Shoshone National Forest

FIRE MANAGEMENT PLAN

Reviewed and Updated by /s/*Mark Giacoletto* **Date** *May 10, 2010*

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Interagency Federal fire policy requires that every area with burnable vegetation must have a Fire Management Plan (FMP). This FMP provides information about the fire management planning process for the Shoshone National Forest and compiles guidance from existing sources suchas but not limited to, the Shoshone National Forest Land and Resource Management Plan (LRMP), national policy, and national and regional directives.

The potential consequences to firefighter and public safety and welfare, natural and cultural resources, and values to be protected help determine the appropriate management response (AMR) during a fire. Firefighter and public safety are the first consideration and are always the priority during every AMR.

The following chapters discuss broad forest and specific Fire Management Unit (FMU) characteristics and guidance.

Chapter 1 introduces the area covered by the FMP, includes a map of the Shoshone National forest, addresses the agencies involved, and states why the forest is developing the FMP.

Chapter 2 establishes the link between higher-level planning documents, legislation, and policies and the actions described in the FMP.

Chapter 3 articulates specific goals, objectives, standards, guidelines and/or desired future condition(s), as established in the forest's LRMP, which apply to all the forest's FMUs and those that are unique to the forest's individual FMUs.

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Chapter 1. INTRODUCTION

The Shoshone National Forest developed this fire management plan (FMP) as a decision support tool to help fire personnel and decision makers determine the appropriate management response to unplanned ignitions. Fire management plans do not make decisions. Instead, they provide information, organized by fire management units (FMUs), which provide a finer scale summarization of information than is possible at the forest level. These descriptions bring specific detail about the identifiable areas on the ground. FMPs are not static documents. They will evolve and be revised as conditions change on the ground and as modifications are made to the unit's LRMP.

Chapter 2. POLICY, LAND MANAGEMENT PLANNING, AND PARTNERSHIPS

Wildland fire is managed according to the prescription parameters in the Forest Plan, which are reflected in the appropriate management response. Core principles of A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment (August 2001) are adopted in the local fire management strategies as well as the policy implementing strategies put forth by the Wildland fire Leadership Council in the Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy .

Priority setting is accomplished at all levels within the Forest, the Forest level, interagency dispatch level, regional, inter-regional, and national. The protection of human life is the single, overriding priority. Setting priorities among protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources will be based on the values to be protected, human health and safety, and the costs of protection. Once people have been committed to an incident, these human resources become the highest value to be protected.

The regulations and policy in the following documents guide the fire management as outlined in this FMP.

2.1. National and Regional Fire Management Policy

Forest Service policy and direction that are relevant to this policy include:

- 1995 Federal Wildland Fire Management Policy and Program Review (January 2001)
- Guidance for Implementation of Federal Wildland Fire Management Policy (February 2009)
- National Fire Plan
- Forest Service Manual 5100
- Forest Service Handbook 5109
- Greater Yellowstone Area Interagency Fire Management Planning & Coordination Guide
- Wyoming State Master Agreement and associated annual operating plans
- Wyoming DEQ Air Quality Standards and Regulations – Chapter 10 – Smoke Management

The 2001 Federal Wildland Fire Management Policy directs federal agencies to achieve a balance between suppression to protect life, property, and resources, and fire use to regulate fuels and maintain healthy ecosystems. The policy provides seventeen guiding principles that are fundamental to the success of the federal wildland fire management program:

1. Safety

Firefighter and public safety is the first priority. All fire management plans and activities must reflect this commitment.

2. Fire Management and Ecosystem Sustainability

The full range of fire management activities will be used to help achieve ecosystem sustainability, including its interrelated ecological, economic, and social components.

3. Response to Wildland Fire

Fire, as a critical natural process, will be integrated into land and resource management plans and activities on a landscape scale, and across agency boundaries. Response to wildland fire is based on ecological, social, and legal consequences of the fire. The circumstances under which a fire occurs and the likely consequences on firefighter and public safety and welfare, natural and cultural resources, and values to be protected dictate the appropriate management response to the fire.

4. Use of Wildland Fire

Wildland fire will be used to protect, maintain, and enhance resources and, as nearly as possible, be allowed to function in its natural ecological role. Use of fire will be based on approved fire management plans and will follow specific prescriptions contained in operational plans.

5. Rehabilitation and Restoration

Rehabilitation and restoration efforts will be undertaken to protect and sustain ecosystems, public health and safety, and to help communities protect infrastructure.

6. Protection Priorities

The protection of human life is the single, overriding priority. Setting priorities among protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources will be based on the values to be protected, human health and safety, and the costs of protection. Once people have been committed to an incident, these human resources become the highest value to be protected.

7. Wildland Urban Interface

The operational roles of federal agencies as partners in the Wildland Urban Interface are wildland firefighting, hazardous fuels reduction, cooperative prevention and education, and technical assistance. Structural fire suppression is the responsibility of tribal, state, or local governments. Federal agencies may assist with exterior structural protection activities under formal Fire Protection Agreements that specify the mutual responsibilities of the partners, including funding. (Some federal agencies have full structural protection authority for their facilities on lands they administer, and may enter into formal agreements to assist state and local governments with full structural protection.)

8. Planning

Every area with burnable vegetation must have an approved fire management plan. Fire management plans are strategic plans that define a program to manage wildland and prescribed fires based on the area's approved land management plan. Fire management plans must provide for firefighter and public safety; include fire management strategies, tactics, and alternatives; address values to be protected and public health issues; and be consistent with resource management objectives, activities of the area, and environmental laws and regulations.

9. Science

Fire management plans and programs will be based on a foundation of sound science. Research will support ongoing efforts to increase our scientific knowledge of biological, physical, and sociological factors. Information needed to support fire management will be developed through an integrated interagency fire science program. Scientific results must be made available to managers in a timely manner and must be used in the development of land management plans, fire management plans, and implementation plans.

10. Preparedness

Agencies will ensure their capabilities to provide safe, cost-effective fire management programs in support of land and resource management plans through appropriate planning, staffing, training, equipment, and management oversight.

11. Suppression

Fires are suppressed at minimum cost, considering firefighter and public safety, benefits, and values to be protected, consistent with resource objectives.

12. Prevention

Agencies will work together and with their partners and other affected groups and individuals to prevent unauthorized ignition of wildland fires.

13. Standardization

Agencies will use compatible planning processes, funding mechanisms, training and qualification requirements, operational procedures, value-to-be-protected methodologies, and public education programs for all fire management activities.

14. Interagency Cooperation and Coordination

Fire management planning, preparedness, prevention, suppression, fire use, restoration and rehabilitation, monitoring, research, and education will be conducted on an interagency basis with the involvement of cooperators and partners.

15. Communication and Education

Agencies will enhance knowledge and understanding of wildland fire management policies and practices through internal and external communication and education programs. These programs will be continuously improved through the timely and effective exchange of information among all affected agencies and organizations.

16. Agency Administrators and Employee Roles

Agency administrators will ensure that their employees are trained, certified, and made available to participate in the wildland fire program locally, regionally, and nationally as the situation demands. Employees with operational, administrative, or other skills will support the wildland fire program as necessary. Agency administrators are responsible and will be held accountable for making employees available.

17. Evaluation

Agencies will develop and implement a systematic method of evaluation to determine effectiveness of projects through implementation of the 2001 Federal Fire Policy. The evaluation will ensure accountability, facilitate resolution of areas of conflict, and identify resource shortages and agency priorities.

Implementation direction for the Federal Wildland Fire Management Policy was updated in June of 2003 and documented in the Interagency *Strategy for the Implementation of Federal Wildland Fire Management Policy*. In February 2009, the Fire Executive Council issued updated implementation direction in a new document titled, *Guidance for Implementation of Federal Wildland Fire Management Policy*. This updated guidance consolidates and clarifies changes that have occurred since the 2003 strategy document was issued, and provides revised direction for consistent implementation of the *Review and Update of the 1995 Federal Wildland Fire Management Policy (January 2001)*. The new implementation document provides the following guidelines for consistent implementation of federal wildland fire management policy.

1. Wildland fire management agencies will use common standards for all aspects of their fire management programs to facilitate effective collaboration among cooperating agencies.
2. Agencies and bureaus will review, update, and develop agreements that clarify the jurisdictional inter-relationships and define the roles and responsibilities among local, state, tribal and federal fire protection entities.
3. Responses to wildland fire will be coordinated across levels of government regardless of the jurisdiction at the ignition source.
4. Fire management planning will be intergovernmental in scope and developed on a landscape scale.
5. Wildland fire is a general term describing any non-structure fire that occurs in the wildland. Wildland fires are categorized into two distinct types:
    a. Wildfires – Unplanned ignitions or prescribed fires that are declared wildfires
    b. Prescribed Fires - Planned ignitions.
6. A wildland fire may be concurrently managed for one or more objectives and objectives can change as the fire spreads across the landscape. Objectives are affected by changes in fuels, weather, topography; varying social understanding and tolerance; and involvement of other governmental jurisdictions having different missions and objectives.
7. Management response to a wildland fire on federal land is based on objectives established in the applicable Land/ Resource Management Plan and/or the Fire Management Plan.
8. Initial action on human-caused wildfire will be to suppress the fire at the lowest cost with the fewest negative consequences with respect to firefighter and public safety.
9. Managers will use a decision support process to guide and document wildfire management decisions. The process will provide situational assessment, analyze hazards and risk, define implementation actions, and document decisions and rationale for those decisions.

2.2. Shoshone National Forest Land and Resource Management Plan

Shoshone National Forest Land and Resource Management Plan and Record of Decision was completed in January of 1986. The 1986 Forest Plan established protection goals, objectives, and standards and guidelines pertaining to wildland fire management. As stated in the 1986 Forest Plan, general direction, policy and technologies will be considered with implementation of fire management activities.

As described above in Section 2.1, a change in fire policy occurred with the Review and Update of the 1995 Federal Wildland Fire Management Policy. Recent updates to federal wildland fire policy have placed increased emphasis on implementing the appropriate management response for all wildland

fire. In addition, fire management processes that were outlined in the Forest Plan and wilderness fire management guidebooks were different than what were put forth in the revised federal fire policies. Because of the changes in policy, the direction pertaining to wildland fire management activities in the 1986 Forest Plan was amended in June of 2008 (Forest Plan Amendment 2008-01). Since the 1986 Forest Plan was approved, there were some changes to accepted fire terminology. Forest Plan Amendment 2008-01 reflects the changes in terminology. Definitions of new and revised fire management terms can be found and in the *Guidance for Implementation of Federal Wildland Fire Management Policy (February 2009)*. A complete list of currently accepted terminology is maintained in the NWCG Glossary of Wildland Fire Terminology.

When the 1986 Forest Plan was approved, wildland fire use was referred to as either prescribed natural fire, unplanned ignition, or wilderness fire. Implementation direction from the 1995 wildland fire policy update resulted in the term "wildland fire use" when referring to natural ignitions that were managed for resource benefits. The most recent change in implementing direction for federal wildland fire policy now identifies all unplanned ignitions as a "wildfire" that will receive an appropriate management response based on land management objectives as well as firefighter and public safety. Forest Plan Amendment 2008-01 updated the language regarding wildland fire use to be consistent with current terminology.

2.3. Partnerships

The Shoshone National Forest collaborates with interagency partners in developing the Wyoming Interagency Cooperative Fire Protection Agreement, Wyoming Interagency Fire Restriction Plan, and the Greater Yellowstone Area Interagency Fire Management Plan. The Forest participates in the Cody Interagency Dispatch Zone Coordination Group, and the Rocky Mountain and Northern Region Coordinating Groups. The Forest also supports the interagency helicopter at Ft Washakie. Agreements and annual operating plans have been prepared with the interagency partners and are located in the SHF fire management electronic reference file.

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Chapter 3. FIRE MANAGEMENT UNIT DESCRIPTIONS

The primary purpose of developing FMUs in fire management planning is to assist in organizing information in complex landscapes. Fire management units divide the landscape into smaller geographic areas to easily describe safety considerations, physical, biological, social characteristics and to frame associated planning guidance based on these characteristics.

The following information, including the summaries of fuel conditions, weather and burning patterns, and other conditions in specific FMUs, helps determine the appropriate management response (AMR) to an unplanned ignition and provides a quick reference to the strategic goals in the Shoshone National Forest Land and Resource Management Plan (LRMP).

3.1. Fire Management Consideration for Specific Applications to All Forest Fire Management Units

The Forest has been divided into six fire management units (Figure 1). Each fire management unit (FMU) is sub-dived into the three management response zones (Figure 2). The fire management units and response zones (Map 1) have been developed based on the Forest Plan goals and resource objectives; values at risk; administrative and jurisdictional responsibilities; weather, fire behavior, fuels and fire history characteristics; access; and logistical support requirements. The FMUs are not the same units used to analyze the Forest's current fire suppression program in IIAA-NFMAS in which the analysis was limited to two Fire Management Zones, wilderness and non-wilderness, because of the number of fires and supporting data in the Forest Plan. The current FMUs are the same as those that are being used for the 2011 fire program analysis referred to as FPA (Fire Program Analysis).

Figure 1. Fire Management Units

FMU #	Name	Description
1	Clarks Fork	Unit boundaries are the same as the Clarks Fork Ranger District of the Shoshone National Forest.
2	North Fork	Unit boundaries consist of that portion of the North Fork of the Shoshone River drainage within the Wapiti Ranger District of the Shoshone National Forest.
3	South Fork	Unit boundaries consist of that portion of the South Fork of the Shoshone River drainage within the Wapiti Ranger District of the Shoshone National Forest.
4	Greybull	Unit boundaries are the same as the Greybull Ranger District of the Shoshone National Forest.
5	Wind River	Unit boundaries are the same as the Wind River Ranger District of the Shoshone National Forest.
6	Washakie	Unit boundaries are the same as the Washakie Ranger District of the Shoshone National Forest.

Figure 2. Fire Management Response Zones

MRZ #	Name	Associated Forest Plan Management Areas
01	Full Suppression	Swamp Lake Botanical Area Proposed Sawtooth Peatbed Geological Area Active timber sale areas Other areas where conditions warrant the need for protection from fire

Wildland Fire Management Objectives and Appropriate Management Response Options

Forest Plan resource management objectives in this response zone indicate that all unplanned ignitions are to be managed for protection objectives. Managing a wildfire for resource benefits for resource benefits is not an option.

Unplanned ignitions are considered to be unwanted fires and initial attack responses will consist of the safest and most effective and cost efficient actions to contain and control fires as quickly as possible. Extended attack management strategies and tactics should be designed to minimize the resource damage from a wildfire as much as possible. Fires from outside the Full Suppression Response Zone that threaten resources within Zone should be managed in manner that prevents resource damage or loss. In situations where firefighter safety may be compromised or the probability of successfully protecting the resource values is low, management response tactical options other than those designed to achieve full suppression would be implemented.

MRZ #	Name	Associated Forest Plan Management Areas
02	Resource Dependent	2A, 2B, 4A, 4B, 5A, 5B, 7E, 9A, 10D

Wildland Fire Management Objectives and Appropriate Management Response Options

Forest Plan resource management objectives in the Resource Dependent Response Zone indicate that all unplanned ignitions[1] may be managed for protection objectives and/or resource benefit objectives. This response zone is generally comprised of the low to middle elevations that contain a concentration of high valued resources and private property.

Managing a wildfire for resource benefits is an option in the Resource Dependent Response Zone, however, the values present limit or narrow the range of circumstances in which wildfire would be of benefit or the values at risk can be successfully protected.

The full range of appropriate management response options are available in the Resource Dependent Zone. Due to the presence of high resource values and private property in some areas, the use of intensive fire management actions to achieve full perimeter containment and control on unwanted fires may be necessary. Other strategic options likely to be implemented on any wildfire include such things as partial perimeter control or intensive point protection measures. Unplanned ignitions that start within the Resource Dependent Response Zone, but are burning away from high values and towards areas where

[1] Current federal wildland fire management policy allows for only natural ignitions to be managed for resource benefits

resource benefits are possible may be managed for resource benefits and depending on the circumstances, may require less intensive management.

Initial response to fires within the Resource Dependent Response Zone will require an assessment as to whether or not the fire should be managed for protection objectives, resource benefits objectives or a combination of both. The Duty Officer/AFMO/FMO begins this assessment immediately by evaluating the probable cause and location of the fire relative to resource values. **Commensurate with the assessment, initial attack resources are dispatched to a fire under the assumption that the fire is to receive a suppression response unless directed otherwise.** Human caused fires are classed as an unwanted fire and will receive a suppression response.

Initial attack responses to an unwanted fire will consist of the safest and most effective and cost efficient actions to contain and control the fire as quickly as possible. Extended attack management strategies and tactics should be designed based on the values threatened. Fires threatening high value resources and private property are likely to receive more intensive management action. In situations where resource values are low, or firefighter safety may be compromised or the probability of successfully protecting the resource values is low, management response tactical options other than those designed to achieve full suppression would be implemented.

MRZ #	Name	Associated Forest Plan Management Areas
03	Fire Use	2A, 2B, 4A, 4B, 5A, 8A, 8B, 8C, 8E, 9A, 10A, 10D, 10E, 10F

Wildland Fire Management Objectives and Appropriate Management Response Options

Forest Plan resource management objectives in the Fire Use Response Zones indicate that all unplanned ignitions[2] may be managed for protection objectives and/or resource benefit objectives. The Forest Plan emphasis for resources in this zone is to allow fire to play its natural role as much as possible and to use fire to meet other resource objectives. This response zone is generally comprised of the middle to high elevations where the opportunity to manage unplanned ignitions for resource benefits is the greatest. Wilderness and other primitive and semi-primitive areas are prevalent. The Zone is generally unroaded with the exception of a few areas that have limited or restricted use of roads. Developments, facilities, structures and private property are present but are scattered and occur infrequently.

The full range of appropriate management response options are available in the Fire Use Response Zone. The potential for resource damage or loss from fire in the Fire Use Response Zone is generally low and the potential for benefits is high. Appropriate management responses options for wildfires would most likely consist of less intensive actions such as monitoring or partial perimeter control unless high values are threatened or the capacity to manage a fire for the long-term is limited due to other fire activity. Protection of developments, facilities and structures may require intensive actions as well as other situations where nearby or distant values that are threatened warrant more intensive management actions.

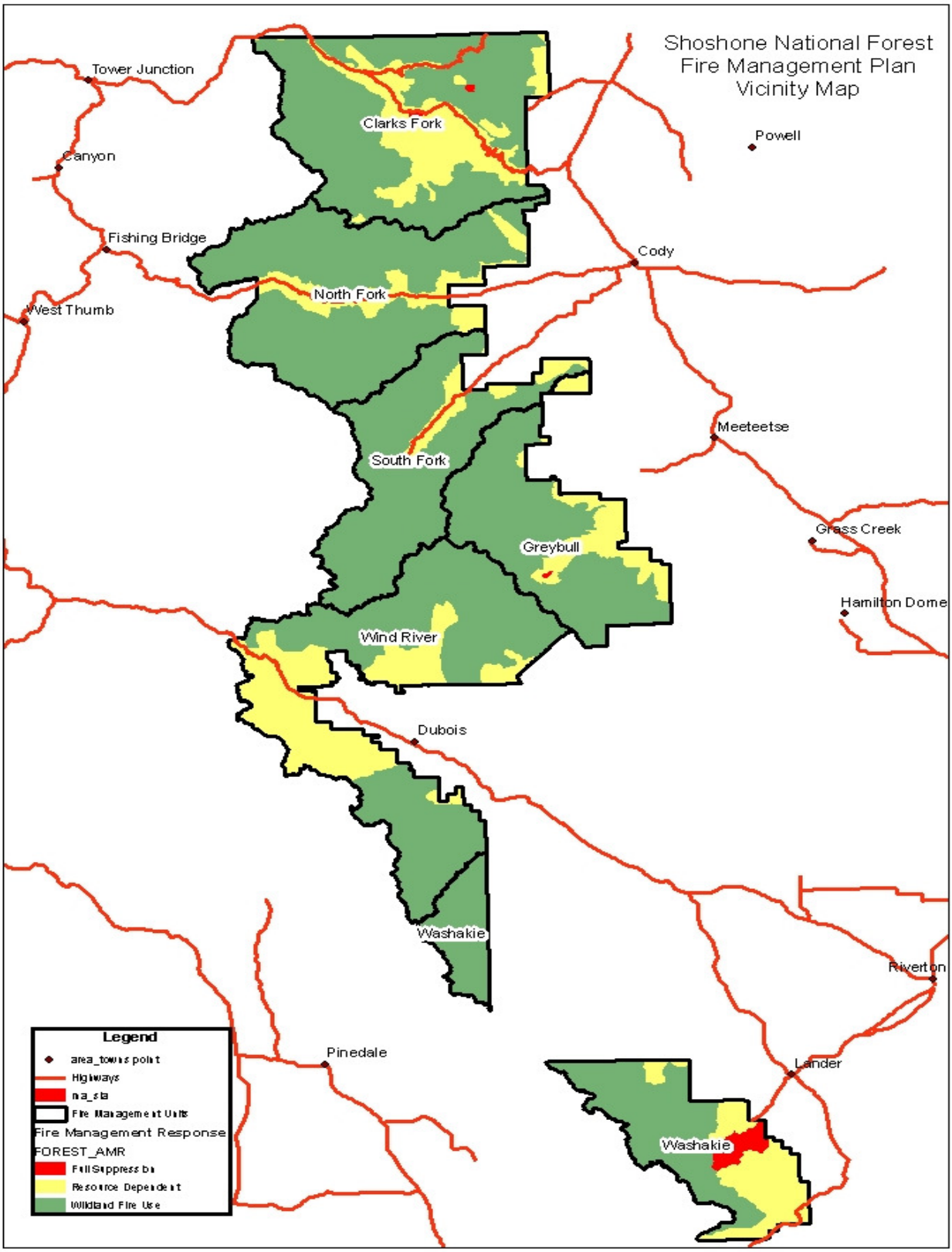
Initial response to fires within the Fire Use Response Zone will require an assessment as to whether or not the fire should be managed for protection objectives, resource benefits objectives or a combination of both. The Duty Officer/AFMO/FMO begins this assessment immediately by

[2] Current federal wildland fire management policy allows for natural ignitions to be managed for resource benefits.

evaluating the probable cause and location of the fire relative to resource values. Initial response resources are dispatched to a fire under the assumption that the fire is a potential candidate to be managed for resource benefits and would not begin suppression actions unless directed otherwise. The exception to this is human caused fires which are classed as an unwanted fire and will receive a suppression response.

