- thinning of ladder fuels, dead and down fuels, conifers encroaching on aspen stands,
- reducing the homogeneity of timber and brush stands,
- and in some areas reducing canopy closure.

Areas currently exhibiting high flammability would have lower volumes of dead and down fuels and ladder fuels would be thinned to raise the base height of tree canopies and available canopy fuel. Areas already in a state that would exhibit lesser fire behavior would continue to exhibit these properties. Areas of aspen where conifer are removed would retain the lower flammability properties of aspen stands. In general, fuels characteristics of the project area would exhibit properties allowing for increased chances of suppressing fires before they develop problem fire behavior characteristics.

The complete specialists report on Fire and Fuels Hazard can be found in the project record.

Extent of treatment

Alternative 1 (no action): Under the no action alternative, no treatment would occur in the project area. The state of the forest in the proposed project area would be affected by only natural processes, including fire occurrence from natural or other ignition sources. Effects of suppressing fires in the area or from fires themselves would probably exhibit more change to the natural stands than if they were treated to maintain fuels characteristics conducive to lower fire intensities.

Alternative 2 (proposed action): All treatment areas are in identified Wildland Urban Interface as depicted in the Bridger-Teton Fire Management Plan and Teton County Community Wildfire Protection Plan, or are adjacent to these areas. Proposed mechanical treatments will be similar treatments undertaken in other fuels reduction projects on the Jackson Ranger District, which were designed with a thin from below concept in mind. Broadcast burning is also proposed, and feelings from the public were mixed toward broadcast burns. Concerns were raised for the aesthetic effects after burning and also risk involved with broadcast burning. Visual effects and risk factors are addressed later in this chapter. Concerns for soil stability have been identified as well related to broadcast burning.

Soil Stability:

Alternative 1 (no action): Soil stability issues in the area would not be affected by this project. Soils issues including landslides and slumps would occur as they have in the past. Follwing a wildfire, there would be more area with high burn severity, which would increase risk on unstable slopes.

Alternative 2 (proposed action): Three areas of sensitive soils has been identified in the Hoback Junction project area, and an exclusion area for no treatment has been identified by the soils specialist. To minimize soils impact most burning would occur in the spring season and the acreage burned would not exceed 400 acres at each entry. **Sensitive soil areas will be avoided**.

Inventoried Roadless Areas:

Alternative 1 (no action): Under the no action alternative, no treatments would occur in Roadless Areas. As a result, more impactive suppression tactics would be needed adjacent to private land and structures. Ignitions in the area during times of extreme burning conditions which could potentially threaten private land and structures would need to be controlled with whatever means necessary which may include the need to use mechanized equipment such as bulldozers, resulting in greater suppression impacts in Roadless Areas.

Alternative 2 (proposed action): Roughly 93% of the project area lies within Roadless Areas. Project implementation would not jeopardize these areas for future designation as

wilderness. Fuel treatment primarily **affects the untrammeled quality** of wilderness character since it would be a direct human manipulation of forest vegetation. The undeveloped/unoccupied quality of wilderness character would be somewhat affected by the physical presence of tree stumps, however the small diameter of trees to be removed and the ability to flush cut stumps would alleviate this impact. The natural quality of wilderness character would be somewhat affected since it would change the structure of the forest but would not affect the existing native species composition of the forest. Over the longer term natural processes would continue in the project area and there would be no substantial effect on wilderness values. Fuel treatments would not fundamentally change the opportunity for people to experience remoteness, natural quiet, solitude, freedom, risk, and the physical and mental challenges of self-discovery and self-reliance.

Treatment levels within roadless areas are designed so as not to joepardize this area for future consideration as wilderness. Throughout the project area no road construction is proposed. The proposed fuels treatments within the roadless areas and adjacent to private land and structures will facilitate the ability to manage future wildfire ignitions in these areas utilizing light hand tactics and minimizing negative resource impacts from fire suppression. The treatments may also facilitate future abilities to manage naturally ingnited fires within roadless areas for resource benefits.

Table 3.1 depicts a worksheet used to describe effects to the Roadless Characteristics of the Area

Effect to Roadless Characteristics			
Roadless Characteristics	**Is there an effect? Yes or No**	**Which direction is the effect? Improving, Stable or Degrading?**	**Describe the actual effect.** Use descriptive terms that discuss the effect, not the activity.
Soil, water and Air resources Identify any unique or critical watershed resources. Describe how the project will affect these key resources areas and the habitats that depend on them. The project area includes parts of the corridors of the Snake and Hoback	Yes	Improving as well as Stable	Prescribed burning will create smoke and will have a short term effect to air resources, however long term the effects will be minimized with lighting techniques as well as with time of season burning. Impacts to soil due to mechanical fuels reduction activities (understory thinning) may occur but not exceed forest plan standards and mitigations will be employed to ensure that soil

Recreational Rivers—parts of the corridors are within the roadless areas.			impacts are minimized. No effect on Recreational Rivers.
Sources of public drinking water Identify any public drinking water systems or sources within the project area or that would be affected by the project. Describe how the project would affect water quality and quantity of the public drinking water source.	Yes	Stable	Vegetation that is treated will not likely affect the municipal drinking water within the area. No road construction and a thin from below prescription in mechanical units will minimize effects to water quality. There are no public water sources in the project area.
Diversity of plant and animal communities Discuss the diversity of plant and animal communities. Identify any unique plant and animal communities within the area. Describe effects to the diversity of communities and impacts to populations in the areas. Area includes bald eagle habitat, and Snake River fine-spotted cutthroat trout rearing areas.the areas.	Yes	Improving	Fire exclusion has led to a decline in aspen within the project area. This project is intended to help regenerate aspen stands that are more resistant to canopy fire conditions. A Biological Assessment and a biological evaluation were prepared for this project that discusses the animal habitat communities that are present. These documents along with specialist reports for exotic plant communities are located within the project record.
Habitat for TES and species dependent on large undisturbed areas of land Identify any TES or sensitive species within the Roadless area. Describe how the project would affect the habitats or populations and whether this effect is significant across the normal range and distribution of these	Yes	Stable	TES species do exist within the Hoback Junction Area. A Biological Assessment and a Biological Evaluation were prepared for this project and mitigations are documented in the project folder. Canadian Lynx habitat does exist in the project areas, resulting in some areas being exempt from treatments.

habitats and populations.			
Primitive and semi-primitive classes of recreation Describe current recreation opportunities within the Roadless area. Identify the effects of your project of the area and these activities. Describe the effect in terms of availability for similar experiences in surrounding areas or within the region of use. Consider link to ROS mapping. Numerous trailheads exist in the Hoback Junction area. There will be prescribed burning activities adjacent to many trails in the area. Prescribed burning will not have long term adverse effect on the recreation activities or trails. Trails utilized by outfitters also exist within the Horse Creek prescribed burn area, and the Palmer Creek Burn unit.	Yes	Stable/ Improving	Numerous trailheads exist in the Hoback Junction area. There will be prescribed burning activities adjacent to many trails in the area. Prescribed burning will not have long term adverse effect on the recreation activities trails. Trails utilized by outfitters also exist within the Horse Creek prescribed burn area, and the Palmer Creek Burn unit. Mechanical treatments near these areas can be categorized as light to moderate and no road construction is planned, so, effects to recreatioin will be minimal. This project will not have significant long term effects to hiking, horse back riding and cross-country skiing.
Reference landscapes for research study or interpretation Describe the landscape that is present. Describe any unique reference landscapes that exist within the Roadless area. Describe how the project activities might affect the reference landscape values of the Roadless area. Consider how the	No	Stable	This project will not significantly alter the affected landscape. Refer to the Visual effect specialist report for more information.