Initial attack responses to an unwanted fire will consist of the safest and most effective and cost efficient actions to contain and control the fire as quickly as possible. Extended attack management strategies and tactics should be designed based on the values threatened. Fires threatening high value resources and private property are likely to receive more intensive management action. In situations where resource values are low, or firefighter safety may be compromised or the probability of successfully protecting the resource values is low, management response tactical options other than those designed to achieve full suppression would be implemented.

Map 1. Fire Management Units and Response Zones on the Shoshone National Forest



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3.1.1. Shoshone National Forest Land and Resource Management Plan Guidance

Forest Plan Goals, Desired Condition, and Direction

Goals (Desired Conditions) and Objectives

Wildland fire receives an appropriate management response based on ecological, social, economic, and legal consequences of the fire. Wildland fire plays a role within and outside of wilderness where appropriate and desirable, but active suppression of fire occurs where necessary to protect life, investments, and valuable resources. Valuable resources include the wildland urban interface, utility corridors and communication sites. Other valuable resources include public water supply, recreation facilities, administrative sites, range allotments, special management areas, fish and wildlife habitats, and lands suitable for timber production (Forest Plan Amendment 2008-01, page 2).

Additional goals cited in the forest Plan include:

- Allow natural succession to proceed without human intervention in designated wilderness, wilderness study areas, and special management areas (Forest Plan 1986, page III-6).
- Improve the health and vigor of vegetation types outside wilderness and selected types in wilderness where necessary (Forest Plan 1986, page III-6).
- Integrate vegetation management with resource management in functional areas – range, recreation, water and wildlife (Forest Plan 1986, page III-7).
- Reduce the accumulation of natural fuels (Forest Plan 1986, page III-8).

Forest General Direction

Wildland Fire Management

Both unplanned ignitions[3] and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. Prescribed fire plays a role in areas where managing unplanned ignitions for resource benefits is not appropriate because of high values. Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

[3] Current federal wildland fire management policy limits managing wildfires fire for resource benefits to unplanned *natural* ignitions. Unplanned *human* ignitions cannot be managed for resource benefits at this time. Federal wildland fire policy is subject to periodic reviews and updates and it is possible that in the future a wildlfire could be managed for both suppression and a resource benefit objectives. If this change in policy were to occur, managing wildland fire for resource benefits from any unplanned ignition would be an option available to fire managers. Until this policy change occurs, managing a fire for resource benefits would be authorized only for fires that originate from unplanned *natural* ignitions.

Wilderness Area Management

Permit lightning caused fires to play, as nearly as possible, their natural ecological role within wilderness (Forest Plan Amendment 2008-01, page 9)

Fuel Treatment

Prescribed fire will be utilized as a vegetative and fuels management technique where it is the most cost-efficient and acceptable alternative to achieve management objectives (Forest Plan 1986, page III-96).

Air Resource Management

Comply with State and Federal air quality standards (Forest Plan 1986, page III-97).

Management Area General Direction

The following management area general direction is derived form Chapter III of the Forest Plan.

Management Area 1A	Existing and proposed developed recreation sites

Management emphasis is for developed recreation in existing and proposed campgrounds, picnic grounds, trailheads, visitor information centers, summer home groups, and water-based support facilities. Proposed sites (sites scheduled for development in the Plan) are managed to maintain the site attractiveness until they are developed.

Facilities such as roads, trails, toilets, signs, etc., may be dominant but harmonize and blend with the natural setting. Livestock grazing is generally excluded from developed sites. Existing and proposed sites are withdrawn from locatable mineral entry.

Management Area 1B	Existing and potential winter sports sites

Management emphasis provides for downhill skiing on existing sites and maintains selected inventoried sites for future downhill skiing recreation opportunities. Management integrates ski area development and use with other resource management to provide healthy tree stands, vegetative diversity, forage production for wildlife and livestock, and opportunities for non-motorized recreation.

Visual resources are managed so that the character is one of forested areas interspersed with openings of varying widths and shapes. Facilities may dominate, but harmonize and blend with the natural setting. Harvest methods in forested areas between ski runs is clearcutting in aspen and lodgepole pine, shelterwood in lodgepole pine and mixed conifers, and group selection in Engelmann spruce-subalpine fir, or as specified in the permit tee's site-specific master development plan.

Management Area 1D	Provides for Utility Corridors

Management emphasis is for major oil and gas pipelines, major water transmission and slurry pipelines, electrical transmission lines, and transcontinental telephone lines. Management activities within these linear corridors strive to be compatible with the management goals of the management areas through which they pass.

Management Area 2A	Semi-primitive motorized recreation opportunities

Management emphasis is for semi-primitive motorized recreation opportunities such as snowmobiling, four-wheel driving, and motorcycling both on and off roads and trails. Motorized travel may be restricted or seasonally prohibited to designated routes to protect physical and biological resources.

Visual resources are managed so that management activities are not evident or remain visually subordinate. Past management activities such as historical changes caused by early mining, logging and ranching may be present which are not visually subordinate but appear to have evolved to their present state through natural processes. Landscape rehabilitation is used to restore landscapes to a desirable visual quality. Enhancement aimed at increasing positive elements of the landscape to improve visual variety is also used.

The harvest method by forest cover type is clearcutting in aspen and lodgepole pine; shelterwood in lodgepole pine, mixed conifer, and Engelmann spruce-subalpine fir; and selection in all-age mixed conifer and Engelmann spruce-subalpine fir. Mineral and energy resources activities are generally compatible with goals of this management area subject to appropriate stipulations provided in management activities 000-007 in Forest Direction.

Management Area 2B	Rural and roaded natural recreation opportunities

Management emphasis is for rural and roaded natural recreation opportunities. Motorized and non-motorized recreation activities such as driving for pleasure, viewing scenery; picnicking, fishing, snowmobiling and cross-country skiing are possible. Conventional use of highway-type vehicles is provided for in design and construction of facilities. Motorized travel may be prohibited or restricted to designated routes to protect physical and biological resources.

Visual resources are managed so that management activities maintain or improve the quality of recreation opportunities. Management activities are not evident or remain visually subordinate along forest arterial and collector roads and primary trails. In other portions of the area, management activities may dominant in foreground and middle ground, but harmonize and blend with the natural setting. Landscape rehabilitation is used to restore landscapes to a desirable visual quality. Enhancement aimed at increasing positive elements of the landscape to improve visual variety is also used.

The harvest method by forest cover type is clearcutting in aspen and lodgepole pine, shelterwood in mixed conifer and Engelmann spruce-subalpine fir, and selection in all-age mixed conifer and Englemann spruce-subalpine fir.

Management Area 3A	Semi-primitive non-motorized recreation in roaded or non-roaded areas

Management emphasis is for semi-primitive non-motorized recreation in both roaded and unroaded areas. Recreation opportunities such as hiking, horseback riding, hunting, cross-country skiing, etc., are available. Seasonal or permanent restrictions on human use may be applied to provide seclusion for wildlife such as nesting for raptor birds, big-game rearing areas, and mammals (mountain lion, wolverine, etc.) with large home ranges. Visual resources are managed so that management activities are not visually evident or remain visually subordinate.

Investments in compatible resource uses such as livestock grazing, mineral exploration and development, etc., occur, but roads are closed to public use. Commercial and noncommercial

tree harvest occurs. The harvest method by forest cover type is clear cutting in aspen and lodgepole pine; shelterwood in lodgepole pine, Englemann spruce-subalpine fir and mixed conifers; and selection in all-age stands of Englemann spruce-subalpine fir.

Management Area 3B	Primitive recreation in unroaded areas

Management emphasis is for primitive recreation experience in unroaded areas outside of wilderness. Management perpetuates essentially natural conditions and remoteness from mechanized human activities. Management activities are integrated in such a way that current human use leaves no permanent or long lasting evidence.

Visual resources are managed so that management activities are not visually evident. Prescribed fires are employed to manage vegetation. Term permit and recreational livestock grazing occurs, but new permanent structures other than corrals, fences, and water developments are not allowed.

Management Area 4B	Habitat for Management Indicator Species

Management emphasis is on the habitat needs of one or more Management Indicator Species. Species with compatible habitat needs are selected for an area. The goal is to optimize habitat capability, and thus numbers of the species. The prescription can be applied to emphasize groups of species, such as early succession dependent or late succession dependent, in order to increase species richness or diversity.

Vegetation characteristics and human activities are managed to provide optimum habitat for the selected species, or to meet population goals jointly agreed to with the state fish and wildlife agencies. Tree stands are managed for specific size, shape, interspersion, crown closure, age structure and edge contrast. Grass, forbs, and browse vegetation characteristics are regulated. Rangeland vegetation is managed to provide needed vegetation species composition and interspersed grass, forb and shrub sites or variety in age of browse plants. Fish habitat improvement treatments are applied to lakes and streams to enhance habitats and increase fish populations.

Recreation and other human activities are regulated to favor the needs of the designated species. Roaded natural recreation opportunities are provided along forest arterial and collector roads. Local roads and trails are either open or closed to public motorized travel. Semi-primitive motorized recreation opportunities are provided on those local roads and trails that remain open; semi-primitive non-motorized opportunities are provided on those that are closed. A full range of tree harvest methods and rangeland vegetation treatment methods are available. Investments in other compatible resource uses may occur, but will be secondary to habitat requirements. Management activities may dominant in foreground and middle ground, but harmonize and blend with the natural setting.

General Direction

- Maintain fuel conditions that permit fire suppression and prescribed fire to maintain habitat needed for selected species or species population levels (Forest Plan 1986, page III-152).

Management Area 4D	Aspen management

Management emphasis is on maintaining and improving aspen sites. Other tree species, if present, are de-emphasized. Aspen is managed to produce wildlife habitat, wood products, visual quality, and plant and animal diversity. On larger areas, a variety of aspen stand ages, sizes, shapes and interspersion are maintained. Both commercial and noncommercial treatments are applied. Even-aged management is practiced and is achieved by clearcutting. Diversity objectives are achieved by varying the size, age, shape and interspersion of individual stands. Management activities in foreground and middle ground are dominant, but harmonize and blend with the natural setting. Individual treatments generally are smaller than 40 acres.

Recreational opportunities available are semi-primitive non-motorized and motorized or roaded natural. Some temporary or seasonal road and area use restrictions are implemented to prevent disturbance of wildlife or improve hunting and fishing quality. Investments in other compatible resources occur. Livestock grazing can occur, but is subordinate to wildlife habitat needs and required protection of young aspen needed for regeneration.

Investments in other compatible resources occur. Livestock grazing can occur, but is subordinate to wildlife habitat needs and required protection of young aspen needed for regeneration.

General Direction – Wildlife Habitat Improvement and Maintenance

- Clearcut, burn or treat aspen mechanically to in order to promote suckering and revegetation of aspen patches (Forest Plan 1986, page III-155)

General Direction – Fuel Treatment

- Apply prescribed burning to regenerate aspen and to benefit wildlife (Forest Plan 1986, page III-157)
- Design fuelwood cutting unit boundaries that do not cross adjacent aspen clone boundaries (Forest Plan 1986, page III-157)
- Protect snags during fuelwood cutting and prescribed burning (Forest Plan 1986, page III-157)

Management Area 5A	Big game winter range in non-forested areas

Management emphasis is on winter range for deer, elk, pronghorns, bighorn sheep, and mountain goats. Treatments are applied to increase forage production of existing grass, forb and browse species or to alter plant species composition. Prescribed burning, seeding, spraying, planting and mechanical treatments may occur. Browse stands are regenerated to maintain a variety of age classes and species.

Investments in compatible resource activities occur. Livestock grazing is compatible, but is managed to favor wildlife habitat. Structural range improvements benefit wildlife. Management activities are not evident, remain visually subordinate, or are dominant in the foreground or middle ground, but harmonize or blend with the natural setting.

Roads may be closed permanently or seasonally and new motorized recreation use is managed to prevent unacceptable stress on big game animals during the primary big game use season.

Management Area 5B	Big game winter range in forested areas

Management emphasis is on forage and cover on winter ranges. Winter habitat for deer, elk, bighorn sheep and mountain goats is emphasized. Treatments to increase forage production or to create and maintain thermal and hiding cover for big game are applied. Tree stand treatments can be clearcut, shelterwood, single tree selection or group selection. Commercial and noncommercial stand treatments occur. Specific cover-opening ratios and stand designs are maintained. Treatments to grass, forb, browse and noncommercial tree species include seeding, planting, spraying, burning, falling and mechanical chopping or crushing. A variety of browse age classes are maintained. Continuous forest cover is maintained on some sites.

Investments in compatible resources occur. Livestock grazing is compatible, but is managed to favor wildlife habitat. Structural range improvements benefit wildlife. Management activities are not evident, remain visually subordinate, or dominate in the foreground and middle ground, but harmonize and blend with the natural setting.

Roads may be closed permanently or seasonally and new motorized recreation use is managed to prevent unacceptable stress on big game animals during the primary big game use season.

Management Area 7E	Wood fiber production and utilization

Management emphasis is on wood-fiber production and utilization of large roundwood of a size and quality suitable for sawtimber. The harvest method by forest cover type is clearcutting in aspen and lodgepole pine; shelterwood in Engelmann Spruce-subalpine fir, lodgepole pine, and mixed conifers; and selection in all-age stands of Englemann spruce-subalpine fir.

The area generally will have a mosaic of fully stocked stands that follow natural patterns and avoid straight lines and geometric shapes. Management activities are not evident or remain visually subordinate along forest arterial and collector roads and primary trails. In other portions of the area, management activities may dominant in foreground and middle ground, but harmonize and blend with the natural setting.

Roaded natural recreation opportunities are provided along forest arterial and collector roads. Semi-primitive motorized recreation opportunities are provided on those local roads and trails that remain open. Semi-primitive non-motorized opportunities are provided on those that are closed.

Management Area 8A	Pristine wilderness opportunities

Management emphasis is for the protection and perpetuation of essentially pristine biophysical conditions and a high degree of solitude for both wildlife and humans with no perceptible evidence of past human use.

All resource management activities are integrated in such a way that evidence of current human use, including term permit and recreation livestock, is not noticeable the following season, or so that natural biological processes are not adversely or artificially changed over time by human use.

Management Area 8B	Primitive wilderness opportunities

Management emphasis is to provide for the protection and perpetuation of natural biophysical conditions. On-site regulation of recreation use is minimal. Travel is cross-country or by use of a low density constructed trail system.

Management Area 8C	Semi-primitive wilderness opportunities

Management emphasis is to provide for the protection and perpetuation of essentially natural biophysical conditions. Solitude and a low level of encounters with other users or evidence of past use is not an essential part of the social setting. Human travel is principally on system trails. Designated campsites are used and show evidence of repeated, but acceptable levels of use.

All resource management activities are integrated in such a way that current human use leaves only limited and site specific evidence of their passing. Areas with evidence of unacceptable levels of past use are rehabilitated and the affected area restored. Range allotments with authorized permanent structures, and authorized mineral exploration activities requiring multiyear surface occupancy facilities may be present within the area. Scientific and other authorized practices utilizing non-motorized equipment but requiring up to season long occupancy are compatible.

Management Area 8E	Management of the Glacier Addition [Whiskey Mountain] to the Fitzpatrick Wilderness

This prescription implements the portions of the Wyoming Wilderness Act of 1984, which pertain to this area. The Act specially addresses bighorn sheep and recognizes them as an integral part and resource highlight of this wilderness area. Management emphasis is to provide natural biophysical conditions, which will maintain or enhance bighorn sheep and their habitat while protecting wilderness values. Area management will be responsive to priorities and goals expressed in the Whiskey Mountain Bighorn Sheep Comprehensive Management Plan, using the Wyoming Wilderness Act of 1984 and the Wilderness Act of 1964 as basic guides.

All resource management activities are integrated in such a way that current human use leaves only limited and site-specific evidence of their passing. Areas with evidence of unacceptable levels of past use are rehabilitated and the affected area restored. Range allotments with authorized permanent structures may be present within the area. Occasional motorized access may be allowed for administrative purposes and related activities for habitat management, trapping and transporting, and for other appropriate management of the bighorn sheep herd.

Management Area 9A	Riparian area management

Emphasis is on the management of all of the component ecosystems of riparian areas. These components include the aquatic ecosystem, the riparian ecosystem (characterized by distinct vegetation), and adjust ecosystems that remain within approximately 100 feet measured horizontally from both edges of all perennial streams and from the shores of lakes and other still water bodies. All of the components are managed together as a land unit comprising an integrated riparian area, and not as separate components.

The goals of management are to provide healthy, self-perpetuating plant communities, meet water quality standards, provide habitats for viable populations of wildlife and fish, and provide

stable stream channels and still water body shorelines. The aquatic ecosystem may contain fisheries habitat improvement and channel stabilization facilities that harmonize with the visual setting and maintain or improve wildlife or fish habitat requirements. The linear nature of streamside riparian areas permits programming of management activities that are not visually evident or are visually subordinate.

Forest riparian ecosystems are treated to improve wildlife and fish habitat diversity through specified silvicultural objectives. Both commercial and noncommercial vegetation treatments are used to achieve multi-resource benefits. Clearcutting is used to regenerate aspen clones. Other forest cover types are treated with either small group or single tree selection methods.

Livestock grazing is at a level that will ensure maintenance of the vigor and regenerative capacity of the riparian plant communities. Vehicular travel is limited on roads and trails at times when the ecosystems would be unacceptably damaged. Developed recreation facility construction for overnight use is prohibited within the l00-year floodplain.

The management area over which this prescription is to be applied will also be affected by several management activities in the Forest-wide direction. Most notable is the direction involving upland zones, in the water resource improvement and maintenance management activity, and elsewhere.

Management Area 9E	Water impoundment site

Management emphasis is on needed water impoundments where beneficial effects are demonstrated and water rights have been obtained.

Management Area 10A	Research natural area

Emphasis is on research, study, observations, monitoring and educational activities that are nondestructive and non-manipulative, and that maintain unmodified conditions.

Management Area 10D	Management of the Clarks Fork of the Yellowstone River, which is recommended for inclusion in the Wild and Scenic Rivers System

Management emphasis is on river segments designated as a component of the National Wild and Scenic River System and those recommended for designation. Wild Rivers are managed to be free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and water unpolluted.

This prescription is applied to the Clarks Fork of the Yellowstone River, which has been administratively endorsed as a Wild River. The general direction and standards and guidelines provided herein are intended to reflect applicable provisions of the Wild and Scenic Rivers Act and other special provisions documented in the Final Environmental Impact Statement, which recommends inclusion. Such direction is intended to maintain the characteristics of the river that contribute to its eligibility for inclusion in the system, until Congress acts. The Forest Service will recommend denial of leases, permits, or activities not within its discretionary authority that could affect eligibility.

Management Area 10E	Protection of existing wilderness characteristics of the High Lakes Wilderness Study Area

Management emphasis is for maintenance of existing wilderness resource characteristics. Management will perpetuate natural conditions and provide for semi-primitive non-motorized recreation opportunities such as hiking, horseback riding, hunting, and cross-country skiing. Snowmobiling is allowed during periods of snow cover. Permanent restrictions on motorized use are applied area-wide except for snowmobiles operating on snow. Term permit and recreational livestock grazing occurs, but new permanent structures are not allowed. Scientific and other authorized practices utilizing non-motorized equipment, but requiring up to season long occupancy are allowed. Visual resources are managed so that management activities are not visually evident.

Management Area 10F	Protection of existing wilderness resource characteristics of the Dunoir Special Management Area

Management emphasis is for maintenance of existing wilderness resource characteristics. Management will perpetuate natural conditions and provide for primitive and semi-primitive non-motorized recreation opportunities such as hiking, horseback riding, hunting, and cross-country skiing. Permanent restrictions on motorized use are applied area-wide. Permitted and recreational livestock grazing occurs, but new permanent structures other than corrals, fences and water developments are not allowed. Scientific and other authorized practices utilizing non-motorized equipment, but requiring up to season long occupancy are allowed. Visual resources are managed so that management activities are not visually evident. Prospecting or development of common varieties of mineral materials and coal leasing and coal exploration licenses are not allowed. Oil and gas exploration will not be recommended.

Snowmobile use is permitted.

Forest-wide Wildland Fire Management Standards

Wildland Fire Management

Firefighter and public safety is the priority in all fire management activities. Reduce firefighter and public injuries and loss of life, and damage to communities from unwanted wildland fires, by prioritizing firefighter and public safety above other concerns in fire management activities (Forest Plan Amendment 2008-01, page 4).

Managing unplanned ignitions to accomplish resource benefits is authorized Forest-wide where compatible with agency policy and other resource management direction and objectives. Wildland fire may be used to protect, maintain, and enhance resources and as nearly as possible be allowed to function in its natural role (Forest Plan Amendment 2008-01, page 4).

Every wildfire that is not a prescribed fire will receive an appropriate management response. In implementing an appropriate management response, the full spectrum of tactical options, from monitoring a fire at a distance to intensive management actions are available (Forest Plan Amendment 2008-01, page 4).

For all unwanted wildfires, the over-arching goal of suppression will be applied in every case. The initial suppression action will usually focus on prompt and decisive control of the fire commensurate with firefighter and public safety and cost effectiveness. In the initial or

subsequent suppression responses, a full and immediate control objective may be modified, and the commitment of resources and actions reduced, when:

- personnel cannot safely or effectively engage the fire,
- suppression resources necessary for a successful outcome are not available, or
- values to be protected and at risk from the fire are less than the expected cost of continuing an aggressive suppression effort (Forest Plan Amendment 2008-01, page 5).

Wildfires can be managed through less aggressive tactical approaches when values of resources at risk are low, threats to exceed management capability are low, firefighter exposure and risk are high, and expected costs of aggressive suppression actions are high (Forest Plan Amendment 2008-01, page 5).

All human-caused wildland fire will be managed in a manner consistent with agency policies (Forest Plan Amendment 2008-01, page 5).

Fuel Treatment

A historical record will be maintained with each prescribed fire plan that documents the biological/physical effects and the fire behavior that produced the effects (Forest Plan 1986, page III-96).

Utilize current technologies to achieve an optimum balance between positive and negative effects, and prevent escaped fires (Forest Plan 1986, page III-96).

Reduce or otherwise treat fuels so the potential fireline intensity of an area will not exceed 400 BTUs/sec/ft (BI 68 or 4ft flame length) on 90% of the days during the regular fire season (Forest Plan 1986, page III-96).

Guidelines

Wildland Fire Management

Implementation information for wildland fire management activities will be described in the Fire Management Plan (Forest Plan Amendment 2008-01, page 5).

Cultural Resources

Wildland fire management activities should protect cultural resources when feasible with priority given to sites listed on the National Register of Historic Places, sites recommended for selection to the Register and to known unevaluated sites (Forest Plan Amendment 2008-01, page 6).

Fires within the Proposed Kirwin Historic Area should be suppressed. Use initial attack actions that keep fires as small as possible. For wildland fires that threaten to burn into the Historic Area, the appropriate management response should consist of strategies and tactics that keep fires from burning into the Historic Area (Forest Plan Amendment 2008-01, page 6).

Public Water Supply

For unwanted fires that start in the Sawmill Creek Sub-watershed, use aggressive initial attack actions that keep fires as small as possible. For unwanted wildland fires that threaten to burn into the Sub-watershed, the appropriate management response should include of strategies and tactics that keep fires from burning into the Watershed (Forest Plan Amendment 2008-01, page 6).

Use the most effective suppression strategies and tactics that have the least impact possible on water quality (Forest Plan Amendment 2008-01, page 6).

Research Natural Areas

Fires within research natural areas (established and proposed) should be suppressed when they threaten the values for which the research natural area was established or threaten other values outside of the research natural area. For unwanted wildland fires that threaten to burn into research natural areas, the appropriate management response should consist of strategies and tactics that keep fires from burning into research natural areas (Forest Plan Amendment 2008-01, page 6).

Use minimum impact suppression strategies and tactics when suppressing fires within research natural areas (Forest Plan Amendment 2008-01, page 7).

Swamp Lake Botanical Area

Fires within the Botanical Area should be suppressed. Use initial attack actions that keep fires as small as possible. For wildland fires that threaten to burn into the Botanical Area, the appropriate management response should consist of strategies and tactics that keep fires from burning into the Botanical Area (Forest Plan Amendment 2008-01, page 7).

Use minimum impact suppression strategies and tactics when suppressing fires within the Botanical Area. Avoid ground disturbing activities on sites where unique or sensitive plants exist (Forest Plan Amendment 2008-01, page 7).

Proposed Sawtooth Peatbed Geological Area

Fires within the Geological Area should be suppressed. Use initial attack actions that keep fires as small as possible. For wildland fires that threaten to burn into the Geological Area, the appropriate management response should include of strategies and tactics that keep fires from burning into the Geological Area (Forest Plan Amendment 2008-01, page 7).

Use minimum impact suppression strategies and tactics when suppressing fires within the Geological Area. Avoid ground disturbing activities on sites where unique or sensitive plants exist (Forest Plan Amendment 2008-01, page 8).

Management Constraints or Criteria Affecting Operational Implementation

Forest Plan standard and guidelines have identified some specific measures to ensure selected resources are protected from the effects of fire and fire suppression operations. Additional guidance for protecting resources values and rehabilitation standards are derived from consultation with specialist, other manual direction, laws, and guides. An inventory and description of the resources present are included with the guidance for each fire management

unit. A complete list of the resource protection measures and post-fire rehabilitation standards are located in the SHF fire management electronic reference file.

Wildland Fire Management Options

The Shoshone Forest Plan allows for the full range of appropriate management response options, from monitoring a fire at a distance to intense management actions. Management of unplanned ignitions for resource benefits is allowed Forest-wide except for specific areas where resource management objectives indicate protection as being the only option (Forest Plan Amendment 2008-01, page 4). Prescribed fire to meet fuels treatment and other resource management objectives is authorized for use on the forest as well. Direction regarding the implementation of fire management objectives and strategies, initial response actions, and appropriate management response options for individual fire management units is described in Sections 3.2 - 3.7.

Appropriate Management Response

The appropriate management response concept provides managers with increased flexibility to implement a response appropriate to an individual set of circumstances and conditions to utilize a full range of responses.

Appropriate management response may be applied at all levels when managing a fire for resource benefits or as a wildfire, including initial attack.[4] In some situations appropriate management response would be an action that managers may take and in others it would be an action managers must take depending on the circumstances in which a fire occurs and the preplanned objectives for an area. Examples of options managers may choose include:

- Monitoring from a distance
- Monitoring on-site
- Confinement
- Monitoring with limited contingency actions
- Monitoring with mitigation actions
- Initial attack
- Suppression with multiple strategies
- Control and extinguish
- Any combination of some or all of the above as well as other options

For all unwanted wildfires, the overarching goal of suppression would be applied in every case. The initial suppression action (initial attack) would usually focus on prompt and decisive control of the fire commensurate with public and firefighter safety and cost effectiveness. If initial or subsequent actions fail, control objectives may be modified and the tactical options that comprise the appropriate management response may change. As described above, the range of responses could include monitoring, or aggressive suppression actions, or some combination.

[4] Initial attack is a planned response to a wildfire given the wildfire's potential fire behavior. The objective of initial attack is to stop the spread of the fire and put it out at least cost. An aggressive suppression action consistent with firefighter and public safety and values to be protected (National Wildfire Coordinating Group 2007).

Firefighter and public safety, resource values to protect, expected fire behavior, availability of resources, and probability of success are some of the factors that would be used to determine the appropriate management response.

Managing Unplanned Ignitions for Resource Benefits

Management of unplanned ignitions for resource benefits is allowed Forest-wide except for specific areas where resource management objectives indicate protection as being the only option (Forest Plan Amendment 2008-01, page 4).

A portion of the acres that are available for resource benefits contain high value resources and assets that may limit or narrow the range of circumstances in which wildfire would be of benefit or the values to be protected could be successfully protected. Once ignition occurs, the potential benefits and effects will be analyzed. A decision will be made to manage the wildfire to accomplish resource benefits objectives, for protection objectives or both. Implementation criteria for determining if unplanned ignitions will be managed for resource benefits include:

- Consideration of the resource benefits
- The risk of the fire is in terms of site-specific values, threats, and probability of negative impacts
- Whether the level of risk is acceptable to the Forest Service
- What strategic objective would be selected for management actions, strategy, and tactics

In some cases, it may be desirable to allow naturally ignited fires to burn in areas that are in need of vegetative regeneration, fuels reduction, or other resource objectives and the appropriate management response may consist of monitoring. In other cases, portions of a wildfire may receive intensive suppression actions due to the presence of homes or other important resources at risk. Potential fire management strategies and tactical options relative to Forest Plan resource objectives have been developed and are described in more detail with the each fire management unit and response zone (Section 3.1).

Prescribed Fire

Use of prescribed fire and/or mechanical treatments to accomplish natural and activity fuels reduction and other resource objectives is commensurate with all management areas with the exception of wilderness. Prescribed fire of natural vegetation in wilderness is limited to projects that enhance fire use. Prescribed fire projects in wilderness are analyzed and approved on a case-by-case basis in accordance with Forest Service Manual 2620 – Wilderness Management.

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3.2. Fire Management Considerations for the Clarks Fork Fire Management Unit

3.2.1. Clarks Fork FMU Snap Shot

Fire Management Unit Identification

Administrative Unit	FMU Name	FMU #	Management Response Zones	Acres
Shoshone National Forest - North Zone	Clarks Fork	1	01 – Suppression	1,544
			02 – Resource Dependent	138,115
			03 – Fire Use	366,652

Ownership and Jurisdictions

Owner	Jurisdiction	Acres
US Forest Service	Shoshone National Forest	495,849
Private	Park County Fire District #2	10,367
	Total	**506,216**

Dispatch Center

Name	Phone Number
Cody Interagency Dispatch Center	307-578-5140

Radio Frequencies*

Agency	Name	Receive Frequency	Transmit Frequency	Transmit Tone
USFS	North Zone Net	170.5000	170.5000	110.9
USFS	Dead Indian RPT	170.5000	166.5625	110.9
USFS	Clay Butte RPT	170.5000	166.5625	123.0

*See the Shoshone National Forest Radio Guide in the SHF fire management electronic file for a complete list of radio frequencies.

NFDRS Weather Stations

Station Number	Station Name & Owner	Fuel Model	Location	NESDIS #	Elevation
480213	Crandall USFS	G - Timber	44° 51.01” 109° 36.41”	32353130	6,612 ft.
480214	Eagle USFS	G - Timber	44° 29.08” 109° 53.47”	326fa142	7,500 ft.

NFDRS Weather Station Fire Behavior Indicators and Thresholds

Preparedness Level	SHF North FDRA SIG (Crandall & Eagle)	
	ERC[5]	100 Hr Fuel Moisture[6]
I	<43	15+
II	43-56	14-13
III	57-64	12-11
IV	65-71	10-9
V	72+	<8

[5] Best indicator for large fire potential

[6] Best indicator of fire occurrence and multi-fire days.

General Risk Category

Subjective overall risk relative to values present, fuel hazard and fire frequency is identified for each fire management unit response zone in the table below. Additional risk information related to fire behavior and length of season are described in Section 3.2.4.

Response Zone	Risk Rating			
	Values Present	Fuel Hazard	Fire Frequency	Overall Risk
01 - Suppression	5	1	1	**2**
02 – Resource Dependent	4	3	3	**3**
03 – Fire Use	1	4	3	**2**

1 = Low; 2 = Low Moderate; 3 = Moderate; 4 = Moderate High; 5= High

Predominant Vegetation Types

Cover Type	%
Grassland-Sagebrush	31 %
Forest – conifers	53 %
Forest – aspen & willow	2 %
Barren	14 %

3.2.2. Clarks Forks FMU Guidance

Management Guidance

Wildland fire management guidance for the resources associated with the fire management unit is derived from the Shoshone National Forest Land and Resource Management Plan (Forest Plan). Applicable wildland fire management Forest Plan direction, goals, desired conditions, standards, guidelines, and management area prescriptions are detailed in Section 3.1.1. The specific Forest Plan direction that is used to formulate wildland fire benefit and resource protection objectives; initial attack/response actions; and appropriate management response strategies and tactical options that apply to the resources, values and attributes that occur in the fire management unit (FMU) are referenced throughout this section.

Other sources of wildland fire management direction and resource protection measures that originate in other laws, policy, handbooks and guides are also used to provide direction and guidance for wildland fire management activities for this FMU. Many of these sources are located in the Shoshone Fire management electronic reference file.

Fire Management Unit Resources and Values

Air Quality

The North Absaroka Wilderness is the only federally designated Class I area in the FMU. Yellowstone National Park located to the west of the FMU is also designated as a Class 1 airsheds. The Absaroka-Beartooth Wilderness in the northern part of the FMU is federally designated as a Class II airshed. There are no non-attainment areas within or adjacent to the FMU.

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
air quality	Comply with State and Federal air quality standards (Forest Plan 1986, page III-97).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
air quality	Implement smoke management actions in accordance with Wyoming Air Quality Standards and Regulations (Regulations) chapter 10, section 4, Smoke Management Requirements.

Vegetation

Forested vegetation varies widely across the FMU due to variations in elevation, aspect, climatic factors, and past disturbances. The uppermost elevation zone is characterized by alpine tundra and the absence of trees. The next lower elevation zone is the subalpine zone, dominated in most places by Engelmann spruce, subalpine fir, and whitebark pine. Below the subalpine zone lies the montane zone, characterized by Douglas-fir. Other species that occur in the subalpine and montane zones include lodgepole pine, limber pine, and aspen.

Grass, sometimes mixed with sagebrush, regularly occurs in forest openings. In areas where environmental factors do not support tree reproduction, grasslands and shrublands persist. In the foothill zone below the montane zone, grass and shrubs dominate. In the montane and subalpine zones, grass and shrubs persist in areas where site conditions limit moisture, such as well-drained landforms, southern or western exposures, thin or poorly developed soils, and high windswept sites. In the severe environment of the alpine zone, grass and shrubs dominate. In portions of the subalpine and montane zones, lodgepole pine and aspen are common early seral species following fire disturbance. Fire also affects the acres that are dominated by grasses and shrubs.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
vegetation	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. Prescribed fire plays a role in areas where managing unplanned ignitions for resource benefits is not appropriate because of high values (FPA 2008-1 p. 3). Improve the health and vigor of vegetation types outside wilderness and selected types in wilderness where necessary (Forest Plan 1986, page III-6). Integrate vegetation management with resource management in functional areas – range, recreation, water and wildlife (Forest Plan 1986, page III-7).
aspen	Clearcut, burn or treat aspen mechanically to in order to promote suckering and revegetation of aspen patches (Forest Plan 1986, page III-155)

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
vegetation	Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Wildlife habitats – terrestrial and aquatic

Critical Winter Range: Critical wildlife winter range areas are identified on the Clarks Fork FMU Map 2. Currently, there are no issues with condition of the winter range area that would prevent a fire to be managed for resources benefits or require protection.

Grizzly Bear: This species is a Forest Service Region 2 threatened species. Grizzlies have variable habitat, and eat everything from carcasses to moths to whitebark pine seeds to garbage. The most important elements needed to stabilize grizzly bear populations are minimizing bear/human conflicts and protecting key food sources, such as whitebark pine and moth sites. Most of the FMU is inside the Crandall Sunlight Bear Management Unit of the Primary Conservation Area.

Yellowstone Cutthroat Trout: Yellowstone cutthroat trout is a subspecies of cutthroat trout that was historically found in the Yellowstone River drainage and reaches of the Snake River drainage. Stream segments containing Yellowstone cutthroat trout are identified on Clarks Fork FMU Map 2.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
wildlife	Integrate vegetation management with resource management in functional areas – range, recreation, water and wildlife (Forest Plan 1986, page III-7) Maintain fuel conditions that permit fire suppression and prescribed fire to maintain habitat needed for selected species or species population levels (Forest Plan 1986, page III-152).

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
grizzly bear – food storage	Minimize grizzly bear/human conflicts using food storage, information and education, and other management tools (FPA 2006-001).
grizzly bear habitat – food sources	Maintain the productivity, to the extent possible, of the four key grizzly bear food sources as identified in the Conservation Strategy (FPA 2006-001).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
grizzly bear	Implement bear safety and food storage mitigation measures as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.
Yellowstone Cutthroat Trout	Implement protection measures for riparian areas, lakes and streams as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Special areas

Research Natural Areas: There is one established and four proposed research natural areas in the FMU: Line Creek Research Natural Area, Proposed Lake Creek Research Natural Area, Proposed Beartooth Buttes Research Natural Area, Proposed Pat Ohara Research Natural Area, and the Proposed Bald Ridge Research Natural Area. Research Natural Areas are part of a national network of ecological areas designated in perpetuity for research, education, and to maintain biological diversity on National Forest System lands.

Botanical Areas: There is one established botanical area in the FMU. The Swamp Lake Botanical Area (580 acres) contains eight different wetland vegetation types and an unusually high concentration of regionally rare, boreal disjunct plants. The riparian wetland comprises and unusual and perhaps unique set of ecological conditions.

Geological Areas: The Proposed Sawtooth Peatbed Geologic Area (577 acres) is a large peat deposit with permafrost. The geomorphic feature is the only known palsa figure in the lower 48 states.

Natural and Scenic River: A 20.5 miles segment of the Clarks Fork of the Yellowstone River within the FMU has been designated as a Wild and Scenic River. The River and its corridor are to manage to retain free-flowing status, wild classification, and outstanding remarkable values.

See Clarks Fork FMU Map 3 for the location of special areas.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
special management areas	Allow natural succession to proceed without human intervention in designated wilderness, wilderness study areas, and special management areas (Forest Plan 1986, page III-6). Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. (Forest Plan Amendment 2008-1 p. 3).

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
research natural areas	Fires within research natural areas (established and proposed) should be suppressed when they threaten the values for which the research natural area was established or threaten other values outside the research natural area. For unwanted wildland fires that threaten to burn into research natural areas, the appropriate management response should consist of strategies and tactics that keep fires from burning into research natural areas (FPA 2008-1 p. 6).
Swamp Lake Botanical Area	Fires within the botanical area should be suppressed. Use initial attack actions that keep fires as small as possible. For wildland fires that threaten to burn into the botanical area, the appropriate management response should consist of strategies and tactics that keep fires from burning into the botanical area (FPA 2008-1 p. 7).
Proposed Sawtooth Peatbed Geologic Area	Fires within the geologic area should be suppressed. Use initial attack actions that keep fires as small as possible. For wildland fires that threaten to burn into the geologic area, the appropriate management response should include of strategies and tactics that keep fires from burning into the geological area (FPA 2008-1 p. 7).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
Research Natural Areas	Use minimum impact suppression techniques when suppressing fires within research natural areas area (FPA 2008-1 p. 6).
Swamp Lake Botanical Area	Use minimum impact suppression techniques when suppressing fires within the botanical area. Avoid ground disturbing activities on sites where unique or sensitive plants exist (FPA 2008-1 p. 7).
Proposed Sawtooth Peatbed Geologic Area	Use minimum impact suppression techniques when suppressing fires within the botanical area. Avoid ground disturbing activities on sites where unique or sensitive plants exist (FPA 2008-1 p. 8).

Water quality

The entire 6th level hydrologic unit boundary watersheds in the FMU are rated as being in good condition except for two (Clarks Fork FMU Map 4).Those in good condition reflect, to varying degrees, past and present activities. There are two watersheds in the FMU of extraordinary concern. One is Upper Soda Butte Creek, which includes drainage areas in Wyoming and Montana. The concern is entirely within Montana and is related to historic mining activity in the Cooke City area. The second watershed is the Lower Crandall Creek composite and in particular, one of its sub-watersheds, Lodgepole Creek. This sub-watershed was severely burned during the 1988 Clover Mist Fire and then experienced a damaging thunderstorm and flood event in 1989. These two disturbances resulted in significant changes in upland and stream channel stability, which can best recover with time.