landscapes within the Inventoried Roadless area fits within the broader landscape and if the project creates any overall change. Consider landscape character descriptions in SMS. The parts of the roadless areas considered in this project do nto contain reference landscapes.			
Landscape character and integrity Describe the current scenic quality and character of the area. Describe project effects to the scenic integrity of the area and changes to the character of the area. Consider existing scenic integrity. The Hoback River corridor and Hoback Junction area are some of the forest's most popular destinations for viewing outstanding scenery. The aspen in the fall with bright yellow color mixed with the surrounding mountains and the river drainage has all of the elements of a variety class "A" landscape with a variety of vegetation, land forms of steep drainages and high elevation mountain peaks and water in the foreground. The riparian area has, willow, narrowleaf cottonwood, aspen and high grass meadows. This is excellent habitat for big	No	Improving	The Hoback River corridor and Hoback Junction area are some of the forests most popular destinations for viewing outstanding scenery. The aspen in the fall with bright yellow color mixed with the surrounding mountains and the river drainage has all of the elements of a class "A" landscape. It has a variety of vegetation, land forms of steep drainages and high elevation mountain peaks and water in the foreground. The riparian area has, willow, narrow leaf cottonwood, aspen and high grass meadows. This is excellent habitat for big game such as moose. The steep slopes on each side have heavily timbered north aspects and great open, south aspects of aspen, sage and mixed conifer. Generally the landscape is in a "naturally appearing" condition with a high degree of verity in aspen and mixed conifer in the middle and back ground views. The foreground is mostly residential single family homes and some small ranches as well as a small commercial development at hoback Junction.

game such as moose. The steep slopes on each side have heavily timbered north aspects and great open, south aspects of aspen, sage and mixed conifer. The foreground is mostly residential single family homes and some small ranches as well as a small commercial development at Hoback Junction.			The proposed action has the potential for major negative impacts on the visual resource. This is a foreground, middle ground and back ground Retention Standard road and corridor in the forest plan. This means that **"management activities are not evident**". Retention must be met when the project is complete. There is no grace period for rehabilitation in this standard. Management activities must be sensitive to the visual appearance of any action. Much of the project area can be seen from roads. The eyes and ears of the public will see the project before, during and after. Special care must be taken to minimize the effects of this project. The project also has the potential for positive, long term visual effects. The sustainability of positive scenic values is paramount. To add variety and promote age class diversity, are positive steps for this valued landscape and this project can move us in the right direction. Mitigations have been developed which will minimize effects to visual integrity and even improve it.
Traditional cultural properties and sacred sites Identify generically any significant cultural resources within the Roadless area and describe the effect of the project on these resources.	No	Stable	There are no culturally significant sites that will be affected by this project. Some sites have been identified which will be avoided and this should be easily accomplished based on location. Reference Cultural Resources report.

Typically mitigation will be designed to prevent significant effects to these resources.			
Other locally unique characteristics Identify any locally unique characteristics and describe how the project would affect these values.	No	Stable	There are no unique characteristics that this project will affect

Visual Quality:

Concerns for impacts on the visual quality of the project area were raised during the scoping process. These concerns were related to the view from afar and also to visual quality within localized areas. Treatments would be adjacent to private lands as well as many forest trail corridors. This concern relates directly to the level of treatment proposed in this fuels reduction project.

Existing Scenic Conditions (ESC)

The Hoback River corridor and Hoback Junction area are some of the forests most popular destinations for viewing outstanding scenery. The aspen in the fall with bright yellow color mixed with the surrounding mountains and the river drainage has all of the elements of a class "A" landscape. It has a variety of vegetation, land forms of steep drainages and high elevation mountain peaks and water in the foreground. The riparian area has, willow, narrow leaf cottonwood, aspen and high grass meadows. This is excellent habitat for big game such as moose. The steep slopes on each side have heavily timbered north aspects and great open, south aspects of aspen, sage and mixed conifer. Generally the landscape is in a "naturally appearing" condition with a high degree of verity in aspen and mixed conifer in the middle and back ground views. The foreground is mostly high end, single family homes. The ranching character is dominant with fencing, barns, and livestock

The casual observer may not be aware of the effects from years of fire suppression or the lack of fire as a natural process on this landscape. Evidence of this cumulative effect can be seen in decadent aspen stands that need fire to regenerate, the lack of age class diversity in mixed conifer north slopes and disease out breaks in conifer stands. In general, the landscape should look vibrant and have much more variety in color, vegetation patterns and different age classes than it now has. Management is needed to mimic the role of fire as a disturbance agent on this landscape.

Forest Plan Direction

Visual Quality Objectives for this area is Retention.

This visual quality objective provides for management activities which are not visually evident. Under Retention activities may only repeat form, line color, and texture which is frequently found in the characteristic landscape. Changes in their qualities of size, amount, intensity, direction, pattern, etc., should not be evident. (NF Landscape Management Handbook, Volume 2, #642, Page 30)

Effects of Proposed Action to the Visual Resource

Without mitigations, the proposed action has the potential for major negative impacts on the visual resource. This is a foreground, middle ground and back ground Retention Standard road and corridor in the forest plan. This means that **"management activities are not evident**". Retention must be met when the project is complete. There is no grace period for rehabilitation in this standard. Management activities must be sensitive to the visual appearance of any action. The entire project area will be seen from roads and dispersed camping areas, excluding portions of the Broadcast burn units. The eyes of the public will see the project before, during and after. Special care must be taken to minimize the effects of this project.

The project also has the potential for positive, long term visual effects, including increased diversity in the overstory and more openings for understory shrubs and wildlfowers; this would increase the visual variety.

The sustainability of positive scenic values is paramount. To add variety and promote age class diversity, are positive steps for this valued landscape and this project can move us in the right direction.

Mitigation

Visual Quality Objectives, as listed above, cutting units blend into the remaining scenery. In order to achieve the retention standards for this project:

- Units must appear to be "natural", Clumpy, uneven age classes and random tree spacing
- strict adherence to very low (under 4 inches) stump height requirements when seen from roads and homes
- All slash would be piled and burned.
- Landings must be out of site from roads and homes (**Under the proposed action no landings will be utilized or constructed).**
- Skid trails must be revegetated and not seen from roads and homes **(Under the proposed action no skid trails will be utilized or constructed).**
- A landscape architect should assist with marking and layout of treatment units in order to facilitate reasonable aesthetic needs.
- "Leave strips" along roads and property boundaries are not visually truthful, nor healthy for the local forest environment.

- Special care must be taken to NOT leave or create unit boundary lines on the landscape. The use of natural vegetation boundaries is best. Where natural boundaries are not found, vary the unit boundaries.
- In dominant aspen stands, the removal of all conifer trees is desired to maintain aspen in the larger landscape. Under the proposed action a diameter limit will be placed on conifers to be removed to minimize slash propogation , this is recommended by the IDT leader in response to the inability of this project to remove merchantable timber due to access issues (Roadless area designation over 93% of the project area).
- In dominant conifer stands, Clumping and characteristic open spaces in mixed amounts yield a more natural-appearing and scenic landscape
- Feather or gradually increase cutting or decrease cutting in-between aspen and conifer stands to create a smooth transition and a more natural appearing landscape.

Alternative 1 (no action): Under the no action alternative visual quality would be affected by processes outside of the scope of the proposed fuels reduction process, but could have more severe impacts from fire suppression activities and more severe wildfire.

Alternative 2 (proposed action):

Under the proposed action the above identified mitigations will be followed. The proposed action has been modified since its original conception to a lighter mechanical treatment with no timber harvest and no road construction, skid trails or need for landings. Following the identified mitigations in conjunction with promoting vegetation age class diversity on the landscape implementation of this alternative should meet VQO's for the project area.

Trails and Recreation use:

Current Recreation Use

Portions of the project area receive varying amounts of recreation use during the winter, summer, and fall seasons. Much of the project area is designated crucial winter range from December 1 through May 1 annually and is closed to all human occupancy. The one exception is Palmer Creek, which is open to foot and snowmobile traffic. During the summer season horse back riding and hiking are popular in the Palmer Creek, Horse Creek, Little Horse Creek, and Camp Creek Saddle areas. The two track road that follows Fall Creek toward the Snake River is popular for recreational driving. The fall is the heaviest recreational use season in the project area with hunting as the primary activity.

The **mechanical treatment areas** border private property. It is likely that landowners adjacent to the National Forest hike out their back yards onto National Forest but the effects of the mechanical treatments to this recreation use are expected to be minimal and of short term duration. There may be some disruption of activities during actual cutting and burning operations.

Horse Creek Prescribed Fire Area – Two permitted outfitters operate within and along the boundary of this treatment area. Table 1 describes the level of permitted use. In addition to National Forest system trails there is a network of non-system, permitted trails that originate from the Mill Iron Ranch. A map depicting system and non-system trails is attached to recreation report. Camp Creek is a popular trailhead for private recreational users who wish to access Little Horse Creek and Horse Creek, since lower Horse Creek is closed to public access due to private property. Portions of the Little Horse Creek trail and the Camp Creek Saddle are on the boundary of the project area.

Table 1.

Outfitter	Permitted Service Days
Mill Iron Ranch	1500
Spotted Horse Ranch	300

Palmer Creek Prescribed Fire Area – The Palmer Creek system trail passes through the middle of this treatment area. In addition there are two important non-system trails that receive regular use by the public (see attached map). During the summer months there is no permitted outfitter use within the treatment area but Spotted Horse Ranch rides the ridge trail which is the treatment area boundary. The Spotted Horse Ranch is permitted 1500 service days for day use horseback rides in the Willow Creek drainage. The Palmer Creek trail is popular for day hikes and horseback rides in the summer. The Palmer Creek trail and other non-system trails receive the most use during the fall hunting season, which begins September 1 with archery season for deer, elk and moose, and regular season for grouse. There are approximately 16 hunting outfitters who could potentially hunt in the Palmer Creek area for big game. The hunting in Palmer Creek seems to improve as the season progresses. The Palmer Creek drainage probably does receive a minor amount of snowmobile traffic in the winter, and somewhat more cross country ski traffic.

Fall Creek Prescribed Fire Area – Most of the recreation use within this project area consists of recreational driving along Fall Creek between the Fall Creek Road and the private land bordering the Snake River Highway. There is a system trail that forms the northwest boundary of the project area that receives a great deal of motorcycle use and some hiking use.

Recommended Mitigations

Spring burning within the Prescribed Fire Treatment Areas would cause the least disruption to recreation activities. Spring burning should be considered if it can be accomplished within prescription. Burning during the fall hunting season from September 1 through October 31 would cause the greatest impact to recreation. If burning during this period is the most viable option it is recommended that the following be implemented:

- Early public notification through all available media such as newspapers, radio, web, signs posted at local access points, personal calls to permitted outfitters
- Minimize area and trail closures to the least amount of time necessary to provide for public and firefighter safety
- Only close one project area at a time to allow displaced use to disperse
- Have a Special Order signed to make closures enforceable
- Staff the popular access points with Forest Protection Officers during the time of day most likely to target hunter access (pre-dawn, 0500-0900) to enforce closures.
- For mechanical treatments and some burns where possible, cessation of activities over weekends or first day of hunting season would reduce the effect on recreation use.

Wildlife effects:

The proposed project occurs primarily in Management Prescription 12. Management emphasis is on providing important habitat for big-game such as winter ranges, calving areas, and security areas. Management provides for habitat capability and escape cover, and maintains semi-primitive non-motorized opportunities that emphasize big-game hunting activities. Management emphasis here is to provide long-term and short-term habitat to meet the needs of wildlife managed in balance with timber harvest, grazing, and minerals developmnet. All surface-disturbing activities are designed to have no effect or beneficial effects on wildlife.

Mechanical treatments would remove small diameter conifer. In addition, decadent aspen clones scattered through the mechanical units would be treated to remove conifer encroachment and stimulate aspen regeneration.

Prescribe burn treatments will rejuvenate aspen stands, reduce sagebrush density, reduce dead and down material, thin understory conifer to reduce ladder fuel loadings. This would reduce the potential wildfire intensities within this area. A mosaic of interspersed burn and unburned areas is the desired condition to maintain at least a third of the shrub/grassland type and aspen or conifer/shrub ecotones in a mature age class.

No new roads would be constructed within these mechanical treatment areas.

Threatened, Endangered, Proposed, and Experimental Species

This project "**may affect, likely to adversely affect**" lynx, but **" will not jeopardize the continued existence of"** the experimental gray wolf population.

Region 4 Sensitive Species

The project **"may impact individuals or habitat"** of the following R4 Sensitive bird species: ***Bald Eagle, Great Gray Owl, Boreal Owl, Three-toed Woodpecker, and Northern Goshawk*** but **will not contribute to a trend toward federal listing or cause a loss of viability to the population or species.** Mechanical treatment in the North Willow Creek Unit **"may be beneficial**" to maintenance of present and future eagle nesting and roosting habitat**.** The project **"may impact individuals or habitat" of *Columbia Spotted Frog,*** but **will not**

contribute to a trend toward federal listing or cause a loss of viability to the population or species The project will result in "**no impact**" to any other R4 Sensitive birds and mammals.

Bridger-Teton National Forest Management Indicator Species (MIS)

In addition to "T&E" and Region 4 Sensitive species, the Bridger-Teton Forest Plan includes harvested trout, big game species, and ecological indicator species as MIS. The project **"may impact individuals or habitat, but will not contribute to a trend towards federal listing or cause a loss of viability for"** ***Brewer's Sparrow, neo-tropical migratory birds, elk, mule deer, moose, bighorn sheep, American marten and boreal chorus frog*****.** Treatments **"may be beneficial"** to future forage quality and quantity for the four ungulate species**.** This project is anticipated to have "**no impact**" to all other MIS.

The follwing project design criteria are necessary to comply with Forest Plan management standards and application of guidelines where field conditions warrant, and to help minimize or assure no adverse impacts to T&E, Sensitive, and MIS species if the action alternative is chosen:

1.) Active goshawk nest areas will be managed with a 30-acre minimum nest buffer zone and either excluded from treatment or treated with a prescription to maintain and enhance preferred nest stand structural character. A Post-fledgling Family Area (PFA) of approx. 600 acres also will be delineated around the nest site. Human presence within the nest buffer zone and PFA would be restricted during the breeding season of 3/1 through 8/30.

2.) Special Food Storage Order (004-000-025) will be followed, by any personnel involved with project implemntation. Food must be placed within a solid sided building, bear resistant container or hung at least 10 feet off the ground and 4 feet from any supporting structure. Garbage and grease must be stored like food. Never bury garbage.

3.) If a nest, den, or important site for any TES species is found within any of the treatment areas, activities may need to be curtailed or additional restrictions imposed to avoid adverse impacts. Identified nest trees and/or den sites will be protected by establishing buffer zones. Buffers will be determined on a case-by-case basis as deemed necessary in order to protect the species present. Buffer zones shall be delineated on the ground prior to or during project implementation as sites are discovered.

4.) Human activity will be restricted from 11/15 to 4/30 in big game winter ranges and in elk calving areas from 5/15 to 6/30 if elk are present in the area

5.) Prescribe burn units within big game winter range areas should be treated in a mosaic pattern to assure retention of at least 30% of shrub/grassland

and aspen or conifer/shrub ecotones in a mature age class. It is desirable that stand replacement patch size in burned forest stands does not exceed 10 acres.