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
water	Improve or maintain water quality to meet state water quality standards (Forest plan 1986, page III-70).
Lodgepole Creek and Soda Butte Creek	Wildland fire plays a role within and outside of wilderness where appropriate and desirable, but active suppression of fire occurs where necessary to protect life, investments, and valuable resources. Valuable resources include the wildland urban interface, utility corridors and communication sites. Other valuable resources include public water supply, recreation facilities, administrative sites, range allotments, special management areas, fish and wildlife habitats, and lands suitable for timber production (Forest Plan Amendment 2008-01, page 2).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
water quality	Implement protection measures for riparian areas, lakes and streams as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines. Implement practices regarding fire management activities as described in the Forest Service Handbook 2509.25, Watershed Conservation Practices.
Lodgepole Creek	Because of the Cover Mist Fire, fuel conditions are such that no significant fire growth that would cause additional damage to the watershed would occur at this time.

Cultural Resources

The general location of known cultural resource sites and not yet surveyed areas that have a high probability of containing sites are located on the Cultural Resources Map for the FMU (Clarks Fork FMU Map 5). The map with the general locations is part of the SHF fire management electronic reference file and is also available for use by fire managers and agency administrators. More specific information regarding site locations will be provided by the heritage program manager when needed.

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
cultural	Wildland fire management activities should protect cultural resources when feasible with priority given to sites listed on the National Register of Historic Places, sites recommended for selection to the Register and to known unevaluated sites (FPA 2008-1 p. 6).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
cultural	Follow procedures for wildland fire management activities as outlined in Appendix G of the Programmatic Agreement with the State Historic Preservation Officer for Compliance with the National Historic Preservation Act on Forest and Grasslands of Wyoming. Implement protection measures for cultural resources as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Wilderness

There are two wildernesses in the FMU (Clarks Fork FMU Map 1). The North Absaroka comprises a significant portion of the western and southern parts of the FMU and extends south into the North Fork FMU. A portion of the Beartooth-Absaroka Wilderness extends into the north central part of the Clarks Fork FMU. The remaining portion of the Beartooth-Absaroka Wilderness is located on the Gallatin and Custer National Forests.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
wilderness	Permit fires to play, as nearly as possible, their natural ecological role within wilderness area (FPA 2008-1 p. 9). Allow natural succession to proceed without human intervention in designated wilderness, wilderness study areas, and special management areas (Forest Plan 1986, page III-6).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
wilderness	Implement minimum impact suppression and logistic techniques as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Goods and Services

Timber: Lands suitable for timber production are present within the FMU and are primarily located within the resource dependent zone. Lands suitable for timber production are identified on the Values at Risk Map for the FMU (Clarks Fork FMU Map 6) Lands suitable for timber production are considered high value assets and under most circumstances would not be allowed to burn unless it was determined there would be beneficial effects or no effects. Development of strategies to manage a fire for resource benefits would consist of an assessment of what areas would benefit from fire and what areas should be protected from fire or subject to limited fire intensity.

There may be a few instances where lands suitable for timber production may be allowed to burn and commercial timber products destroyed or damaged while managing a fire resource benefits or as an unwanted wildland fire. For example, situations where it is infeasible to protect an isolated stand, or where the value of the timber does not warrant the cost or commitment of resources and a substantial resource benefit may be achieved.

Clarks Fork FMU Active and Planned Timber Sales

Sale Name	Location	Status	Purchaser
Sunlight	Within Sunlight Creek drainage from Hardee Cabin to Elk Creek	Planned	N/A
Bald Ridge East	T55N, R104W, S26,27,28, 33,34	Active	CR Logging – Grady Roberts 406-360-2267
Bald Ridge West	T55N, R104W, S15,21,22,27, 28	Active	CR Logging – Grady Roberts 406-360-2267
Leatherman	T55N, R104W, S25, 36	Active	WTL Logging – Leonard Davis 307-899-3372
Hunter Peak	T57N, R107W, S4,9,10,11,13, 14, R58N, R107W S5,19,30 T58N R108 W S24	Advertise 09	NA
Reef Creek	T56N, R106W, S7,12,15 T57N, R106W, S11,14	Advertise 09	NA
Sugar		Advertise 09	

Grazing: There several grazing allotments within the FMU and they are identified on the Values at Risk Map (Clarks Fork FMU Map 6). Forest-wide Forest Plan direction and desired conditions regarding vegetation is generally consistent with range management objectives. Whether a fire is being managed for resource benefits or protection objectives, coordination with range management specialist and permittees occur.

Special Uses: Permitted outfitter and guide operations occur throughout the FMU. Camp locations are identified on the Values at Risk Map (Clarks Fork FMU Map 6). Whether a fire is being managed for resource benefits or protection objectives, coordination with special uses managers and outfitters occur.

Minerals: There are no mining, drilling or exploration operations occurring in the FMU.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
timber and grazing	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. Prescribed fire plays a role in areas where managing unplanned ignitions for resource benefits is not appropriate because of high values. Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
goods and services	Wildland fire plays a role within and outside of wilderness where appropriate and desirable, but active suppression of fire occurs where necessary to protect life, investments, and valuable resources. Valuable resources include the wildland urban interface, utility corridors and communication sites. Other valuable resources include public water supply, recreation facilities, administrative sites, range allotments, special management areas, fish and wildlife habitats, and lands suitable for timber production (Forest Plan Amendment 2008-01, page2).

Developments, Facilities and Infrastructure

Developments, facilities and infrastructures occur within and adjacent to the FMU and are displayed on the Values at Risk Map (Clarks Fork FMU Map 6). Most of the sites are located within the Resource Dependent Management Zone. There are some facilities and developments in the Fire Use Management Zone.

Clarks Fork FMU Recreation Sites (developed)

Name	Geographic Location
Pilot Creek Trailhead	T57N, R107W, S5
Crazy Creek Campground	T57N, R107W, S10
Lily Lake	T57N, R106W, S6
Clarks Fork Overlook	T57N, R106W, S17
Pilot & Index Overlook	T57N, R106W, S11

Clay Butte Visitor Center	T57N, R106W, S2
Beartooth Campground	T57N, R105W, S5,6
Island Lake Camprground	T57N, R105W, S3,10
Morrison Jeep Trailhead	T57N, R105W, S10
Lake Creek Campground	T57N, R106W, S17
Hunter Peak Campground	T57N, R106W, S27
Clarks Fork Trailhead	T57N, R106W, S34
North Crandall Trailhead	T56N, R106W, S9
Lodgepole Trailhead	T56N, R106W, S9
Swamp Lake Boat Access	T56N, R106W, S15
Reef Creek Picnic Area	T56N, R105W, S7
Little Sunlight Trailhead/CG	T55N, R106W, S26
Sunlight Falls Picnic Area	T55N, R104W, S7
Sunlight Bridge Overlook	T55N, R104W, S6
Dead Indian Campground	T55N, R104W, S8
Dead Indian Trailhead	T55N, R104W, S17
Dead Indian Pass Overlook	T55N, R104W, S16

Clarks Fork FMU Backcountry Administrative Sites

Name	Geographic Location
None	

Clarks Fork FMU Utilities and Communication Sites

Name	Geographic Location
Dead Indian Comm Site	T55N, R104W, S10
Dillworth Bench Comm Site - Qwest	T56N, R104W, S16

Rocky Mountain Power Powerline	Above ground line extending from Forest Boundary on east side of Dead Indian along Highway 296 to Cooke City and a spur along Sunlight Road from near Elk Creek up to near Little Sunlight Creek
Qwest Phone Line	Buried line with scattered above ground boxes near powerline and along road system
Qwest Way West Comm Site	T55N, R104W, S6
Qwest Crandall Comm Site	T56N, R106W, S5
Crandall RAWS	T56N, R106W, S10
Evening Star SNOTEL	T54N, R107W, S20
Beartooth SNOTEL	T57N, R105W, S8
Wolverine SNOTEL	T56N, R106W, S29
Chief Joseph WYDOT Weather Station	T55N, R014, S15
Bald Ridge DEQ Air Monitor	T55N, R014, S15

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
developments, facilities and infrastructure	Wildland fire plays a role within and outside of wilderness where appropriate and desirable, but active suppression of fire occurs where necessary to protect life, investments, and valuable resources. Valuable resources include the wildland urban interface, utility corridors and communication sites. Other valuable resources include public water supply, recreation facilities, administrative sites, range allotments, special management areas, fish and wildlife habitats, and lands suitable for timber production (Forest Plan Amendment 2008-01, page2). Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Wildland Urban Interface

Structures occurring within and adjacent to the FMU are primarily located within the Resource Dependent Management Zone (Clarks Fork FMU Map 1).

Local fire departments and agencies are responsible for structure protection; management of wildland fires burning on the Shoshone National Forest is the responsibility of the Forest Service. Keeping fires from reaching structures and private property adjacent to the Forest as well as permitted lodges and residences located on the Forest is consistent with current federal policy and Forest Plan direction. In addition, cooperative agreements and operating plans are in place that permits Forest Service firefighters to assist local jurisdictions with structure protection on private property, but for not entering structures to suppress fires.

The approach for developing the appropriate management response for wildland fire burning on the Forest that threatens individual structures or the wildland urban interface is the same for fire being managed for resource benefit or suppression objectives. Aggressive or intense management actions would occur in locations that have the highest probability of success in preventing damage or loss while ensuring the safety of the public and firefighters. These actions could occur near structures in close cooperation with the local jurisdiction or at some distance from structures where circumstances are favorable for stopping the advance of a fire toward structures.

Clarks Fork FMU Communities and Subdivisions

Community Name	Geographic Location
Crandall	Squaw Creek Development along Squaw Creek; Painter Estates Subdivision along lower Beartooth and Ghost Creeks; Crandall Ranches along Crandall Creek; Hancock Ranch along lower Lake Creek; L-T Ranch near Onemile Creek; RDS Ranch and B-4 Ranch near Crazy Creek; Beaver Ranch near Table Mountain; Reef Creek Developments along lower Reef Creek,
Sunlight	Way West Subdivision and Elk Creek Subdivision along lower Sunlight Road; Sunlight Ranches, 7D Ranch, along sunlight Road between Beem and Huff Gulches, Sunlight Ranches along Sunlight Creek between Gravelbar Creek and Strawberry Gulch; Sulphur Creek and Silvertip Mine developments, Switchback Ranch T56N, R104W, S20
Northwestern Field Station and Subdivison	T55N, R104W, S26, 27

Clarks Fork FMU Permitted recreation residences

Community Name	Geographic Location
None	

Clarks Fork FMU Permitted lodges

Lodge Name	Geographic Location
Top of the World Store	T57N, R105W, S9
K-Z Ranch	T56N, R106W, S15

Clarks Fork FMU Administrative sites

Site Name	Geographic Location
Crandall Ranger Station	T56N, R106W, S9
Sunlight Ranger Station	T55N, R105W, S19
Beartooth Highway Camp	T57N, R106W, S11

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
wildland urban interface	Wildland fire plays a role within and outside of wilderness where appropriate and desirable, but active suppression of fire occurs where necessary to protect life, investments, and valuable resources. Valuable resources include the wildland urban interface, utility corridors and communication sites. Other valuable resources include public water supply, recreation facilities, administrative sites, range allotments, special management areas, fish and wildlife habitats, and lands suitable for timber production (Forest Plan Amendment 2008-01, page2). Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Invasive species

Invasive plants: There are over 20 high priority terrestrial invasive species on the Shoshone with many more invasive species with the potential to spread across large portions of the Forest. Wildfires of any cause can enhance conditions for spread if fires expose soil, reduce native

vegetation, and facilitate the introduction or movement of invasive seed sources into an area. Locations of invasive plants are mapped (Clarks Fork FMU Map 7) and are located in the SHF fire management electronic reference file.

Invasive aquatics: Aquatic nuisance species occur just inside or adjacent to the Forest (Clarks Fork FMU Map 8) including whirling disease, New Zealand mudsnails, and didymo. Fire suppression equipment can travel long distances to the Forest, and with them, the potential to introduce other aquatic nuisance species or move them to another area. Whirling disease has not been documented in any of the streams or lakes in or near the FMU at this time.

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
vegetation	Implement protection measures for invasive plants as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines. Follow practices related to fire management activities described in Forest Service Manual 2080 Noxious Weed Management for Forest Service activities.
aquatic	Implement protection measures for riparian areas, streams and lakes as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Fuels

The Clarks Fork FMU Map 10 displays the fuel types and relative acres for each type associated with the FMU. GIS data layers are also available in the SHF fire management electronic reference file. Additional information regarding fuel conditions and topography that influence fire behavior and potential control problems are described in Section 3.2.4.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
fuels	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels (Forest Plan Amendment 2008-01, page 3). Reduce the accumulation of natural fuels (Forest Plan 1986, page III-8). Prescribed fire will be utilized as a vegetative and fuels management technique where it is the most cost-efficient and acceptable alternative to achieve management objectives (Forest Plan 1986, page III-96). Maintain fuel conditions that permit fire suppression and prescribed fire to maintain habitat needed for selected species or species population levels (Forest Plan 1986, page III-152).

Fire Regime Condition Class

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
fire regime condition class	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. Prescribed fire plays a role in areas where managing unplanned ignitions for resource benefits is not appropriate because of high values (Forest Plan Amendment 2008-01, page 3).

FMU Initial Response Guidance and Assigned Resources

Clarks Fork Fire Management Unit Initial Response/Attack Run Card

Full Suppression Response Zone					
Dispatch Resource	Fire Danger – Eagle RAWS 480214				
	Low	Mod	High	VH	EXT
Engine	1	1	1	2	3
Hand Crew (2 - 4 person)			1	1	2
Helicopter/Aerial Recon				1	1
Duty Officer/AFMO/FMO Notification	X	X	X	X	X
Unplanned ignitions are considered to be unwanted fires and initial attack responses will consist of the safest and most effective and cost efficient actions to contain and control fires as quickly as possible.					

Resource Dependent Response Zone					
Dispatch Resource	**Fire Danger – Eagle RAWS 480214**				
	Low	**Mod**	**High**	**VH**	**EXT**
Engine (T3, T4, or T6)	1	1	1	2	3
Hand Crew (2 - 4 person)			1	1	2
Helicopter/Aerial Recon			1	1	1
Duty Officer/AFMO/FMO Notification	X	X	X	X	X
Local Jurisdiction Notification (if structures are threatened)	X	X	X	X	X
Initial response to fires within the Resource Dependent Response Zone will require an assessment as to whether or not the fire is a candidate to be managed for resource benefits. The Duty Officer/AFMO/FMO begins this assessment immediately by evaluating the probable cause and location of the fire relative to resource values. Commensurate with the assessment, initial attack resources are dispatched to a fire under the assumption that the fire is to receive a suppression response unless directed otherwise. Human caused fires are classed as an unwanted fire and will receive a suppression response.					

Fire Use Response Zone					
Dispatch Resource	**Fire Danger – Eagle RAWS 480214**				
	Low	**Mod**	**High**	**VH**	**EXT**
Engine				1	2
Hand Crew (2 - 4 person)	1	1	1	1	2
Helicopter/Aerial Recon			1	1	1
Duty Officer/AFMO/FMO Notification	X	X	X	X	X
Initial response to fires within the Fire Use Response Zone will require an assessment as to whether or not the fire is a candidate to be managed for resource benefits. The Duty Officer/AFMO/FMO begins this assessment immediately by evaluating the probable cause and location of the fire relative to resource values. Initial response resources are dispatched to a fire under the assumption that the fire is a potential candidate to be managed for resource benefits and would not begin suppression actions unless directed otherwise. Human caused fires are classed as an unwanted fire and will receive a suppression response.					

3.2.3. Clarks Forks FMU Characteristics

3.2.3.1. Safety

Firefighter and public safety considerations

Firefighter and public safety is the priority in all fire management activities. Reduce firefighter and public injuries and loss of life, and damage to communities from unwanted wildland fires, by prioritizing firefighter and public safety above other concerns in fire management activities (Forest Plan Amendment 2008-01, page 4).

History on the Forest indicates that while the annual number of fire starts is not particularly high, the fire environment is complex as high intensity fires with rapid rates of spread are common during active burning years. The fire environment is further complicated by a Forest-wide insect epidemic; mature forest, steep terrain, and frequent wind events that are not always well forecasted. There have been three recorded fire fighter entrapments on the Forest. The most serious occurred in 1937 when ten firefighters lost their lives on the Blackwater Fire (North Fork FMU). The most recent entrapment occurred in 2006 on the Little Venus Fire (Greybull FMU) where ten firefighters survived an entrapment, fortunately with only minor injuries.

Environmental and Aviation Hazards

Aviation hazards are identified on the Forest Aviation Hazard Map (SHF fire management electronic reference file). High winds and terrain-influenced winds that affect aviation operations are common. Environmental hazards include steep, rocky and difficult terrain, and grizzly bears.

3.2.3.2. Physical

Terrain

The Shoshone National Forest is in the northern Rocky Mountains in northwest Wyoming. With Yellowstone National Park on its northwestern border, the Shoshone extends more than 180 miles from the Montana state line to South Pass near Lander, Wyoming. It is bordered by the Custer and Gallatin National Forests on the north and by Yellowstone National Park and the Bridger-Teton National Forest on the southwest. The Shoshone is set within the lee of the massive Absaroka, Beartooth, and Wind River Mountains.

The terrain varies widely from sagebrush flats to rugged mountains because the Shoshone is situated on the western edge of the Great Plains and the eastern side of the continental divide. Elevations on the Shoshone range from 4,600 feet at the mouth of the spectacular Clarks Fork Canyon to 13,804 feet on Gannett Peak, Wyoming's highest point. The higher mountains are snow-clad most of the year with immense areas of exposed rock interspersed with meadows and forests. The Shoshone provides a diverse landscape—from lush grasslands to alpine meadows, from crystal-clear lakes to glacial carved valleys, from rolling hills to sheer mountain walls.

Most of the Shoshone is within the upper Missouri River Basin, subdivided by the Wind/Big Horn, and Clarks Fork River basins. The southern tip of the Shoshone is in the Sweetwater drainage, which flows into the Platte River system. Principal rivers within the Shoshone boundary are the Clarks Fork of the Yellowstone River, North and South Forks of the Shoshone River, and the Greybull, Wind/Big Horn, and Popo Agie Rivers.

FMU Travel routes

Much of the FMU does not have road access. The primary travel routes are located in the Resource Dependent Management Response Zone. Main travel routes include the Chief Joseph Highway that accesses the Crandall area and Cooke City, Montana; the Beartooth Highway; and the Sunlight Basin Road.

3.2.3.3. Biological

See Fire Management Unit Resources and Values in Section 3.2.2 and maps in Section 3.2.5 for information regarding biological features.

3.2.3.4. Resources

See Fire Management Unit Resources and Values in Section 3.2.2 and maps in Section 3.2.5 for information regarding resources.

3.2.4. Clarks Forks FMU Fire Environment

3.2.4.1. Fire History and Behavior

Historic Fire Occurrence and Behavior

Clarks Fork FMU Map 9 displays the historic fire occurrence and cause for the FMU. Since 1970, the Forest has averaged 26 wildfires annually. Due to persistent drought and widespread insect epidemics in combination with changes in fire management philosophy, the trend in acreage burned since 1998 has been increasing. The annual average acres burned for the past 30 years is approximately 7,200 acres. The annual ten-year average is over 8,900 acres; the annual average for the last five years is approximately 16,400 acres burned.

Natural ignitions account for 51% of the fire starts (87% of the acres burned). Human-caused fires account for 49% of historical fire occurrence (13% of the acres burned); escaped campfires reflect 60% of these ignitions. Fire size classes A and B account for 90% of the fires. The annual fire occurrence for each FMU was generated from PC Historical Analysis (PCHA) using representative locations (RL) to determine wildland fire distribution. Large fires have occurred all months of the established season but typically are anticipated in August and September.

During the summer of 1988, the Clover and Mist Fires burned 194,430 acres in the Clarks Fork and North Fork FMUs. Fires of this size are considered low in frequency, one in a hundred year occurrence; the importance of the two events is recognized as normal in the natural fire ecology of the Shoshone National Forest. Considering the rare occurrence in conjunction with fires analyzed in the historical period, the annual acres burned are 2,334. Fire data (1909 - 1982) in the Forest Plan shows the fire occurrence about the same as today but with 873 acres burning annually. Before 1900, fire history studies indicate areas equal or larger to Clover/Mist burned on the Forest.

Fires in 2003 were record setting from most points of view. Total acreage burned was 26,094. Number of fires was 48. Number of starts in a day set a new record of 5 (August 10, 2003). Consecutive days with multiple starts set a record with 8.

The 2006 fire season was significant on the Forest. Low snow pack, below average spring precipitation, and a widespread insect epidemic resulted in conditions conducive to stand replacement type fires in low frequency fire regimes. Although the number of fires recorded were near average, the total acres burned exceeded 40,000. The two most significant fires were

Little Venus which burned in the Greybull FMU and the Purdy Fire in the Wind River FMU. Large fire growth began in earnest in mid July and continued until early September.