6.) Prescribed burning is recommended during early spring prior to green-up or late fall after dormancy to help assure a strong sprouting response from cool season grasses and mountain shrubs, especially bitterbrush which is easily susceptible to mortality from fire.

7.) Broad-scale treatments are not recommended from 5/1 to 7/15 in order to avoid disturbance to nesting owls and other neo-tropical migratory birds. Application of low to moderate intensity prescribed broadcast burning is acceptable within the Wildland Urban Interface during this time frame. Fire application will strive to attain a Mosaic burn pattern to enhance seral stage diversity in the treated area.

8.) Maintain at least 4 down logs per acre at least 12 inches diameter (at large end) and 20 feet long. Snags and cull trees (of the largest diameter available) should be maintained in clumps along the perimeter of each unit at or above 4-6 per acre where present.

9.) Retain 5-7 tons per acre of coarse woody debris in all project units. If uncertain whether objective can be met in areas currently deficient in downed woody materials, recommend retention of at least two evenly-distributed slash piles per acre.

10.) No fuel reduction preparation, treatment or monitoring activities within 800 meters of an occupied bald eagle nest from approximately February 15 through August 15. A Bald Eagle nest site does exist north of Hoback Junction.

a. Large-diameter Douglas-fir and spruce trees (15”dbh or greater) along the Hoback and Snake River corridors will not be cut or killed with fire to avoid loss of bald eagle nest, perch and roost sites. **Under the proposed action no trees of the above mentioned size class will be cut.**

13.) All wetlands, ponds, and streams will be avoided during project implementation, no equipment or ignition sources will be allowed in such areas. If riparian vegetation extends further than the defined buffer widths, the buffer will be extended to include all riparian vegetation. Known sites include a pond along the Palmer Creek Trail, Palmer Creek and the Fall Creek riparian zone.

Monitoring

Required Monitoring Lynx Forest Plan Amendment

Report the acres of fuel treatment in lynx habitat within the wildland urban interface, as defined by HFRA, when the project decision is signed. Report whether or not the fuel treatment met the vegetation standards. If standard(s) are not met, report which standard(s) are not met, whey they were not met, and how many acres were affected.

Aspen

1. Because it is of particular importance to the health and diversity of aspen to manage browse levels by livestock and other ungulates, the *Browsed Plant Method* which assesses the level of herbivory occurring on young and sprouting aspens will be used for monitoring and inventory of aspen in the North Willow mechanical treatment unit. The method gathers data on the percentage of young plants browsed in a delineated stand of cohorts and the degree to which the population, as a whole, has interrupted or arrested growth. This would provide for an effective and consistent method of evaluating browse effects on this species.

Methods for data collection can be found in the following report –*Browsed Plant Method for Young Quaking Aspen, An Annual Monitoring Method for Determining the Incidence of Use on Sprouts and Young Plants During the Growing Season-Dec. 2004).*

Locations to monitor will be chosen based on *critical area/ key area concept.* An individual aspen clone may be referred to as a *Critical Area* if special management consideration is needed because of biodiversity characteristics OR an individual clone can be described, as a *key area* where the clone is representative sample of a larger stratum of aspen clones at the pasture, herd unit, watershed, or landscape level.

Raptors

2. Before treatments are implemented, broadcast surveys for Northern goshawks and owls will be completed if funds are available to locate possible nest sites within the project area.

3. The bald eagle nest site north of Hoback Junction will be monitored in March and May to ascertain activity status.

Environmental Effects of Other Resources

Smoke and Air Quality

Project implementation includes the disposal of slash generated through burning of hand piles as well as broadcast burning over 3631 acres. Burning of hand piles will be undertaken in the fall and early winter months after the first accumulations of snow.

With the burning of piles and broadcast burning will come associated impacts of smoke on the subdivisions near the project area as well as to Highway 191/189 just north of the project area. Burning will adhere to Wyoming state guidelines related to smoke emissions and any burning done will have a burn permit secured from the State prior to any ignitions. Burning of piles will only occur on days when atmospheric conditions are such that most emissions drift into the upper atmosphere and away from developed areas. Fire and fuels personnel on the Jackson Ranger District of the Bridger-Teton National Forest would develop prescriptions and utilize smoke dispersal models (such as the Simple Approach to Smoke Emissions Model – SASEM) to help develop plans for minimizing smoke impacts to the surrounding area.

The Bridger-Teton National Forest would notify the public through press releases at least two days prior to any ingnitions in the treatment areas. Attempts would be made to make personal contact with adjacent landowners prior to pile ingnitions.

A prescribed fire burn plan will be prepared addressing smoke and other issues related to the ignition of piles.

SENSITIVE PLANTS

Threatened & Endangered/Sensitive Plants

United States Fish and Wildlife Service: Currently, four plant species are listed as Threatened or Endangered in the State of Wyoming by the US Fish and Wildlife Service. Of these, only Spiranthes diluvialis (Ute ladies' tresses) has a potential of occurring in western Wyoming. However, Spiranthes diluvialis has not been located within Teton County, Wyoming nor the Bridger-Teton National Forest. Surveys for Spiranthes diluvialis include Walter Fertig's 1998 Plant Species of Special Concern and Vascular Plant Flora of the National Elk Refuge, George Jone's 2000 Survey of BLM – Managed lands along the Snake River in Jackson Hole, Wyoming for Ute Ladies Tresses (Spiranthes diluvialis), and a 2001 unpublished survey for Ute Ladies Tresses (Spiranthes diluvialis) along the Fall Creek Road Realignment Project, Teton County, Wyoming by Charmaine R. Delmatier. None of these surveys found Spiranthes diluvialis.

Forest Service Sensitive Plants: The current Sensitive plant species list for Region 4 (covering Ashley, Bridger-Teton, Caribou, Targhee, and Wasatch-Cache National Forests and Flaming Gorge National Recreation Area in Wyoming) was last revised in 1994 (Joslin 1994). The revised 1994 list contains 18 plant species designated as Forest Service Sensitive Plant Species and are listed in the table below. None of the sensitive plant species currently designated as Forest service Sensitive was found within the designated project area of this analysis.

Agoseris lackschewitzii	*Pink agoseris*	*NP*

Androsace chamaejasmine ssp.carinata	*Sweet-flowered rock-jasmine*	*NP*
Astragalus diversifolius var. divesifolius	*Meadow milkvetch*	*NP*
Astragalus jejunus var. jejunus	*Starveling milkvetch*	*NP*
Astragalus paysonii	*Payson's milkvetch*	*NP*
Carex incurviformis var. danaensis	*Incurved sedge*	*NP*
Carex luzulina var. atropurpurea	*Black & purple sedge*	*NP*
Descurainia torulosa	*Wyoming tansymustard*	*NP*
Draba borealis	*Boreal draba*	*NP*
Draba densifolia var. apiculata	*Rockcress draba*	*NP*
Erigeron lanatus	*Woolly fleabane*	*NP*
Ericameria discoidea var. linearis *[Haplopappus macronema var. linearis]*	*Narrowleaf goldenweed*	*NP*
Lesquerella paysonii	*Payson's bladderpod*	*NP*
Parrya nudicaulis	*Naked-stemmed parrya*	*NP*
Physaria integrifolia var. monticola	*Creeping twinpod*	*NP*

Primula egaliksensis	*Greenland primrose*	*NP*
Saussurea weberi	*Weber's saw-wort*	*NP*
Symphyotrichum molle [Aster mollis]	*Soft aster*	*NP*

Source:
http://www.npwrc.usgs.gov/resource/plants/wyplant/wyolist.htm

NP = Not Present

NI = No Impact

MIIH = May Impact Individuals Or Habitat, But Will Not Likely Contribute To A Trend Towards FederalListing Or Loss Of Viability To The Population Or Species

WIFV* = Will Impact Individuals Or Habitat With A Consequence That The Action May Contribute To A Trend Towards Federal Listing Or Cause A Loss Of Viability To The Population Or Species

BI = Beneficial Impact

Wyoming Species of Special Concern:

Three species (also listed as R4 Sensitive by the Wyoming Natural Diversity Database (WYNDD)) were suspected to occur in the project area. Occurrences of Astragalus paysonii, Draba borealis, and Lesquerella paysonii were listed as being found near the project area by the Wyoming Rare Plant Field Guide (Fertig et al 1994), yet were not observed within the delineated project area.

Heritage Resources

Effects to Heritage Resources

Based on the letter from the State of Wyoming Historic Preservation Office (referencing SHPO project 0707JPL001) the state agrees with Forest Service Archeologists that the project should be allowed to proceed in accordance with state and federal laws subject to the following stipulation: If any cultural materials are discovered during mechanical thinning and broadcast burning, work in the area shall halt immediately, the federal agency must be contacted and the materials evaluated by an archaeologist or historian meeting the Secretary of the Interiors Professional Qualification Standards (48FR 22716, Sept. 1983).

To date, 3 potentially Traditional Cultural Properties (sites: 48TE1731, 48TE1732, 48TE1733) have been identified within or adjacent proposed fuel reduction areas.

Project managers are aware of the locations and the sites are easily protected and will be accounted for in project planning.

Alternative 1

There would be no direct, indirect or cumulative effects to heritage resources under this alternative.

Alternative 2

There would be no direct, indirect or cumulative effects to heritage resources under this alternative.

Direct and Indirect Effects

The potential direct effects to heritage resources as a result of prescribed fuel reduction activities vary depending on the type of heritage resource involved and the intensity of the fire. Sites, such as prehistoric lithic scatters or campsites may receive little or no damage from fire if the fire is a low intensity fire that sweeps quickly across the site. Any mechanical treatment resulting in ground disturbance has a greater potential for affecting prehistoric and historic sites. Piling and burning slash piles has potential for disturbing cultural remains occurring at those locations.

Indirect effects may occur to archaeological sites located in vicinity of specific project areas while accessing work areas or even during work breaks.

Cummulative Effects

Cumulative ground disturbance associated with any activity could be directly correlated to an increased potential to impact heritage resources; the greater the amount of ground disturbance, the greater the potential to impact these resources. Overall, this project involves minimal ground disturbance and is not likely to impact heritage resources. Cumulative effects to heritage resources may occur when fuel reduction work reduces the vegetation cover and archaeological sites might become more visible leading to vandalism or un-authorized artifact collecting.

Cumulative effects to traditional cultural properties are difficult to analyze considering the differing worldviews and belief systems currently in existence and the difficulty in identifying these site types. To date, no Traditional Cultural Properties have been identified within proposed fuel reduction areas. If any are identified during the course of the project, the appropriate actions will be taken in consultation with SHPO and Tribal governments. Employing criteria established through Tribal consultation and compliance with the NHPA may mitigate cumulative effects, but this is uncertain.

The complete specialists report on Heritage Resources can be accessed through the project record.

Threats to Private Citizens, Lands and Structures:

Some publics have voiced concerns over the risk of Prescribed Burning as related to private lands, structures adjacent to burn units.

Alternative 1 (no action): Under the no action alternative, no change in the threats to values would occur related to this project. Existing threats to values would continue as they have over time. The threat to values from wildfire ignitions near the project area would amplify over time with no treatment of the surrounding vegetation. Fuels would continue to increase in volume over time and the threat from high severity wildfire would increase, both to private values as well as threats to values on National Forest System lands. In some cases the Forest Service would not be able to safely engage in fire suppression using ground forces.

Alternative 2: Under the action alternative implementation of prescribed burning comes with inherent risks. Fire and fuels management staff are required under policy to evaluate and mitigate threats and risk when undertaking any prescribed burning activity. Mitigations and prescription development are a required part of plans to implement prescribed burning activities. Prescribed burn plans would set prescription limits and mitigations which would minimize the risk to values and the public.

Fisheries:

Alternative 1 (no action): The no-action alternative could result in a fire with potential to cause mass erosion and impact fish. The proposed project would reduce the probability of a severe fire and implementation would have a low possibility of impacting fish habitat and may impact individuals but not likely to cause a trend to federal listing of a loss of viability for Sensitive and Forest Service Management Indicator Species.

Alternative 2: Analysis of available fisheries data (past and present) and the description of the proposed project as described in the June 20, 2006 project initiation letter it has been determined that short-term impacts of the project "May impact individuals but not likely to cause a trend to federal listing of a loss of viability" to designated BTNF sensitive and management indicator fish species based on the absence of substantially additive effects from past, present, and reasonable foreseeable actions in the analysis area.

Comparison of Alternatives

	ALT. 1 **NO ACTION**	**ALT. 2** **PROPOSED ACTION**
Canopy Base Height (feet) 1	0-30	>10
Crown Fire Hazaard	Low to high	Low to moderate
Available Canopy Fuel	Low to high	Low to moderate
Dead/Down fuel loading 1 (tons/acre)	5 to >30	<= 7
Smoke particulates from	None	Mod

prescribed burning		
Sediment	No effect	No effect to slight increase
Wildlife Habitat	high severity fire could have adverse effects to large areas. Aspen could increase in stature.	lower intensity fire or light mechanical treatments increase diversity of vegetation. Aspen enhancement likely.
Economics		
Total project cost ($) 2	0	~$366000
Chance of Severe Wildfire	Increase over time	decreases after successful implementation

1 These values would hold true specifically for mechanical treatments. For broadcast burning the effect may be variable including meeting this result to no change. In general Broadcast burning will be prescribed to meet or exceed project objectives.

2 Cost based on $500/ac for mechanical and $60/ac for Broadcast Burning. Season of burning may effect actual cost per acre fro broadcast burning implementation, $60/ac is a general middle ground cost for implementation. Refer to Total Project Cost below for more description.

DISCUSSION OF ALTERNATIVES EFFECTS:

Crown Base Height: Defined as the vertical distance form the ground to the bottom of the live crown of an individual tree. This definition also incorporates the presence of understory trees and other ladder fuels in the stand. The current conditions show areas with high crown base heights and areas of thick spruce/fir type forest with very low crown base heights, as well as some areas with crown base heights which do not pose a significant threat. The intent of the proposed action is to increase crown base heights in areas where ladder fuels and stand structure put the existing crown base height near ground level. Increasing crown base height will lessen the probability of crown fire occuring in the project area.

Crown Fire Hazard: Defined as a physical situation (fuels, weather and topography) with potential for causing harm or damage as a result of crown fire. The proposed action will reduce the crown fire hazard by reducing fuel loadings and crown base heights in the project area. Fires starting in the project area will exhibit low to moderate crown fire hazard after treatments, depending on level of treatment. Crown fires initiated in adjacent areas (USFS or private) and moving into treated areas may continue to burn as crown fires in the treated areas if burning conditions alow, but, treatments would lessen the potential for these fires to continue as crown fires.

Available Canopy fuel: Defined as the mass of canopy fuel that could be consumed in a crown fire. This includes foliage and the very small branch wood present in the stand canopy structure. The proposed action would reduce the available canopy fuels present in the project area. Doing so would decrease the crown fire hazard in the Hoback Junction Fuels Reduction project area.