The 2007 fire season continued to reflect the trend of large fire growth resulting from the build-up of fuels on the Forest and persistent drought conditions. Again the number of fires were near average, but the total acres burned were on the Forest were approximately 5,700 acres. The Citadel Fire (South Fork FMU) began in mid-June and burned approximately 2,000 acres and the Columbine Fire (North Fork FMU), which originated during August in Yellowstone National Park, burned approximately 3,700 acres on the Forest. Total acres burned for the Columbine Fire was approximately 18,000 acres.

The 2008 fire season was below average for number of starts with 23; however, the acres burned were approximately 68,200. The most significant fire of the season was the Gunbarrel Fire that burned in the North Fork FMU for months and consumed over 68,100 acres. There were several days of large fire growth and extreme fire behavior observed during this fire.

Fire Behavior and Fuels

The Clarks Fork FMU Map 10 displays the fuel types and relative acres for each type associated with the FMU. GIS data layers are also available in the SHF fire management electronic reference file. Vegetation within the Forest is classified into five broad communities: alpine, coniferous forest, montane meadow-parkland, sage-grass, and riparian. Coniferous forest represents the largest vegetation type on the Forest. National Fire Danger Rating System fuel model G is most typical of the coniferous forest fuel bed. Low rate of spread accompanied with high heat intensity typifies this model but in drought years, high rates of spread have been observed from wind and plume dominated crown fires. In review of large fires on this Forest, the coniferous forest has been the primary carrier of fire and is the only fuel type represented in the suppression analysis.

Insect and disease infestations have become epidemic on most of the Forest, and fuel model characteristics are changing. The Forest is experimenting with fuel model modification using FARSITE to better match the changing condition.

Fire Regime Condition Class

Seventy-eight percent of the FMU is in a fire regime condition class 1. Two vegetation conditions are in some jeopardy based on the time since the last disturbance. These include approximately 110,400 acres of fire regimes II and III that are in condition class 2. This represents approximately 22 percent of the FMU. A summary of the number of acres by fire regime condition class are displayed in the table below and on Clarks Fork FMU Map 11.

Clarks Fork FMU Fire Regimes and Condition Classes

Fire regime	Condition class	Fire return interval	Burn severity	Acres	Percent
II	1	35 – 70 years	Stand replacement	989	<1%
	2			14,439	3%
III	1	35 -100 years	Mixed	12,724	3%
	2			96,008	19%
IV	1	70 - 150 years	Stand replacement	262,126	52%
V	1	200 – 300 years	Stand replacement	115,995	23%
Barren	None	None	None	3,940	1%

3.2.4.2. Weather

The prevailing climate is categorized as "continental mountainous." Moisture is brought into the Greater Yellowstone Area from storms tracking west to east. As the storms are forced up and over the continental divide, moisture is leached from the storm system at the upper elevations. The average annual precipitation, ranging from 15 to 70 inches, varies with topography and elevation. Eighty percent of the precipitation in the upper elevations occurs in the winter and spring; thunderstorms in the summer provide 20%. In the lower elevations, seasonal distribution of precipitation shifts to a lower accumulation with the same seasonal percent distribution. Typical summer temperatures vary with elevation; highs ranging from 65 to 90 degrees and lows from 35 to 60 degrees are common with respect to elevation. The average summer relative humidity varies also with elevation and topography; relative humidity of single digits are not uncommon in the upper elevations while the lower drainages are measuring 30%. During the established fire season, a typical summer sees numerous thunderstorms and 23 cold front passages. Additional weather and fire behavior related information is located in the Shoshone National Forest fire management electronic reference file.

3.2.5. Clarks Forks FMU Maps

The following maps identify key resources, features, and other attributes of the FMU that are intended for use when determining objectives and developing fire management objectives for an incident. Key maps for the FMU are included in this document when possible or can be found in the SHF fire management electronic reference file.

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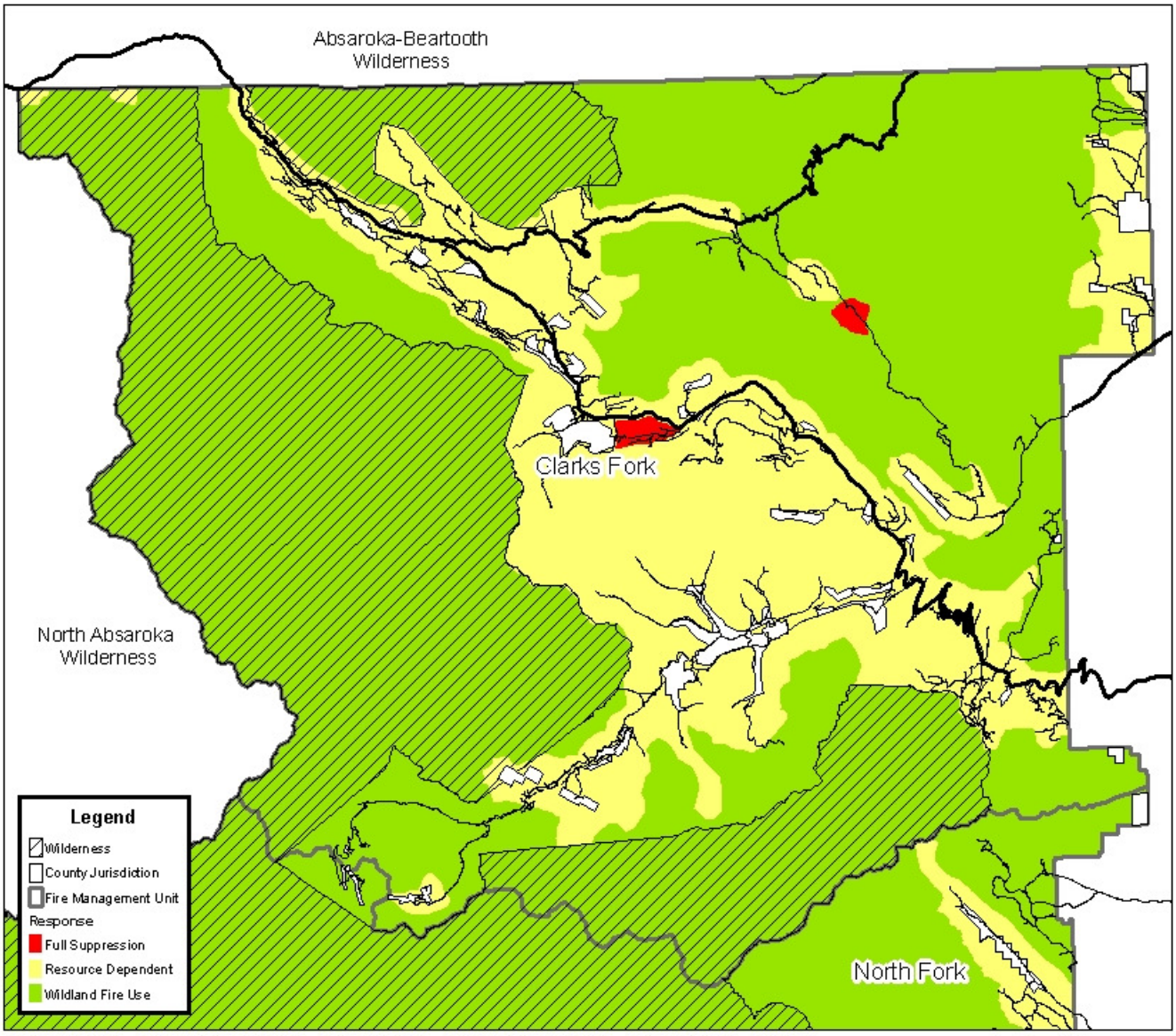
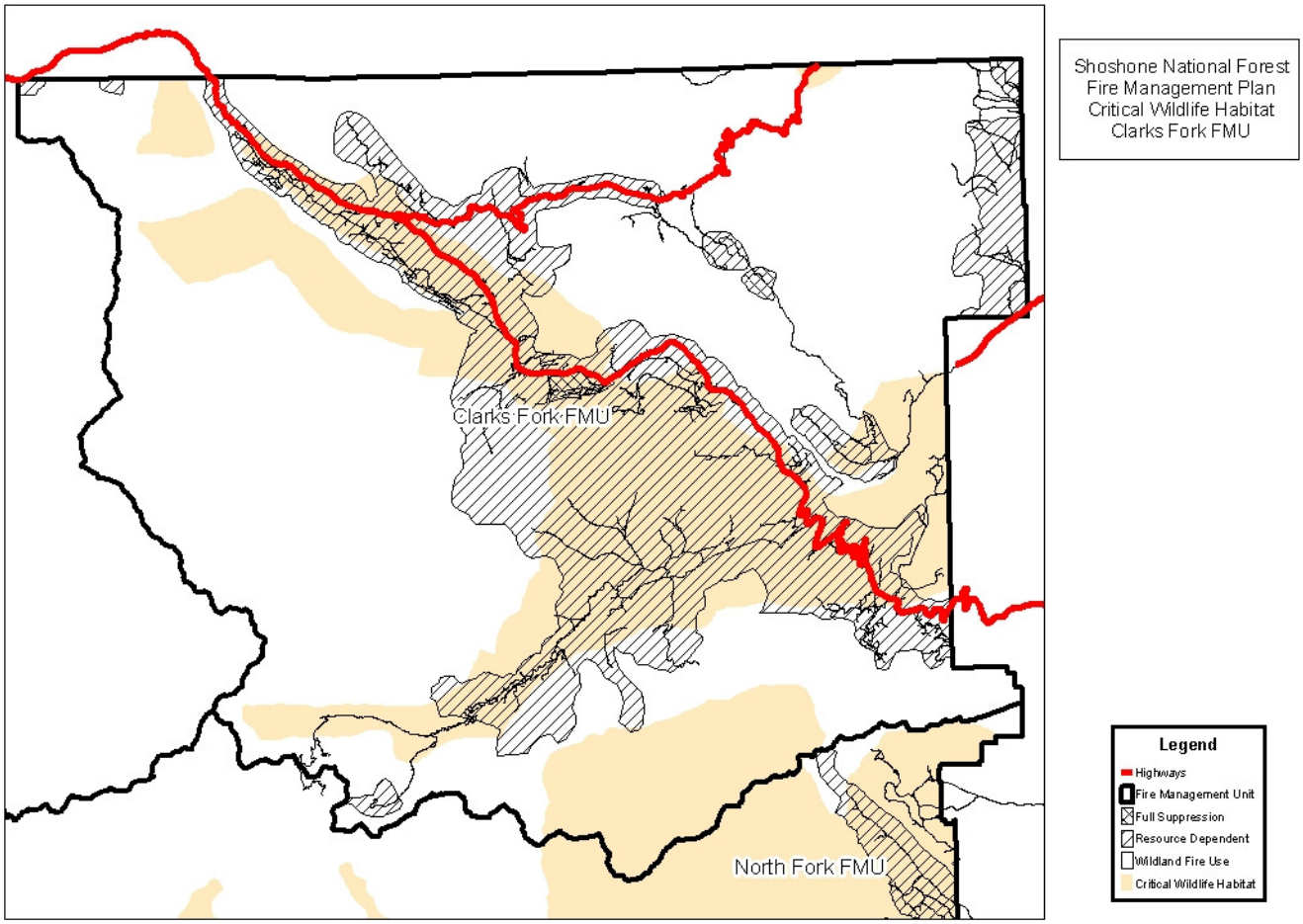
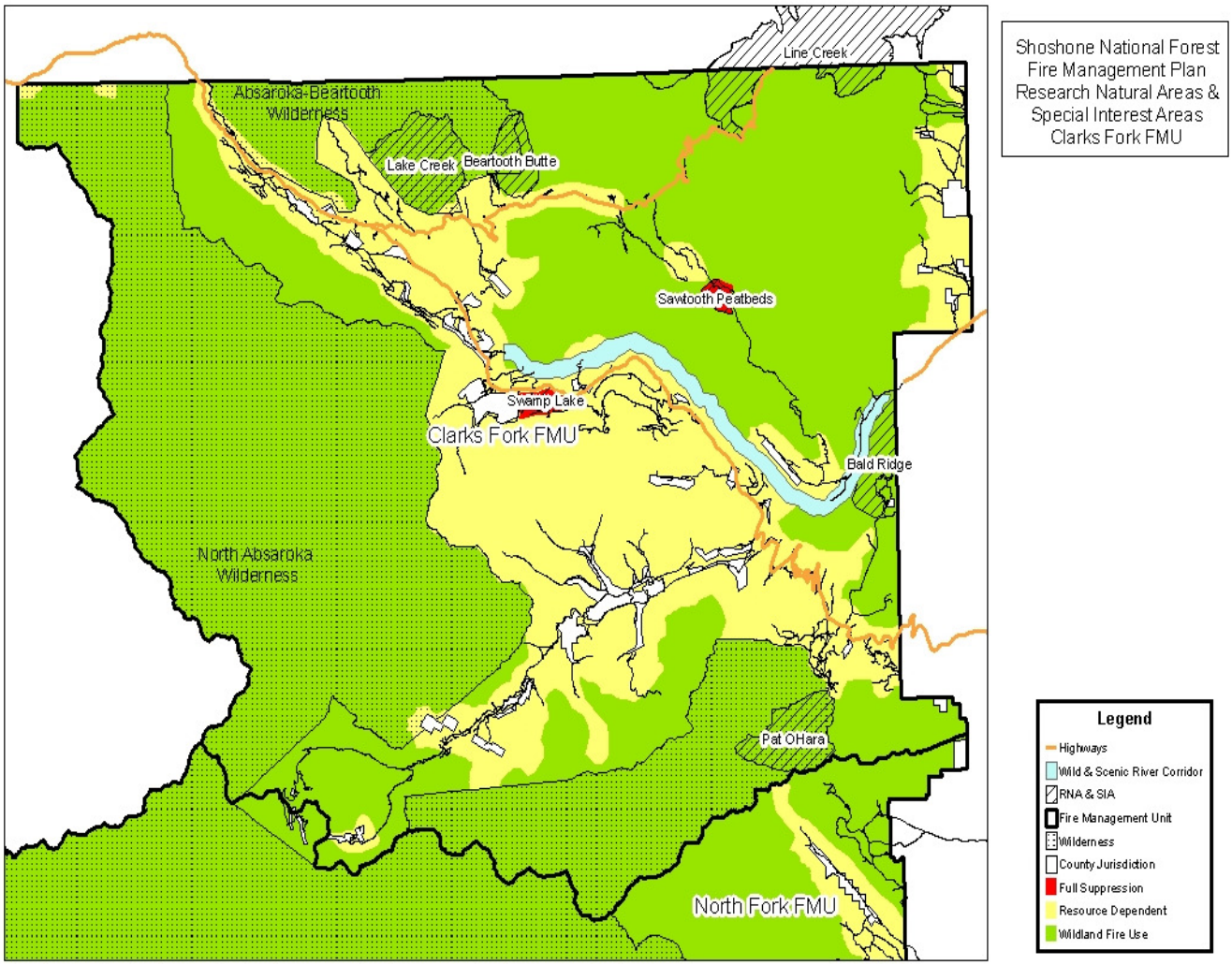
Clarks Fork FMU Map 1 - Clarks Fork FMU Boundaries and Response Zones



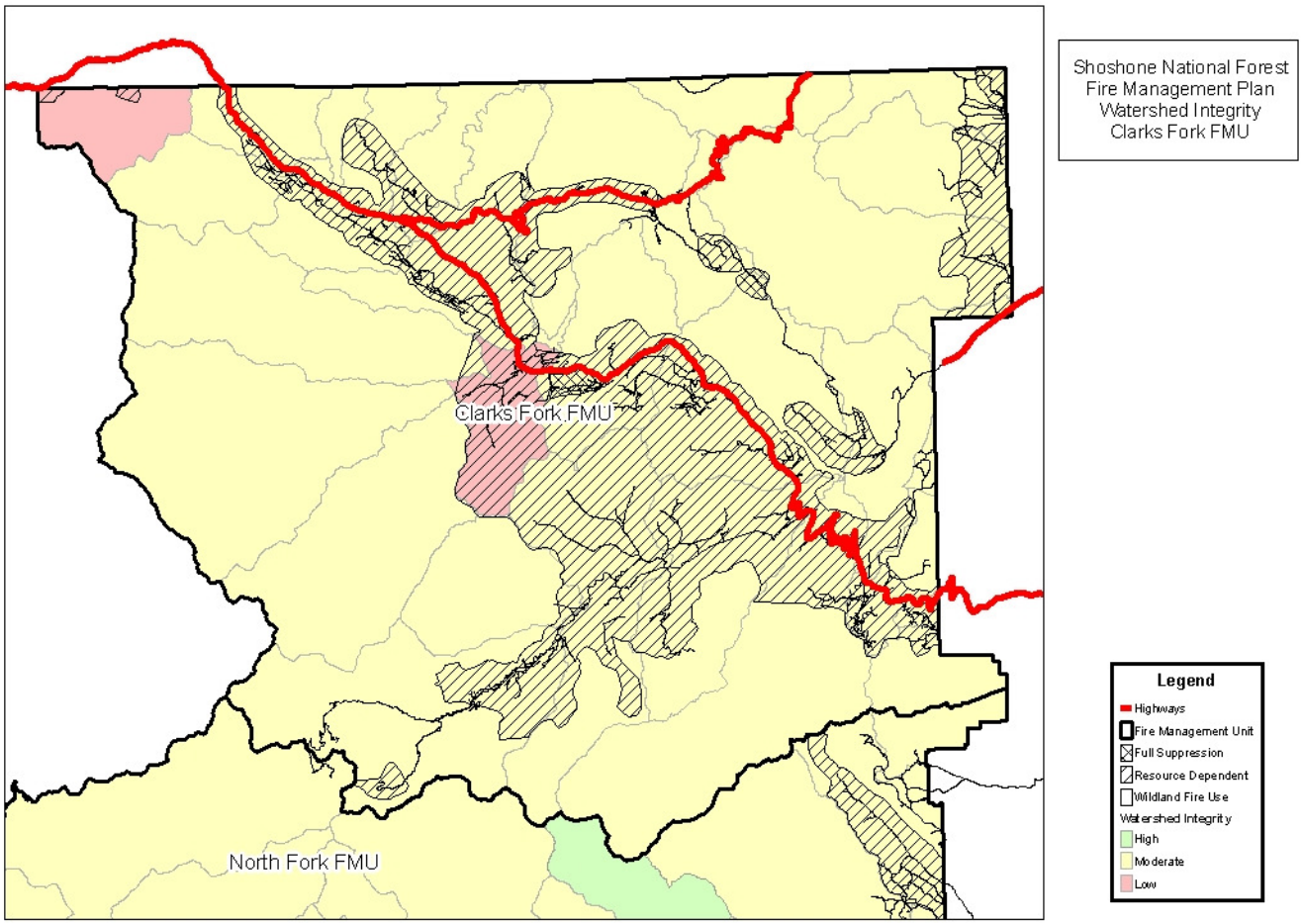
Clarks Fork FMU Map 2 - Clarks Fork FMU Wildlife Critical Winter Range and Yellowstone Cutthroat Trout Locations



Clarks Fork FMU Map 3 - Clarks Fork FMU Special Areas



Clarks Fork FMU Map 4 - Clarks Fork FMU Watershed Condition



Clarks Fork FMU Map 5 - Clarks Fork FMU Cultural Resources

A hard copy map of the approximate location of known cultural sites and not yet surveyed areas that have a high probability of containing sites have been distributed to the zone FMOs. Detailed site-specific information is held by the Forest heritage program manager and can be obtained when needed. The information is stored in a GIS database as well.