Dead Down Fuel Loadings: Defined as the weight per unit area (tons/acre) of dead and down woody fuels. Of greatest concern are dead and down woody fuels greater than 1" in diameter. There is variation throughout the project area in the level of dead and down woody fuels present. The goal of the proposed action is to reduce the levels of dead and down woody fuels to no greater than 7 tons per acre across the entire project area. This

amount of dead and down fuels will significantly reduce the intensity of any wildfires within the treatment areas under all but the most severe burning conditions.

Wildlife: Effects on wildlife habitat in the project will be variable and species specific. Wildlife design criteria have been developed and are fully documented in the project record.

Chance of Severe Wildfire: Through manipulation of the vegetation in the project area the chances of severe wildfire impacts in the treatment area will be decreased. The goal of the proposed action is to increase the amount of defensible space on USFS lands which are adjacent to private lands. These fuels reduction measures are designed to promote wildland firefighter and public safety, as well as increasing the defensibility of private lands and structures in the wildland urban interface area. As part of a silvicultural prescription for this project, a maintenance schedule will be determined to identify time frames for reentry into treatment areas to keep fuel volumes at a level to maintain the desired condition of lower fuel volumes and less probability of severe wildfire occuring in these areas.

Total Project Cost: True cost of implementing any of the alternatives has yet to be determined. An estimate has been given based on cost comparison of projects of this nature that have occurred on the Bridger-Teton National Forest. In all likelihood implementation would take place over several years, spreading the cost over time. Different methods of implementation could change the estimated costs given in table 3.1 considerably. As related to costs to suppress an unwanted ignition in the project area, the estimated total implementation cost of $366000 as depicted in table 3.1, provides for expected lessened suppression costs during initial attack or suppression of larger fires which exceed initial attack capabilities. It is expected that initial attack could be accomplished using ground based firefighting resources and possibly locally contracted and staffed light helicopter operations, at costs that would be less than if the area were not treated. Successful project implementation will lessen the chance of fires exceeding initial attack capabilities. Fires exceeding initial attack generally require elevated expenditures to suppress, utilizing multiple suppression resources from outside the local area. General examples of large fire costs locally include: East Table ~3500 acres cost approximatley $3.5 million; Green Knoll ~3500 acres approximately $14 million.

Chapter 4

Preparation and Consultation

List of Preparers

The following are personnel who provided materials and participated in the Interdisciplinary team study for the project.

Chris Vero	Zone Assistant Fire Management Officer
Jim Ozenberger	Zone Ecologist
Rick Dustin	SO Landscape Architect
Terry Hershey/Lance Koch	Zone Wildlife Biologist
Dave Fogle	Zone Fisheries Biologist
Dale Dawson	Forestry Technician/recreation
Jamie Schoen/Merry Haydon	SO Archeologist
Eric Winthers	SO Hydrologist/soils
Liz Davy	SO Silviculturist
Kevin Pfister	Zone Fire Management Officer
Sara Canham	SO Botanist
Susan Marsh	SO Recreation Officer

Individuals, Organizations, and other Agencies Consulted

Agencies

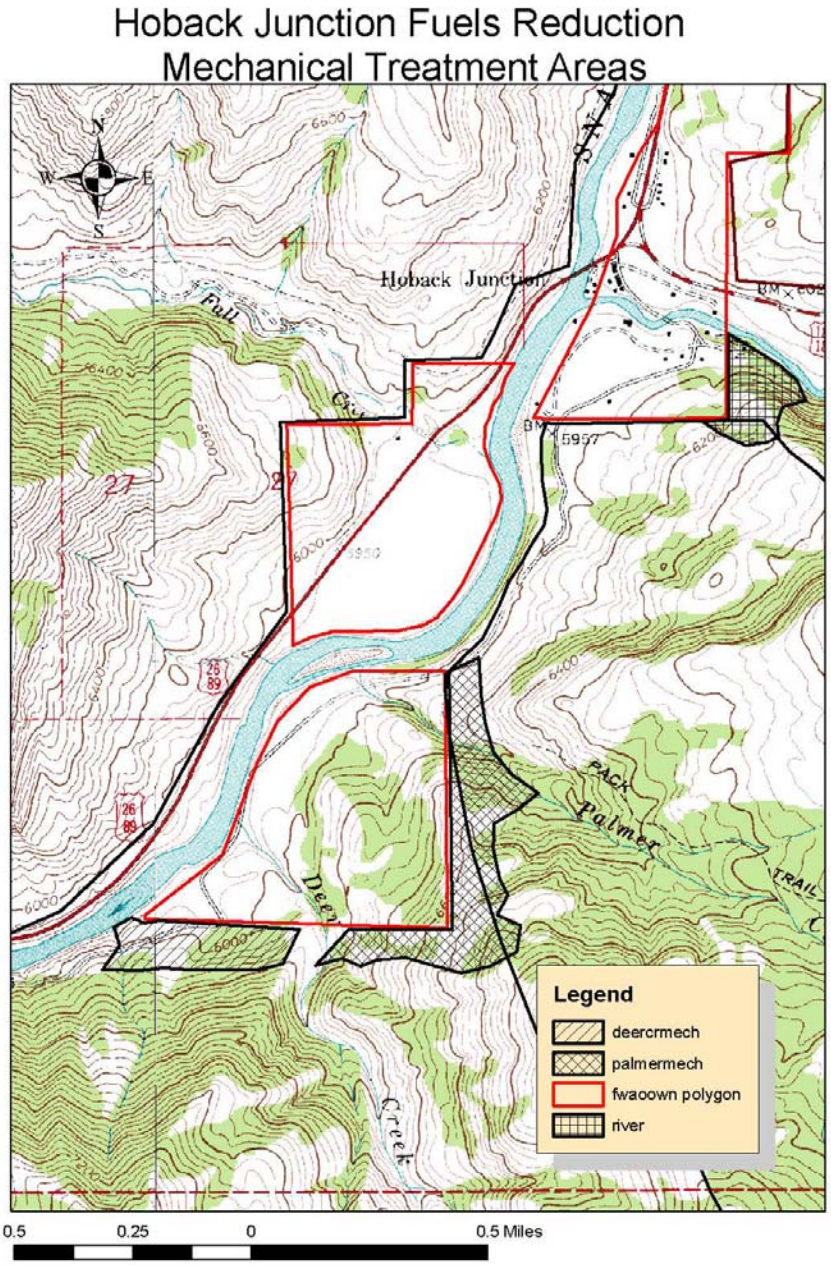
References

References cited and accessed for this analysis can be found in the project record within individual specialists reports.