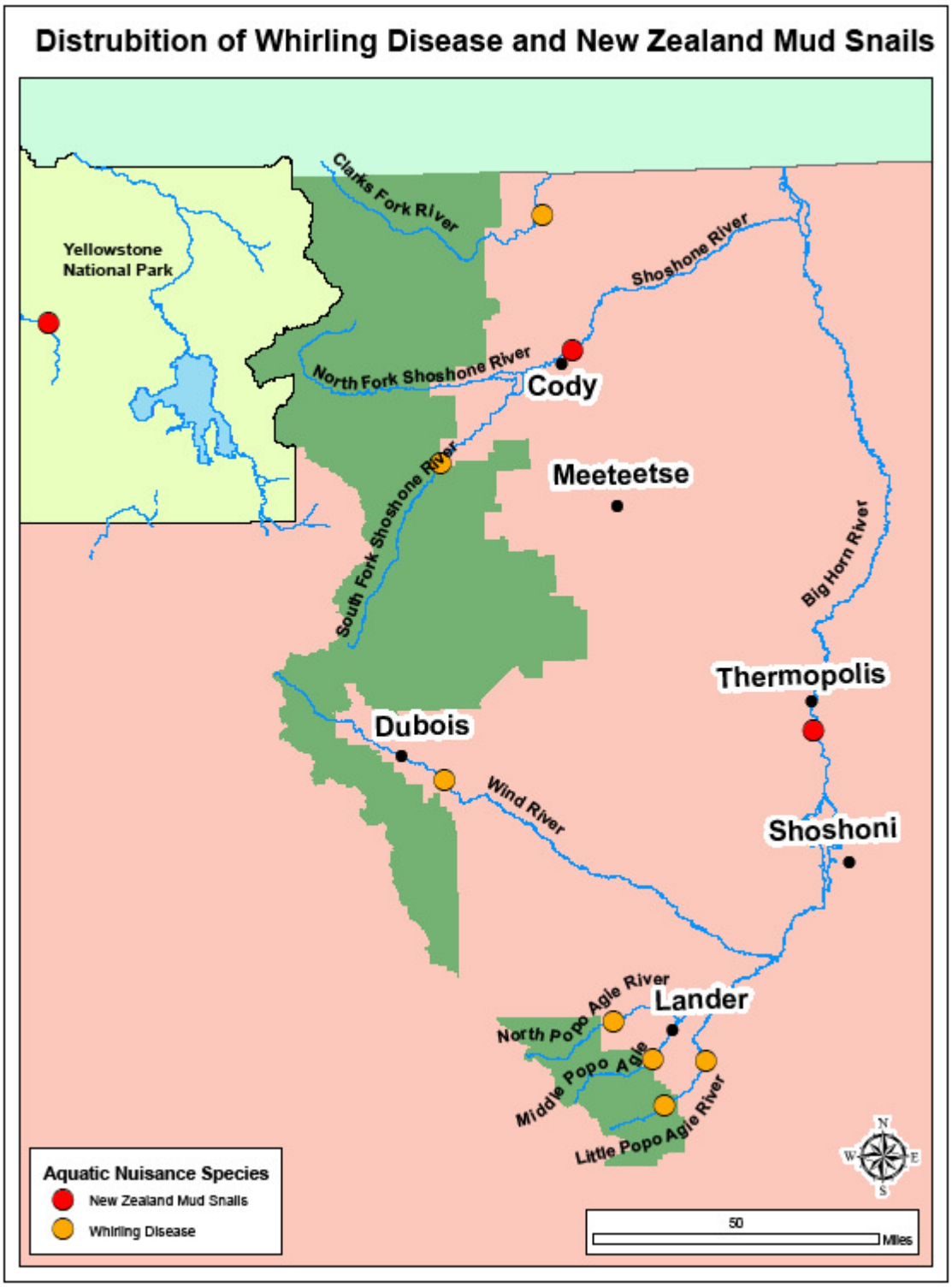
Clarks Fork FMU Map 6 - Clarks Fork FMU Values at Risk

A comprehensive map displaying the values in the FMU that may be at risk is available in hardcopy and can be printed from the SHF fire management electronic reference file. The associated data is also stored in a GIS data format that can be accessed from the Forest's GIS fire files at anytime when needed.

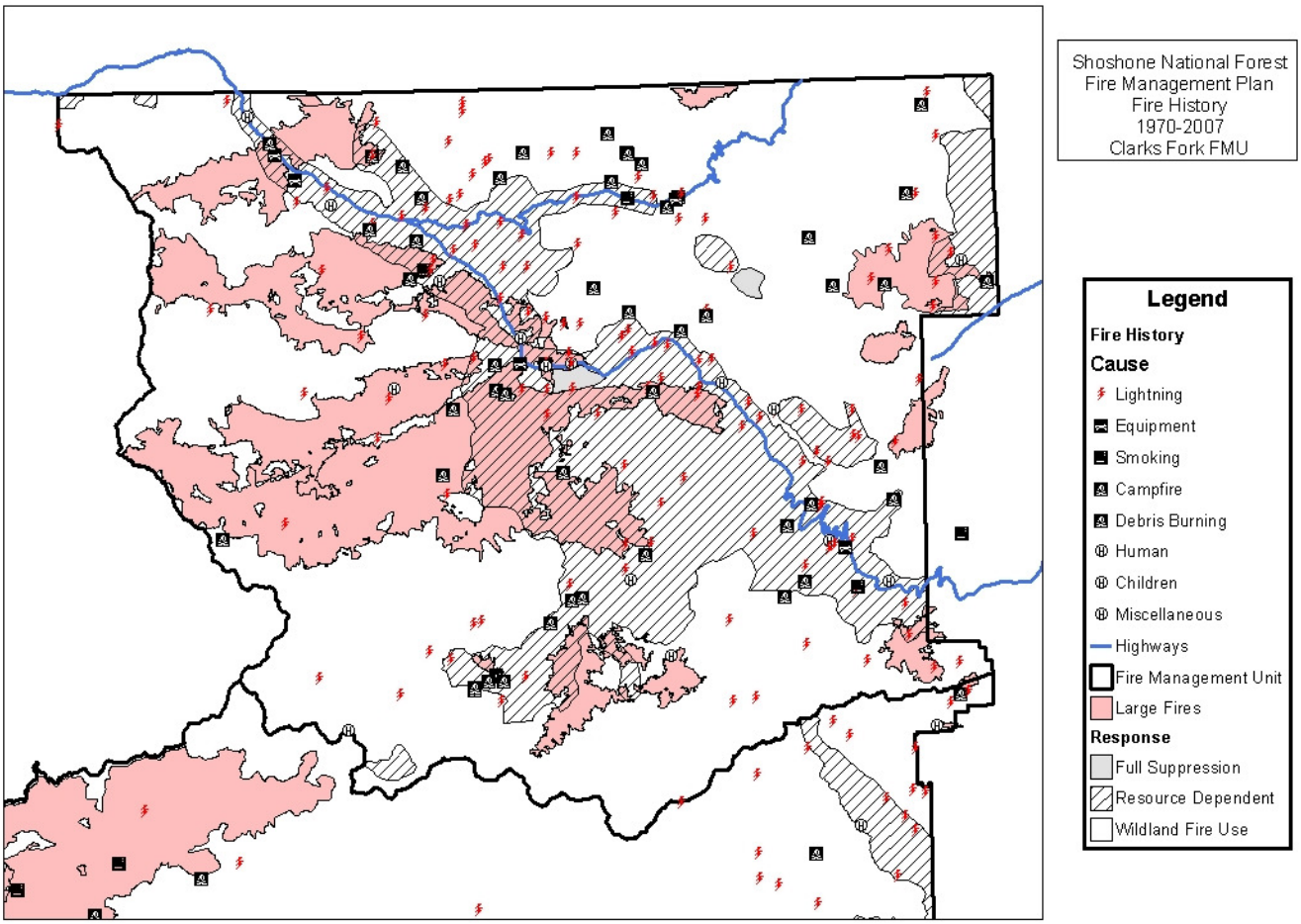
Clarks Fork FMU Map 7 - Clarks Fork FMU Invasive Plants

Invasive plant locations are mapped and available from the Forest's GIS corporate database.

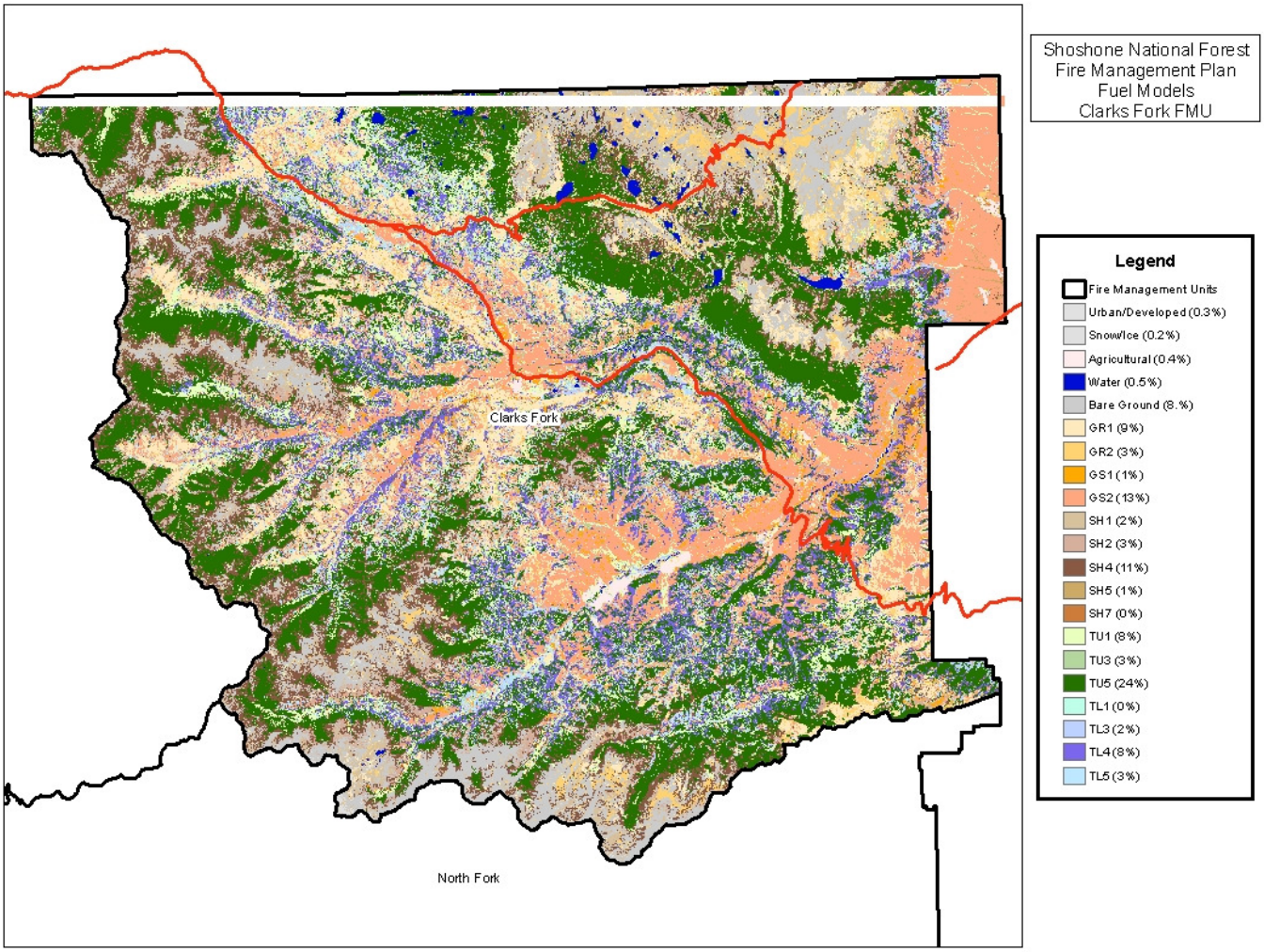
Clarks Fork FMU Map 8 - Clarks Fork FMU Invasive Aquatics



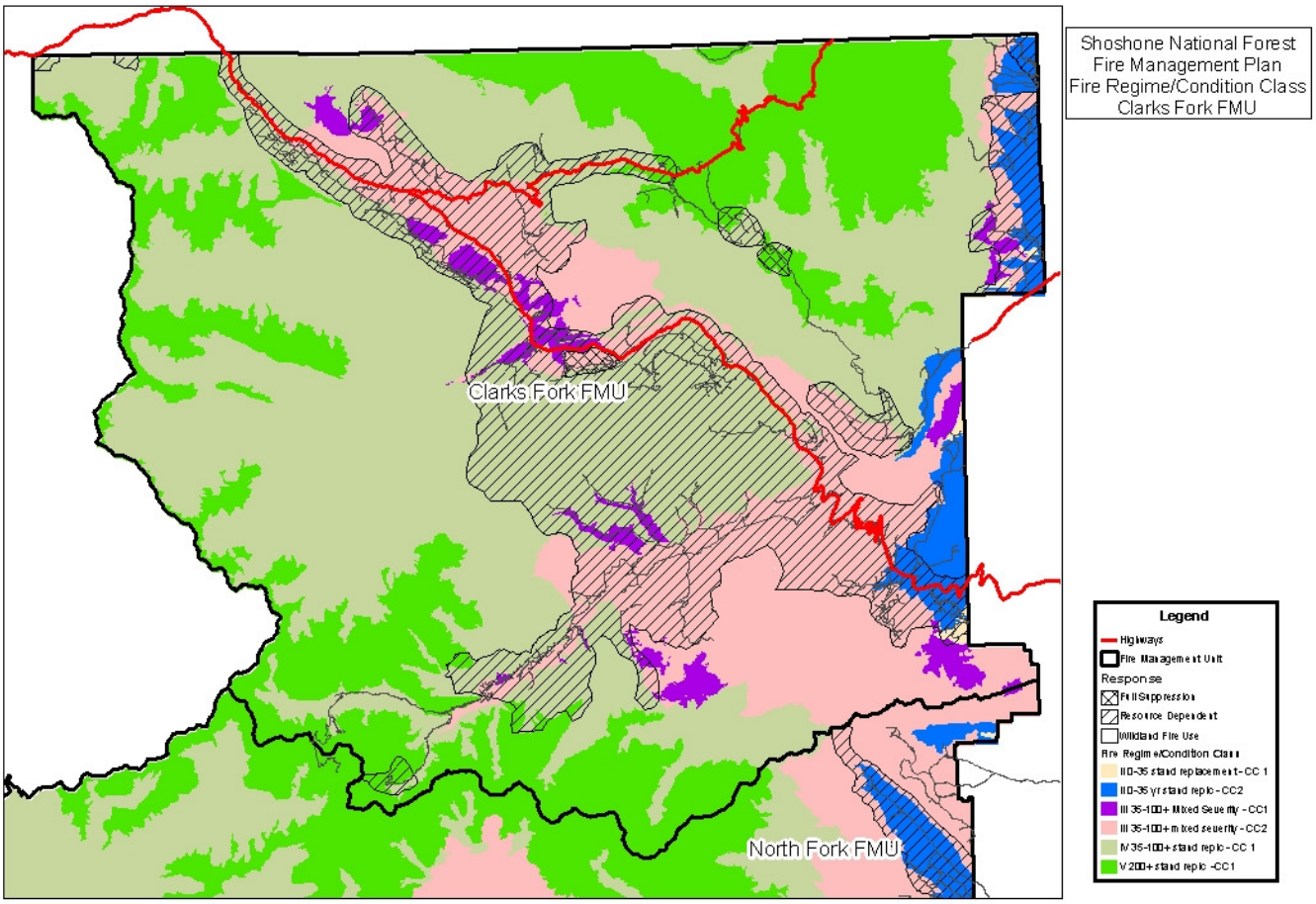
Clarks Fork FMU Map 9 - Clarks Fork FMU Historical Fire Occurrence



Clarks Fork FMU Map 10 - Clarks Fork FMU Fuel Type



Clarks Fork FMU Map 11 - Clarks Fork FMU Fire Regimes and Condition Classes



3.3. Fire Management Considerations for the North Fork Fire Management Unit

3.3.1. North Fork FMU Snap Shot

Fire Management Unit Identification

Administrative Unit	FMU Name	FMU #	Management Response Zones	Acres
Shoshone National Forest - North Zone	North Fork	1	01 – Suppression	0
			02 – Resource Dependent	68,778
			03 – Fire Use	398,014

Ownership and Jurisdictions

Owner	Jurisdiction	Acres
US Forest Service	Shoshone National Forest	465,300
Private	Park County Fire District #2	1,492
	Total	**466,792**

Dispatch Center

Name	Phone Number
Cody Interagency Dispatch Center	307-578-5140

Radio Frequencies*

Agency	Name	Receive Frequency	Transmit Frequency	Transmit Tone
USFS	North Zone Net	170.5000	170.5000	110.9
USFS	Clayton RPT	170.5000	166.5625	131.8
USFS	Carter Mountain RPT	170.5000	166.5625	146.2
USFS	Wood Ridge RPT	170.5000	166.5625	103.5

*See the Shoshone National Forest Radio Guide in the SHF fire management electronic file for a complete list of radio frequencies.

NFDRS Weather Stations

Station Number	Station Name & Owner	Fuel Model	Location	NESDIS #	Elevation
480213	Crandall USFS	G - Timber	44° 51.01” 109° 36.41”	32353130	6,612 ft.
480214	Eagle USFS	G - Timber	44° 29.08” 109° 53.47”	326fa142	7,500 ft.

NFDRS Weather Station Fire Behavior Indicators and Thresholds

Preparedness Level	SHF North FDRA SIG (Crandall & Eagle)	
	ERC[7]	100 Hr Fuel Moisture[8]
I	<43	15+
II	43-56	14-13
III	57-64	12-11
IV	65-71	10-9
V	72+	<8

[7] Best indicator for large fire potential

[8] Best indicator of fire occurrence and multi-fire days.

General Risk Category

Subjective overall risk relative to values present, fuel hazard and fire frequency is identified for each fire management unit response zone in the table below. Additional risk information related to fire behavior and length of season are described in Section 3.2.4.

Response Zone	Risk Rating			
	Values Present	Fuel Hazard	Fire Frequency	Overall Risk
01 - Suppression	NA	NA	NA	NA
02 – Resource Dependent	4	3	3	3
03 – Fire Use	1	4	3	2

1 = Low; 2 = Low Moderate; 3 = Moderate; 4 = Moderate High; 5= High

Predominant Vegetation Types

Cover Type	%
Grassland-Sagebrush	31 %
Forest – conifers	53 %
Forest – aspen & willow	2 %
Barren	14 %

3.3.2. North Fork FMU Guidance

Management Guidance

Wildland fire management guidance for the resources associated with the fire management unit is derived from the Shoshone National Forest Land and Resource Management Plan (Forest Plan). Applicable wildland fire management Forest Plan direction, goals, desired conditions, standards, guidelines, and management area prescriptions are detailed in Section 0 the Shoshone Fire Management Plan (FMP). The specific Forest Plan direction that is used to formulate wildland fire benefit and resource protection objectives; initial attack/response actions; and appropriate management response strategies and tactical options that apply to the resources, values and attributes that occur in the fire management unit (FMU) are referenced throughout this section.

Other sources of wildland fire management direction and resource protection measures that originate in other laws, policy, handbooks and guides are also used to provide direction and guidance for wildland fire management activities for this FMU. Many of these sources are located in the Shoshone Fire management electronic reference file.

Fire Management Unit Resources and Values

Air Quality

The North Absaroka and Washakie Wildernesses are federally designated Class I Airsheds in the FMU. Yellowstone National Park located to the west of the FMU is also designated as a Class 1 Airshed. There are no non-attainment areas within or adjacent to the FMU.

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
air quality	Comply with State and Federal air quality standards (Forest Plan 1986, page III-97).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
air quality	Implement smoke management actions in accordance with Wyoming Air Quality Standards and Regulations (Regulations) chapter 10, section 4, Smoke Management Requirements.

Vegetation

Forested vegetation varies widely across the FMU due to variations in elevation, aspect, climatic factors, and past disturbances. The uppermost elevation zone is characterized by alpine tundra and the absence of trees. The next lower elevation zone is the subalpine zone, dominated in most places by Engelmann spruce, subalpine fir, and whitebark pine. Below the subalpine zone lies the montane zone, characterized by Douglas-fir. Other species that occur in the subalpine and montane zones include lodgepole pine, limber pine, and aspen.

Grass, sometimes mixed with sagebrush, regularly occurs in forest openings. In areas where environmental factors do not support tree reproduction, grasslands and shrublands persist. In the foothill zone below the montane zone, grass and shrubs dominate. In the montane and subalpine zones, grass and shrubs persist in areas where site conditions limit moisture, such as well-drained landforms, southern or western exposures, thin or poorly developed soils, and high windswept sites. In the severe environment of the alpine zone, grass and shrubs dominate. In portions of the subalpine and montane zones, lodgepole pine and aspen are common early seral species following fire disturbance. Fire also affects the acres that are dominated by grasses and shrubs.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
vegetation	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. Prescribed fire plays a role in areas where managing unplanned ignitions for resource benefits is not appropriate because of high values (FPA 2008-1 p. 3). Improve the health and vigor of vegetation types outside wilderness and selected types in wilderness where necessary (Forest Plan 1986, page III-6). Integrate vegetation management with resource management in functional areas – range, recreation, water and wildlife (Forest Plan 1986, page III-7).
aspen	Clearcut, burn or treat aspen mechanically to in order to promote suckering and revegetation of aspen patches (Forest Plan 1986, page III-155)

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
vegetation	Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Wildlife habitats – terrestrial and aquatic

Critical Winter Range: Critical wildlife winter range areas are identified on North Fork FMU Map 2. Currently, there are no issues with condition of the winter range area that would prevent a fire to be managed for resources benefits or require protection.

Grizzly Bear: This species is a Forest Service Region 2 threatened species. Grizzlies have variable habitat, and eat everything from carcasses to moths to whitebark pine seeds to garbage. The most important elements needed to stabilize grizzly bear populations are minimizing bear/human conflicts and protecting key food sources, such as whitebark pine and moth sites. Most of the FMU is inside the Shoshone Bear Management Unit of the Primary Conservation Area.

Yellowstone Cutthroat Trout: Yellowstone cutthroat trout is a subspecies of cutthroat trout that was historically found in the Yellowstone River drainage and reaches of the Snake River drainage. Stream segments containing Yellowstone cutthroat trout are identified on North Fork FMU Map 2.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
wildlife	Integrate vegetation management with resource management in functional areas – range, recreation, water and wildlife (Forest Plan 1986, page III-7) Maintain fuel conditions that permit fire suppression and prescribed fire to maintain habitat needed for selected species or species population levels (Forest Plan 1986, page III-152).

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
grizzly bear – food storage	Minimize grizzly bear/human conflicts using food storage, information and education, and other management tools (FPA 2006-001).
grizzly bear habitat – food sources	Maintain the productivity, to the extent possible, of the four key grizzly bear food sources as identified in the Conservation Strategy (FPA 2006-001).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
grizzly bear	Implement bear safety and food storage mitigation measures as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.
Yellowstone Cutthroat Trout	Implement protection measures for riparian areas, lakes and streams as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Special areas

Research Natural Areas: There are two proposed research natural areas in the FMU: Grizzly Creek and Sheep Mesa. These research natural areas are also located within the Washakie Wilderness. Research Natural Areas are part of a national network of ecological areas designated in perpetuity for research, education, and to maintain biological diversity on National Forest System lands.

See North Fork FMU Map 3 for the location of special areas.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
special management areas	Allow natural succession to proceed without human intervention in designated wilderness, wilderness study areas, and special management areas (Forest Plan 1986, page III-6). Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. (Forest Plan Amendment 2008-1 p. 3).

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
research natural areas	Fires within research natural areas (established and proposed) should be suppressed when they threaten the values for which the research natural area was established or threaten other values outside the research natural area. For unwanted wildland fires that threaten to burn into research natural areas, the appropriate management response should consist of strategies and tactics that keep fires from burning into research natural areas (FPA 2008-1 p. 6).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
Research Natural Areas	Use minimum impact suppression techniques when suppressing fires within research natural areas area (FPA 2008-1 p. 6).

Water quality

All the 6th level hydrologic unit watersheds in the FMU are rated as being in good condition or better (North Fork FMU Map 4). At this time there are no concerns with application of fire on the landscape as a means to accomplish resource benefits.

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
water	Improve or maintain water quality to meet state water quality standards (Forest plan 1986, page III-70).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
water quality	Implement protection measures for riparian areas, lakes and streams as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines. Implement practices regarding fire management activities as described in the Forest Service Handbook 2509.25, Watershed Conservation Practices.

Cultural Resources

The general location of known cultural resource sites and not yet surveyed areas that have a high probability of containing sites are located on the Cultural Resources Map for the FMU (North Fork FMU Map 5). The map with the general locations is part of the SHF fire management electronic reference file and is also available for use by fire managers and agency administrators. More specific information regarding site locations will be provided by the heritage program manager when needed.

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
cultural	Wildland fire management activities should protect cultural resources when feasible with priority given to sites listed on the National Register of Historic Places, sites recommended for selection to the Register and to known unevaluated sites (FPA 2008-1 p. 6).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
cultural	Follow procedures for wildland fire management activities as outlined in Appendix G of the Programmatic Agreement with the State Historic Preservation Officer for Compliance with the National Historic Preservation Act on Forest and Grasslands of Wyoming. Implement protection measures for cultural resources as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Wilderness

There are two wildernesses in the FMU (North Fork FMU Map 1). The North Absaroka comprises a significant portion of the north half of the FMU and extends into the North Fork FMU to the north. The Washakie Wilderness comprises much of the southern half of the North Fork FMU. It extends into the South Fork and Greybull FMUs. The middle of the FMU is bisected by the North Fork of the Shoshone River corridor, which is not wilderness.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
wilderness	Permit fires to play, as nearly as possible, their natural ecological role within wilderness area (FPA 2008-1 p. 9). Allow natural succession to proceed without human intervention in designated wilderness, wilderness study areas, and special management areas (Forest Plan 1986, page III-6).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
wilderness	Implement minimum impact suppression and logistic techniques as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Goods and Services

Timber: Lands suitable for timber production are present within the FMU and are primarily located within the resource dependent zone. Lands suitable for timber production are identified on the Values at Risk Map for the FMU (North Fork FMU Map 6) Lands suitable for timber production are considered high value assets and under most circumstances would not be allowed to burn unless it was determined there would be beneficial effects or no effects. Development of strategies to manage a fire for resource benefits would consist of an assessment

of what areas would benefit from fire and what areas should be protected from fire or subject to limited fire intensity.

There may be a few instances where lands suitable for timber production may be allowed to burn and commercial timber products destroyed or damaged while managing a fire for resource benefits or as an unwanted wildland fire. For example, situations where it is infeasible to protect an isolated stand, or where the value of the timber does not warrant the cost or commitment of resources and a substantial resource benefit may be achieved.

North Fork FMU Active and Planned Timber Sales

Sale Name	Location	Status	Purchaser
Picnic Salvage	T52N, R109W, S11, 12	Active	Wilber Thompson 307-765-2727
Three Milets	T52N, R109W, S11, 12	Active	Great Divide – Russ Adal
South Grinnel Salvage	T52N, R109W, S11, 12	Planned	
Pagoda/Moss TS	T52N, R106W, S22,23,27; T52N R107W, S22	Active	Great Divide Forestry – Russ Linneman 307-388-1890

Grazing: There several grazing allotments within the FMU and they are identified on the Values at Risk Map (North Fork FMU Map 6). Forest-wide Forest Plan direction and desired conditions regarding vegetation is generally consistent with range management objectives. Whether a fire is being managed for resource benefits or protection objectives, coordination with range management specialist and permittees occur.

Special Uses: Permitted outfitter and guide operations occur throughout the FMU. Camp locations are identified on the Values at Risk Map (North Fork FMU Map 6). Whether a fire is being managed for resource benefits or protection objectives, coordination with special uses managers and outfitters occur.

Minerals: There are no mining, drilling or exploration operations occurring in the FMU.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
timber and grazing	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. Prescribed fire plays a role in areas where managing unplanned ignitions for resource benefits is not appropriate because of high values. Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
goods and services	Wildland fire plays a role within and outside of wilderness where appropriate and desirable, but active suppression of fire occurs where necessary to protect life, investments, and valuable resources. Valuable resources include the wildland urban interface, utility corridors and communication sites. Other valuable resources include public water supply, recreation facilities, administrative sites, range allotments, special management areas, fish and wildlife habitats, and lands suitable for timber production (Forest Plan Amendment 2008-01, page2).

Developments, Facilities and Infrastructure

Developments, facilities and infrastructures occur within and adjacent to the FMU and are displayed on the Values at Risk Map (North Fork FMU Map 6). Most of the sites are located within the Resource Dependent Management Zone. There are some facilities and developments in the Fire Use Management Zone.

North Fork FMU Recreation Sites (developed)

Name	Geographic Location
Three Mile Campground	T52N, R109W, S11
Pahaska/Grinnell Trailhead	T52N, R109W, S11
Sleeping Giant Picnic Area	T52N, R109W, S12
Eagle Creek Campground	T52N, R108W, S17
Eagle/Kitty Creek Trailhead	T52N, R108W, S21
Fishhawk Trailhead	T52N, R108W, S26
Newton Creek Campground	T52N, R107W, S28,29
Newton Spring Picnic Area	T52N, R107W, S28
Rex Hale Campground	T52N, R107W, S27
Clearwater Campground	T52N, R106W, S19
Elk Fork Campground/TH	T52N, R106W, S21

Wapiti Campground	T52N, R106W, S21
Big Game Campground	T52N, R106W, S22
Horse Creek Picnic Area	T52N, R106W, S23
Jim Mountain Trailhead	T52N, R105W, S1

North Fork FMU Backcountry Administrative Sites

Name	Geographic Location
Robbers Roost Cow Camp	T53N, R104W, S6
Pat O'Hara Cow Camp	T54N, R104W, S25

North Fork FMU Utilities and Communication Sites

Name	Geographic Location
Rocky Mountain Power Powerline	Above ground powerline extending from the eastern forest boundary to the East Entrance of Yellowstone NP parallels Highway 14-16-20 and runs to all the lodges and recreation residences scattered along the North Fork corridor.
Qwest Phone Company	Buried and above ground phone lines follows powerline and highway along Highway 14-16-20 from eastern forest boundary to East Entrance and runs to all the lodges and recreation residences scattered along the North Fork corridor.
Qwest Phone Comm Site	T52N, R108W, S22
Clayton Mountain Repeater	T51N, R107W, S10
Blackwater SNOTEL	T51N, R107W, S19
Eagle RAWS	T52N, R108W, S8

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
developments, facilities and infrastructure	Wildland fire plays a role within and outside of wilderness where appropriate and desirable, but active suppression of fire occurs where necessary to protect life, investments, and valuable resources. Valuable resources include the wildland urban interface, utility corridors and communication sites. Other valuable resources include public water supply, recreation facilities, administrative sites, range allotments, special management areas, fish and wildlife habitats, and lands suitable for timber production (Forest Plan Amendment 2008-01, page2). Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Wildland Urban Interface

Structures occurring within and adjacent to the FMU are primarily located within the Resource Dependent Management Zone (North Fork FMU Map 1).

Local fire departments and agencies are responsible for structure protection; management of wildland fires burning on the Shoshone National Forest is the responsibility of the Forest Service. Keeping fires from reaching structures and private property adjacent to the Forest as well as permitted lodges and residences located on the Forest is consistent with current federal policy and Forest Plan direction. In addition, cooperative agreements and operating plans are in place that permits Forest Service firefighters to assist local jurisdictions with structure protection on private property, but for not entering structures to suppress fires.

The approach for developing the appropriate management response for wildland fire burning on the Forest that threatens individual structures or the wildland urban interface is the same for fire being managed for resource benefit or suppression objectives. Aggressive or intense management actions would occur in locations that have the highest probability of success in preventing damage or loss while ensuring the safety of the public and firefighters. These actions could occur near structures in close cooperation with the local jurisdiction or at some distance from structures where circumstances are favorable for stopping the advance of a fire toward structures.

North Fork FMU Communities and Subdivisions

Community Name	Geographic Location
Wapiti Valley	Off forest extends from forest boundary east, extending into the Big, Dunn, Jim and Trout Creek areas
Rattlesnake	Ranch in-holding along bottom of Rattlesnake Creek drainage extending west along the foothills of southern Logan Mountain

Cody Country & Green Creek Subdivisions	Off forest in the Green Creek area north and east of forest boundary

North Fork FMU Permitted recreation residences

Community Name	Geographic Location
Pahaska Cabin Group	T52N, R109W, S3
Grinnell Creek Cabin Group	T52N, R109W, S12
Isolated Cabins	T52N, R108W, S18
Mormon Creek Cabin Group	T52N, R108W, S17, 18
Eagle Creek Cabin Group	T52N, R108W, S17, 20
Kitty Creek Cabin Group	T52N, R108W, S21, 28
Isolated Cabin	T52N, R107W, S29
Moss Creek Cabin Group	T52N, R107W, S22
Isolated Cabin	T52N, R107W, S23
Aspen Creek Cabin Group	T52N, R107W, S14, 23
Pagoda Creek Cabin Group	T52N, R106W, S23, 27
Green Creek Cabin Group	T52N, R105W, S4, 33

North Fork FMU Permitted lodges

Lodge Name	Geographic Location
Pahaska	T52N, R109W, S3
Shoshone Lodge	T52N, R109W, S12
Sleeping Giant Ski Area	T52N, R109W, S11
Crossed Sabres	T52N, R108W, S21
Buffalo Bill Scout Camp	T52N, R108W, S22, 27
Goff Creek	T52N, R108W, S27
Elephant Head	T52N, R108W, S25

Absaroka Mountain Lodge	T52N, R107W, S19
Blackwater	T52N, R107W, S21
UXU Ranch	T52N, R107W, S22, 23,26,27
Bill Cody Ranch	T52N, R105W, S19
Rimrock Ranch	T52N, R105W, S29
Trail Shop	T52N, R105W, S20

North Fork FMU Administrative sites

Site Name	Geographic Location
Wapiti Ranger Station	T52N, R106W, S22
East Entrance Yellowstone NP	T52N, R109W, S8

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
wildland urban interface	Wildland fire plays a role within and outside of wilderness where appropriate and desirable, but active suppression of fire occurs where necessary to protect life, investments, and valuable resources. Valuable resources include the wildland urban interface, utility corridors and communication sites. Other valuable resources include public water supply, recreation facilities, administrative sites, range allotments, special management areas, fish and wildlife habitats, and lands suitable for timber production (Forest Plan Amendment 2008-01, page2). Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Invasive species

Invasive plants: There are over 20 high priority terrestrial invasive species on the Shoshone with many more invasive species with the potential to spread across large portions of the Forest. Wildfires of any cause can enhance conditions for spread if fires expose soil, reduce native vegetation, and facilitate the introduction or movement of invasive seed sources into an area. Locations of invasive plants are mapped (North Fork FMU Map 7) and are located in the SHF fire management electronic reference file.

Invasive aquatics: Aquatic nuisance species occur just inside or adjacent to the Forest (North Fork FMU Map 8) including whirling disease, New Zealand mudsnails, and didymo. Fire suppression equipment can travel long distances to the Forest, and with them, the potential to introduce other aquatic nuisance species or move them to another area. Whirling disease has not been documented in any of the streams or lakes in or near the FMU at this time.

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
vegetation	Implement protection measures for invasive plants as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines. Follow practices related to fire management activities described in Forest Service Manual 2080 Noxious Weed Management for Forest Service activities.
aquatic	Implement protection measures for riparian areas, streams and lakes as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Fuels

The North Fork FMU Map 10 displays the fuel types and relative acres for each type associated with the FMU. GIS data layers are also available in the SHF fire management electronic reference file. Additional information regarding fuel conditions and topography that influence fire behavior and potential control problems are described in Section 3.3.4.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
fuels	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels (Forest Plan Amendment 2008-01, page 3). Reduce the accumulation of natural fuels (Forest Plan 1986, page III-8). Prescribed fire will be utilized as a vegetative and fuels management technique where it is the most cost-efficient and acceptable alternative to achieve management objectives (Forest Plan 1986, page III-96). Maintain fuel conditions that permit fire suppression and prescribed fire to maintain habitat needed for selected species or species population levels (Forest Plan 1986, page III-152).

Fire Regime Condition Class

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
fire regime condition class	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. Prescribed fire plays a role in areas where managing unplanned ignitions for resource benefits is not appropriate because of high values (Forest Plan Amendment 2008-01, page 3).

FMU Initial Response Guidance and Assigned Resources

North Fork Fire Management Unit Initial Response/Attack Run Card

Full Suppression Response Zone					
Dispatch Resource	Fire Danger – Eagle RAWS 480214				
	Low	Mod	High	VH	EXT
Engine	NA	NA	NA	NA	NA
Hand Crew (2 - 4 person)	NA	NA	NA	NA	NA
Helicopter/Aerial Recon	NA	NA	NA	NA	NA
Duty Officer/AFMO/FMO Notification	NA	NA	NA	NA	NA
Unplanned ignitions are considered to be unwanted fires and initial attack responses will consist of the safest and most effective and cost efficient actions to contain and control fires as quickly as possible.					

Resource Dependent Response Zone					
Dispatch Resource	**Fire Danger – Eagle RAWS 480214**				
	Low	**Mod**	**High**	**VH**	**EXT**
Engine (T3, T4, or T6)	1	1	1	2	3
Hand Crew (2 - 4 person)			1	1	2
Helicopter/Aerial Recon				1	1
Duty Officer/AFMO/FMO Notification	X	X	X	X	X
Local Jurisdiction Notification (if structures are threatened)			X	X	X
Initial response to fires within the Resource Dependent Response Zone will require an assessment as to whether or not the fire is a candidate to be managed for resource benefits. The Duty Officer/AFMO/FMO begins this assessment immediately by evaluating the probable cause and location of the fire relative to resource values. Commensurate with the assessment, initial attack resources are dispatched to a fire under the assumption that the fire is to receive a suppression response unless directed otherwise. Human caused fires are classed as an unwanted fire and will receive a suppression response.					

Fire Use Response Zone					
Dispatch Resource	**Fire Danger – Eagle RAWS 480214**				
	Low	**Mod**	**High**	**VH**	**EXT**
Engine				1	2
Hand Crew (2 - 4 person)	1	1	1	2	2
Helicopter/Aerial Recon		1	1	1	1
Duty Officer/AFMO/FMO Notification	X	X	X	X	X
Initial response to fires within the Fire Use Response Zone will require an assessment as to whether or not the fire is a candidate to be managed for resource benefits. The Duty Officer/AFMO/FMO begins this assessment immediately by evaluating the probable cause and location of the fire relative to resource values. Initial response resources are dispatched to a fire under the assumption that the fire is a potential candidate to be managed for resource benefits and would not begin suppression actions unless directed otherwise. Human caused fires are classed as an unwanted fire and will receive a suppression response.					

3.3.3. North Fork FMU Characteristics

3.3.3.1. Safety

Firefighter and public safety considerations

Firefighter and public safety is the priority in all fire management activities. Reduce firefighter and public injuries and loss of life, and damage to communities from unwanted wildland fires, by prioritizing firefighter and public safety above other concerns in fire management activities (Forest Plan Amendment 2008-01, page 4).

History on the Forest indicates that while the annual number of fire starts is not particularly high, the fire environment is complex as high intensity fires with rapid rates of spread are common during active burning years. The fire environment is further complicated by a Forest-wide insect epidemic; mature forest, steep terrain, and frequent wind events that are not always well forecasted. There have been three recorded fire fighter entrapments on the Forest. The most serious occurred in 1937 when ten firefighters lost their lives on the Blackwater Fire (North Fork FMU). The most recent entrapment occurred in 2006 on the Little Venus Fire (Greybull FMU) where ten firefighters survived an entrapment, fortunately with only minor injuries.

Environmental and Aviation Hazards

Aviation hazards are identified on the Forest Aviation Hazard Map (SHF fire management electronic reference file). High winds and terrain-influenced winds that affect aviation operations are common. Environmental hazards include steep, rocky and difficult terrain, and grizzly bears.

3.3.3.2. Physical

Terrain

The Shoshone National Forest is in the northern Rocky Mountains in northwest Wyoming. With Yellowstone National Park on its northwestern border, the Shoshone extends more than 180 miles from the Montana state line to South Pass near Lander, Wyoming. It is bordered by the Custer and Gallatin National Forests on the north and by Yellowstone National Park and the Bridger-Teton National Forest on the southwest. The Shoshone is set within the lee of the massive Absaroka, Beartooth, and Wind River Mountains.

The terrain varies widely from sagebrush flats to rugged mountains because the Shoshone is situated on the western edge of the Great Plains and the eastern side of the continental divide. Elevations on the Shoshone range from 4,600 feet at the mouth of the spectacular Clarks Fork Canyon to 13,804 feet on Gannett Peak, Wyoming's highest point. The higher mountains are snow-clad most of the year with immense areas of exposed rock interspersed with meadows and forests. The Shoshone provides a diverse landscape—from lush grasslands to alpine meadows, from crystal-clear lakes to glacial carved valleys, from rolling hills to sheer mountain walls.

Most of the Shoshone is within the upper Missouri River Basin, subdivided by the Wind/Big Horn, and Clarks Fork River basins. The southern tip of the Shoshone is in the Sweetwater drainage, which flows into the Platte River system. Principal rivers within the Shoshone boundary are the Clarks Fork of the Yellowstone River, North and South Forks of the Shoshone River, and the Greybull, Wind/Big Horn, and Popo Agie Rivers.

FMU Travel routes

Most of the FMU does not have road access. The primary travel route through this portion of the Forest is U.S. Highway 14, which is known as the North Fork corridor. Highway 14 serves as an entrance to Yellowstone National Park and is major travel route for tourist. There are a few Forest roads that access the lower portions of the Forest along the North Fork corridor where recreation residences, permitted lodges, and developed recreation sites are located. This area of development and access corresponds closely with the Resource Dependent Management Response Zone boundary.

3.3.3.3. Biological

See Fire Management Unit Resources and Values in Section 3.3.2 and maps in Section 3.3.5 for information regarding biological features.

3.3.3.4. Resources

See Fire Management Unit Resources and Values in Section 3.3.2 and maps in Section 3.3.5 for information regarding resources.

3.3.4. North Fork FMU Fire Environment

3.3.4.1. Fire History and Behavior

Historic Fire Occurrence and Behavior

North Fork FMU Map 9 displays the historic fire occurrence and cause for the FMU. Since 1970, the Forest has averaged 26 wildfires annually. Due to persistent drought and widespread insect epidemics in combination with changes in fire management philosophy, the trend in acreage burned since 1998 has been increasing. The annual average acres burned for the past 30 years is approximately 7,200 acres. The annual ten-year average is over 8,900 acres; the annual average for the last five years is approximately 16,400 acres burned.