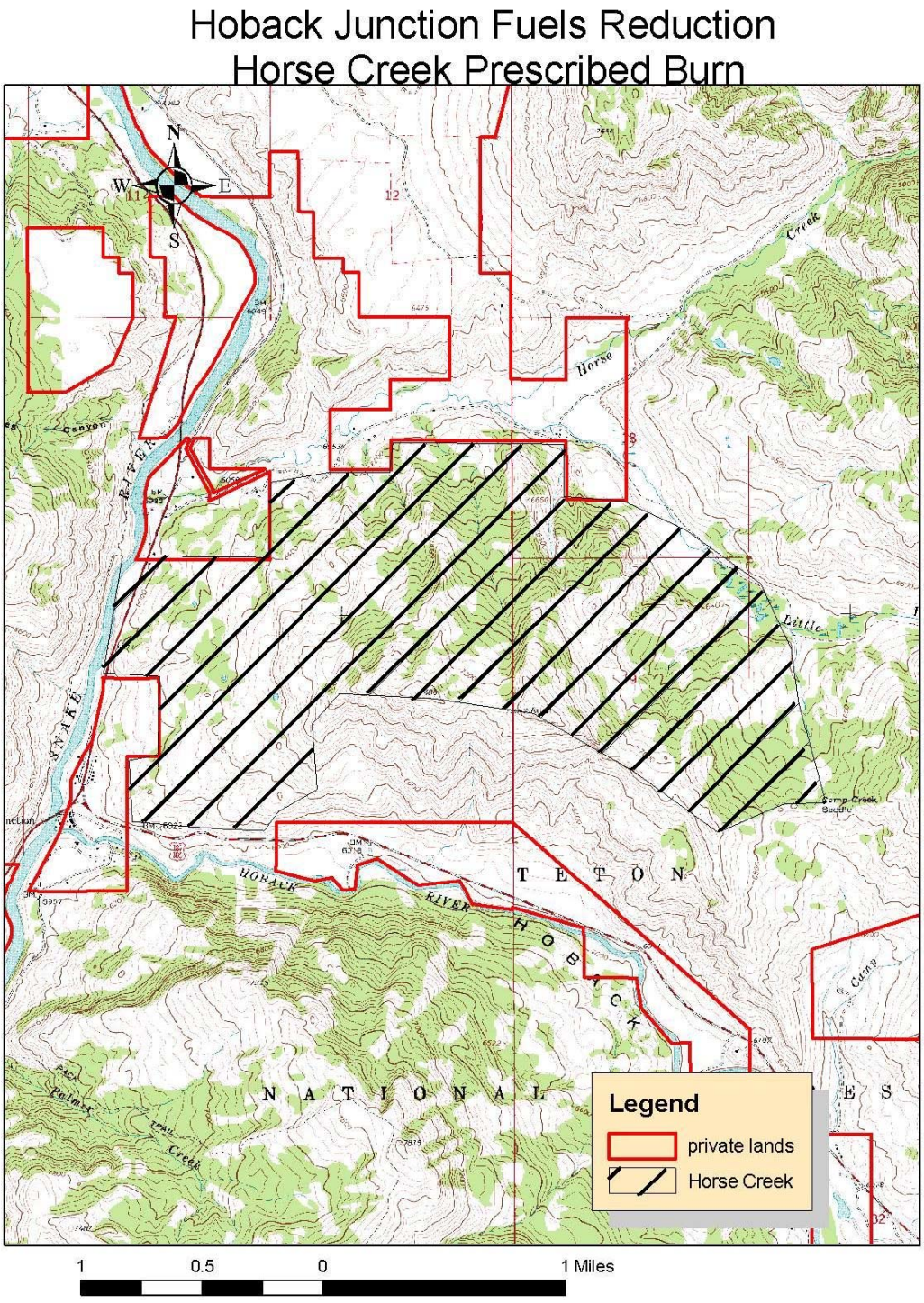
APPENDIX A

TREATMENT AREA MAPS

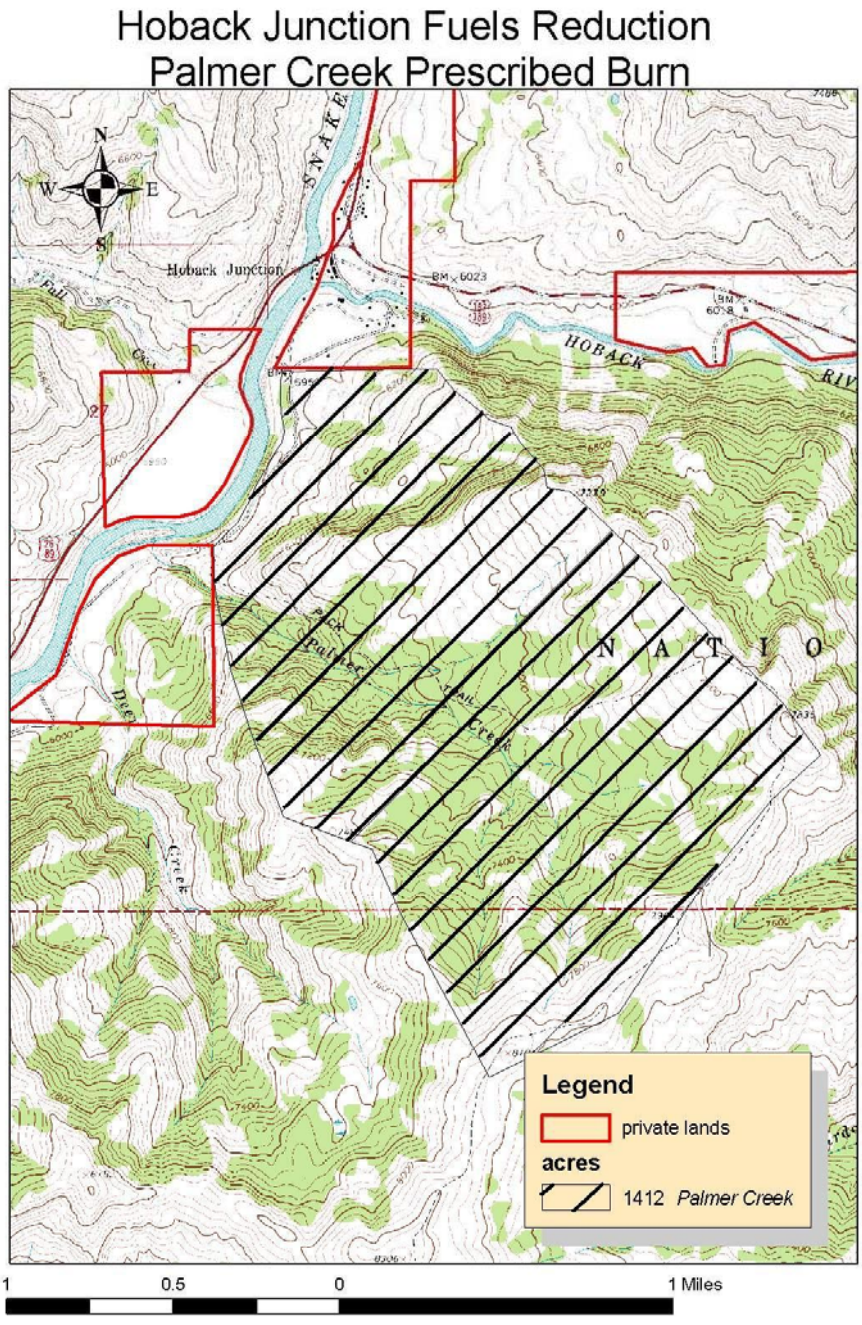
Map 1. Hoback Junction Mechanical Treatment Units.



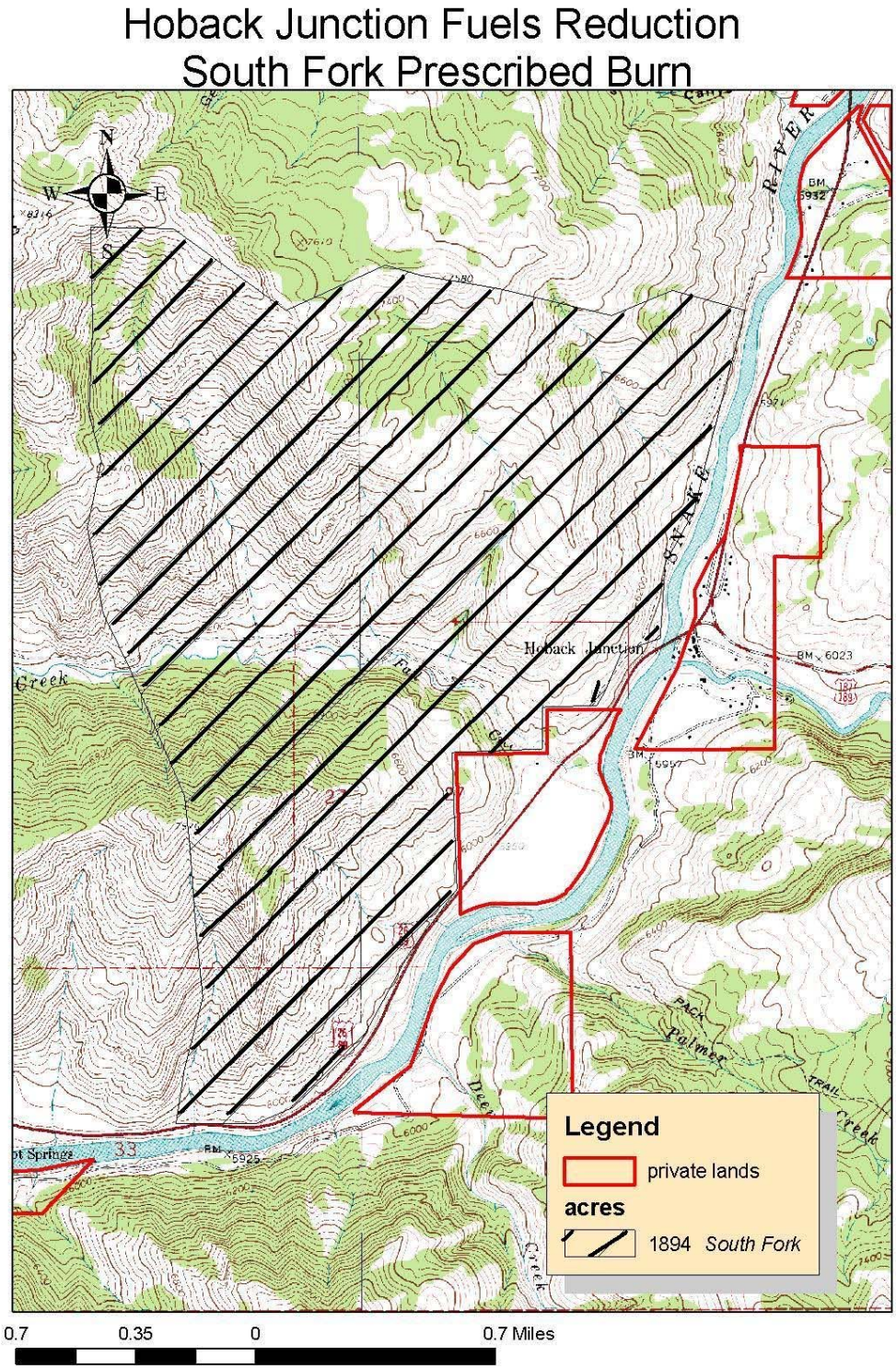
Map 2. Horse Creek Prescribed Burn Unit



Map 3. Palmer Creek Prescribed Burn Unit.

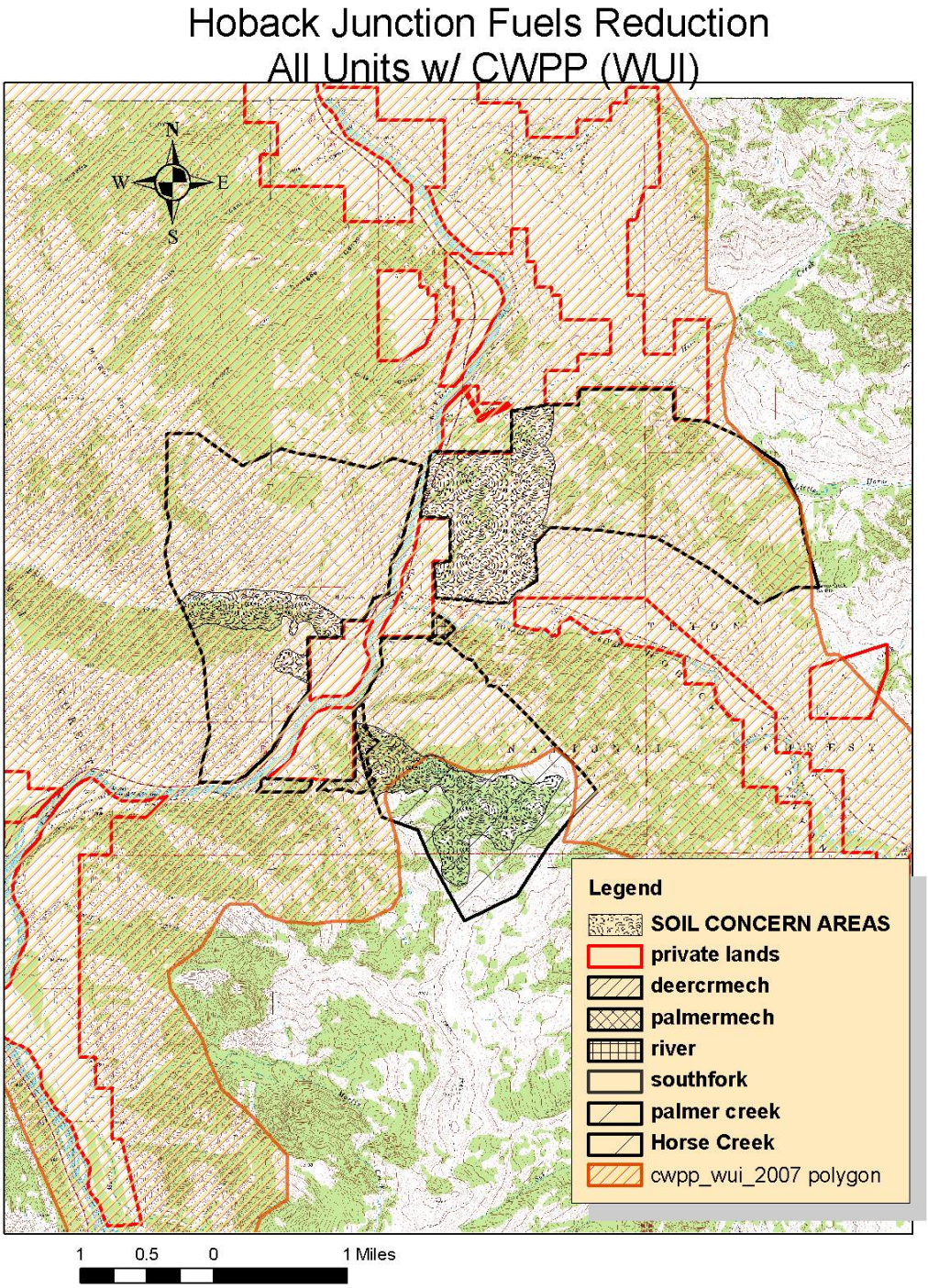


Map 4. South Fork Prescribed Burn Unit.



APPENDIX B

Identified Wildland Urban Interface (CWPP WUI) in the Hoback Junction area from Teton County, WY Community Wildfire Protection Plan.



Appendix C
PRETREATMENT AND POST TREATMENT PHOTOS OF GROS VENTRE RIVER RANCH FUELS REDUCTION PROJECT ON THE JACKSON RANGER DISTRICT – BTNF

GROS VENTRE RIVER RANCH 2004 PRE/POST PHOTOPOINTS

PRE POINT #1 – STAND EXAM PLOT 6 LOOKING SW – SE CORNER UNIT

POST POINT #1 – STAND EXAM PLOT 6 LOOKING SW – SE CORNER UNIT

PRE POINT 2 – STAND EXAM PLOT SIX LOOKING 170 DEGREES

POST POINT 2 – STAND EXAM PLOT SIX LOOKING 170 DEGREES

PRE POINT 3 – NEXT TO LARGE DOWN SNAG ABOVE RIVER BLUFFS 34 DEGREES

POST POINT 3 – NEXT TO LARGE DOWN SNAG ABOVE RIVER BLUFFS 34 DEGREES