Natural ignitions account for 51% of the fire starts (87% of the acres burned). Human-caused fires account for 49% of historical fire occurrence (13% of the acres burned); escaped campfires reflect 60% of these ignitions. Fire size classes A and B account for 90% of the fires. The annual fire occurrence for each FMU was generated from PC Historical Analysis (PCHA) using representative locations (RL) to determine wildland fire distribution. Large fires have occurred all months of the established season but typically are anticipated in August and September.

During the summer of 1988, the Clover and Mist Fires burned 194,430 acres in the Clarks Fork and North Fork FMUs. Fires of this size are considered low in frequency, one in a hundred year occurrence; the importance of the two events is recognized as normal in the natural fire ecology of the Shoshone National Forest. Considering the rare occurrence in conjunction with fires analyzed in the historical period, the annual acres burned are 2,334. Fire data (1909 - 1982) in the Forest Plan shows the fire occurrence about the same as today but with 873 acres burning annually. Before 1900, fire history studies indicate areas equal or larger to Clover/Mist burned on the Forest.

Fires in 2003 were record setting from most points of view. Total acreage burned was 26,094. Number of fires was 48. Number of starts in a day set a new record of 5 (August 10, 2003). Consecutive days with multiple starts set a record with 8.

The 2006 fire season was significant on the Forest. Low snow pack, below average spring precipitation, and a widespread insect epidemic resulted in conditions conducive to stand replacement type fires in low frequency fire regimes. Although the number of fires recorded were near average, the total acres burned exceeded 40,000. The two most significant fires were Little Venus which burned in the Greybull FMU and the Purdy Fire in the Wind River FMU. Large fire growth began in earnest in mid July and continued until early September.

The 2007 fire season continued to reflect the trend of large fire growth resulting from the build-up of fuels on the Forest and persistent drought conditions. Again the number of fires were near average, but the total acres burned were on the Forest were approximately 5,700 acres. The Citadel Fire (South Fork FMU) began in mid-June and burned approximately 2,000 acres and the Columbine Fire (North Fork FMU), which originated during August in Yellowstone National Park, burned approximately 3,700 acres on the Forest. Total acres burned for the Columbine Fire was approximately 18,000 acres.

The 2008 fire season was below average for number of starts with 23; however, the acres burned were approximately 68,200. The most significant fire of the season was the Gunbarrel Fire that burned in the North Fork FMU for months and consumed over 68,100 acres. There were several days of large fire growth and extreme fire behavior observed during this fire.

Fire Behavior and Fuels

The Noth Fork FMU Map 10 displays the fuel types and relative acres for each type associated with the FMU. GIS data layers are also available in the SHF fire management electronic reference file. Vegetation within the Forest is classified into five broad communities: alpine, coniferous forest, montane meadow-parkland, sage-grass, and riparian. Coniferous forest represents the largest vegetation type on the Forest. National Fire Danger Rating System fuel model G is most typical of the coniferous forest fuel bed. Low rate of spread accompanied with high heat intensity typifies this model but in drought years, high rates of spread have been observed from wind and plume dominated crown fires. In review of large fires on this Forest, the coniferous forest has been the primary carrier of fire and is the only fuel type represented in the suppression analysis.

Insect and disease infestations have become epidemic on most of the Forest, and fuel model characteristics are changing. The Forest is experimenting with fuel model modification using FARSITE to better match the changing condition.

Fire Regime Condition Class

Sixty-two percent of the FMU is in a fire regime condition class 1. Two vegetation conditions are in some jeopardy based on the time since the last disturbance. These include approximately 177,565 acres of fire regimes II and III that are in condition class 2. This represents approximately 38 percent of the FMU. A summary of the number of acres by fire regime condition class are displayed in the table below and on North Fork FMU Map 11.

North Fork FMU Fire Regimes and Condition Classes

Fire regime	Condition class	Fire return interval	Burn severity	Acres	Percent
II	1	35 – 70 years	Stand replacement	68	<1%
	2			11,422	2%
III	1	35 -100 years	Mixed	3,432	<1%
	2			166,143	36%
IV	1	70 - 150 years	Stand replacement	171,905	37%
V	1	200 – 300 years	Stand replacement	111,216	24%
Barren	None	None	None	3,940	<1%

3.3.4.2. Weather

The prevailing climate is categorized as "continental mountainous." Moisture is brought into the Greater Yellowstone Area from storms tracking west to east. As the storms are forced up and over the continental divide, moisture is leached from the storm system at the upper elevations. The average annual precipitation, ranging from 15 to 70 inches, varies with topography and elevation. Eighty percent of the precipitation in the upper elevations occurs in the winter and spring; thunderstorms in the summer provide 20%. In the lower elevations, seasonal distribution of precipitation shifts to a lower accumulation with the same seasonal percent distribution. Typical summer temperatures vary with elevation; highs ranging from 65 to 90 degrees and lows from 35 to 60 degrees are common with respect to elevation. The average summer relative humidity varies also with elevation and topography; relative humidities of single digits are not uncommon in the upper elevations while the lower drainages are measuring 30%. During the established fire season, a typical summer sees numerous thunderstorms and 23 cold front passages. Additional weather and fire behavior related information is located in the Shoshone National Forest fire management electronic reference file..

3.3.5. North Fork FMU Maps

The following maps identify key resources, features, and other attributes of the FMU that are intended for use when determining objectives and developing fire management objectives for an incident. Key maps for the FMU are included in this document when possible or can be found in the SHF fire management electronic reference file.

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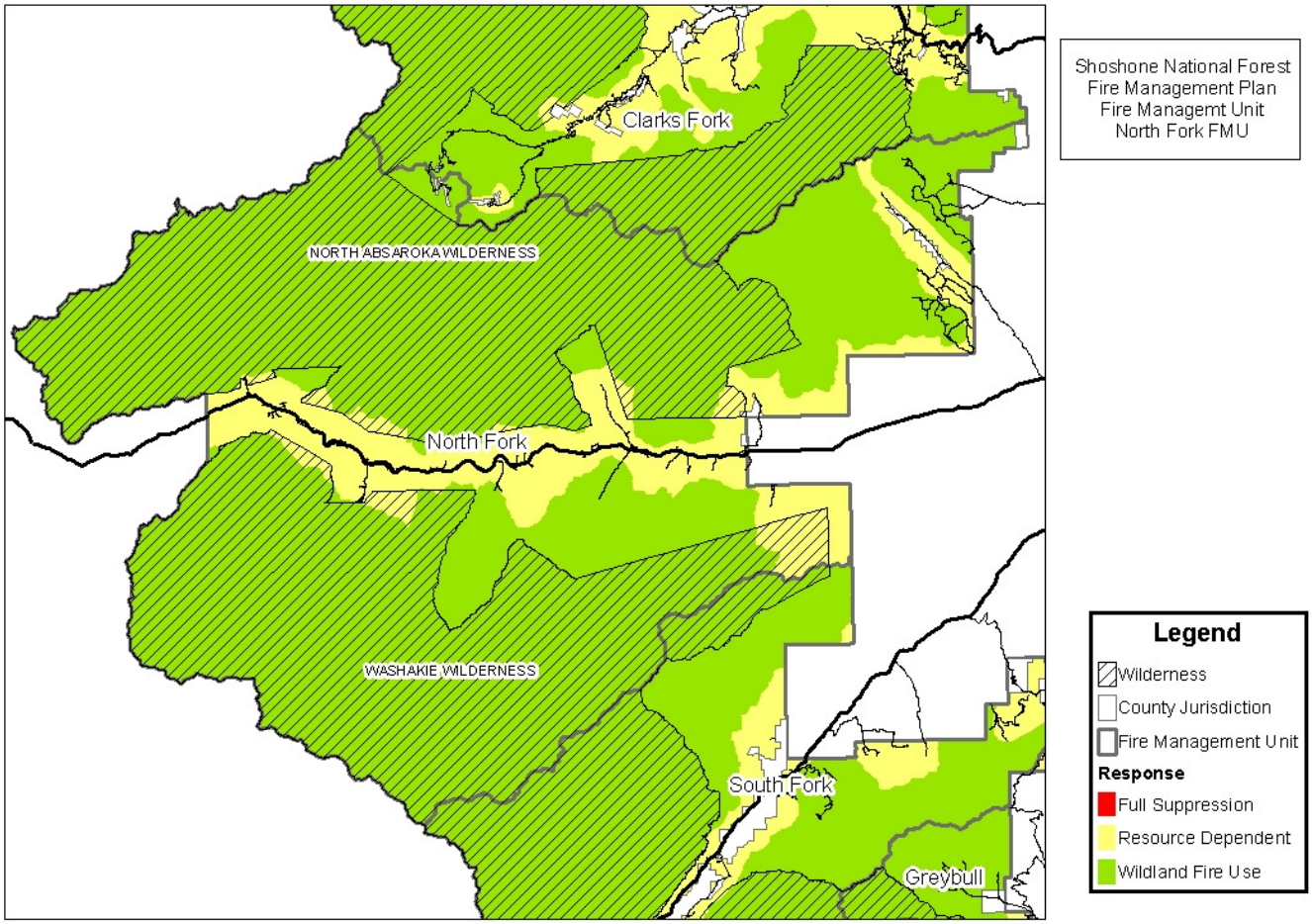
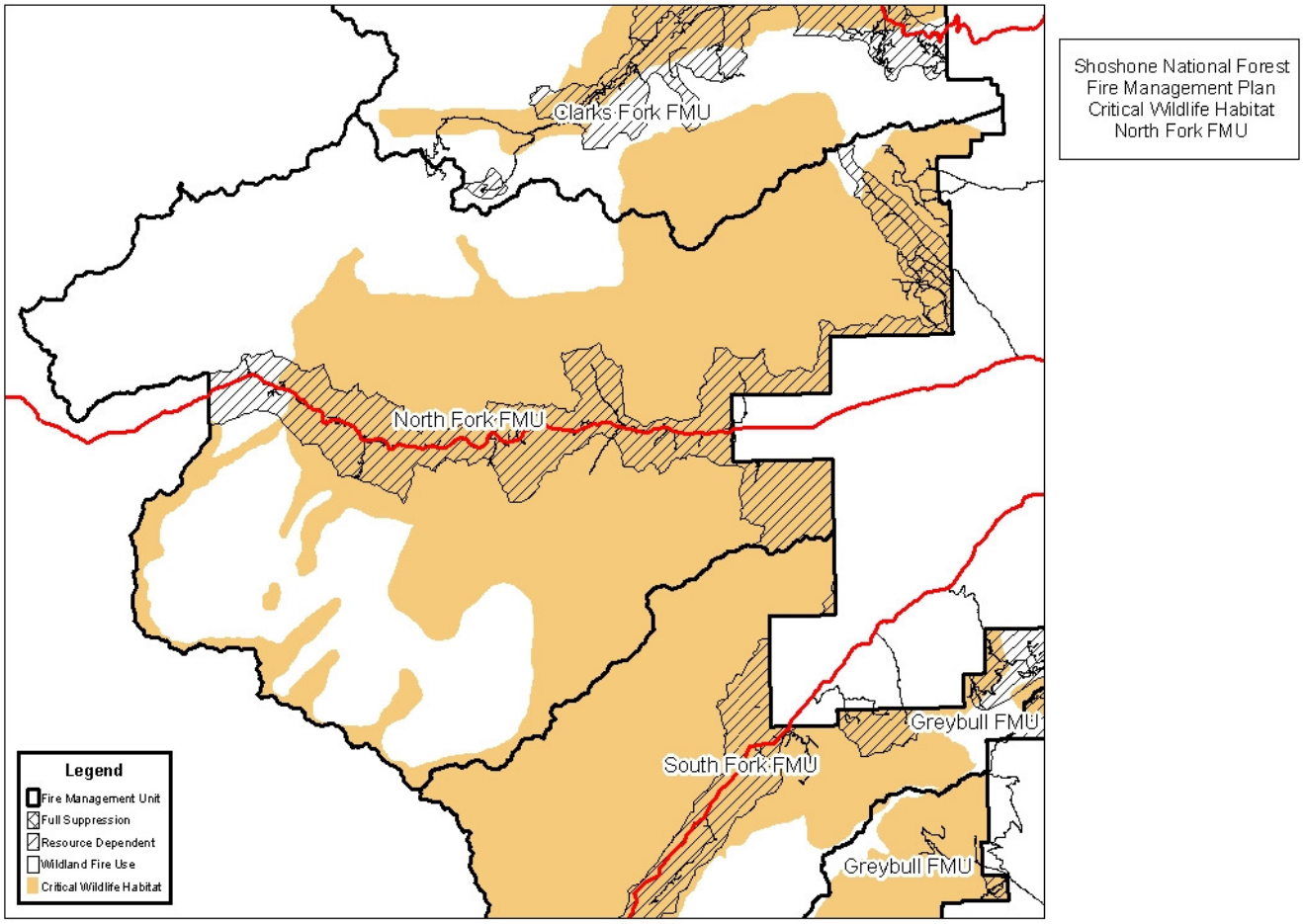
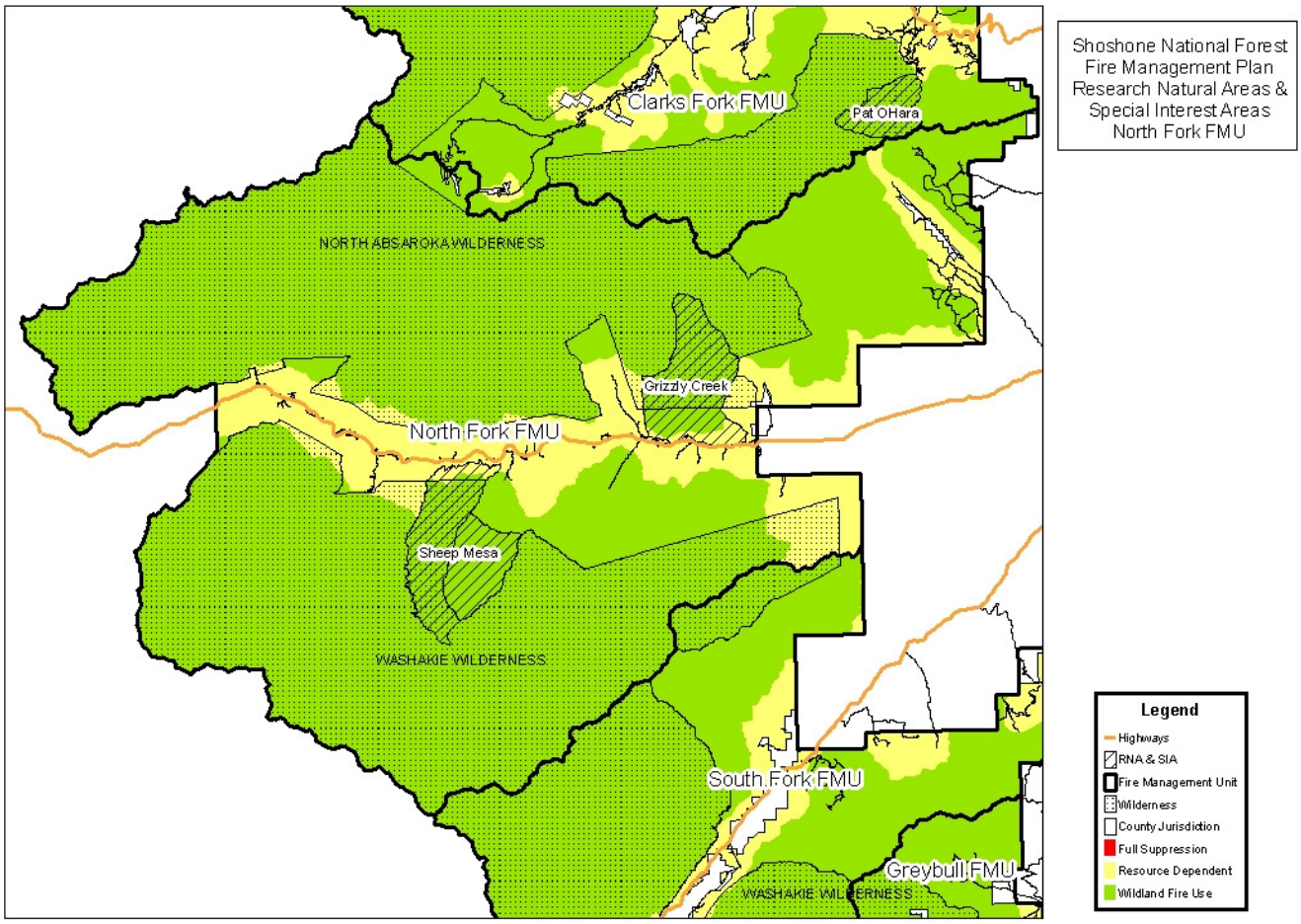
North Fork FMU Map 1 - North Fork FMU Boundaries and Response Zones



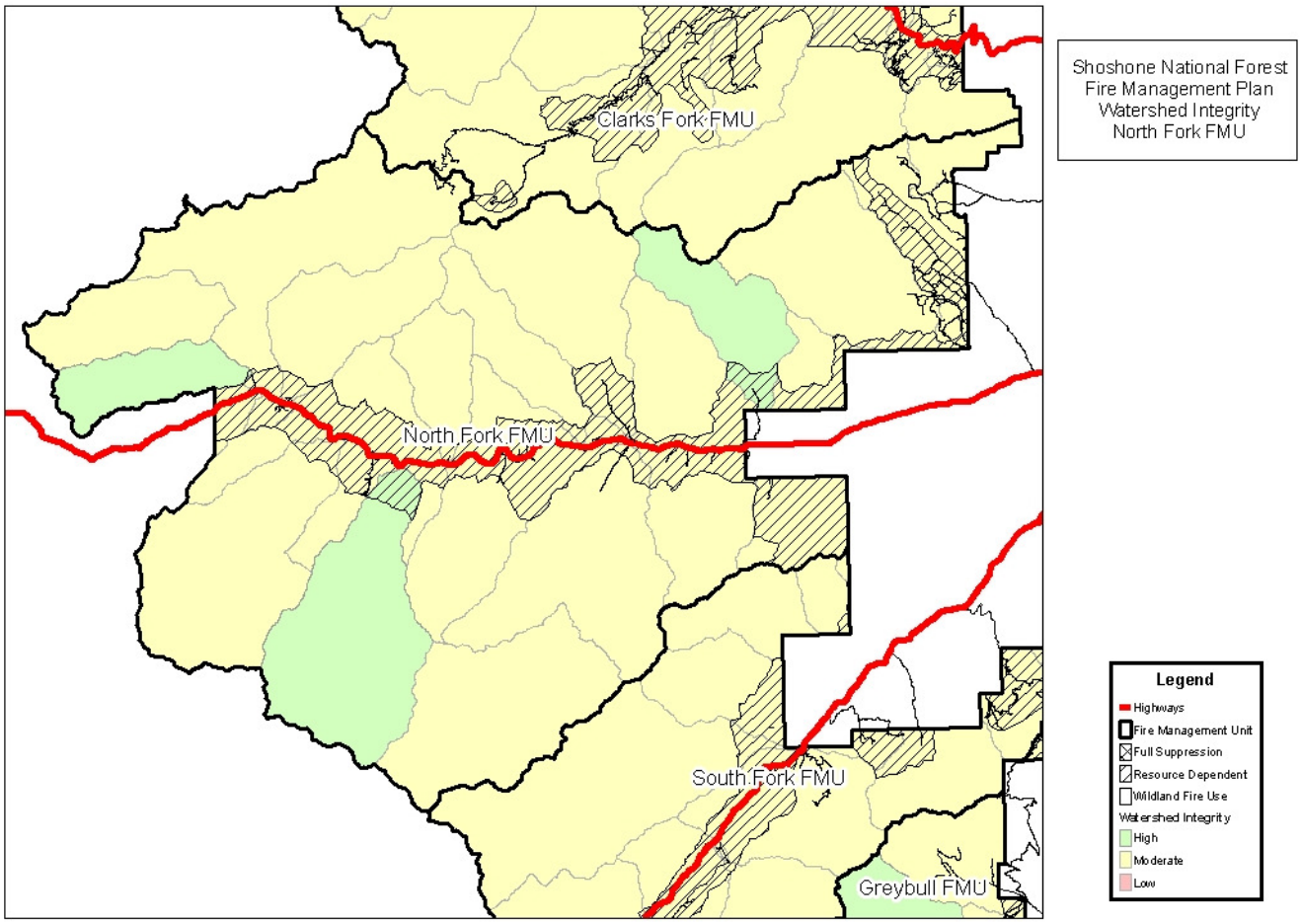
North Fork FMU Map 2 - North Fork FMU Wildlife Critical Winter Range and Yellowstone Cutthroat Trout Locations



North Fork FMU Map 3 - North Fork FMU Special Areas



North Fork FMU Map 4 - North Fork FMU Watershed Condition



North Fork FMU Map 5 - North Fork FMU Cultural Resources

A hard copy map of the approximate location of known cultural sites and not yet surveyed areas that have a high probability of containing sites have been distributed to the zone FMOs. Detailed site-specific information is held by the Forest heritage program manager and can be obtained when needed. The information is stored in a GIS database as well.

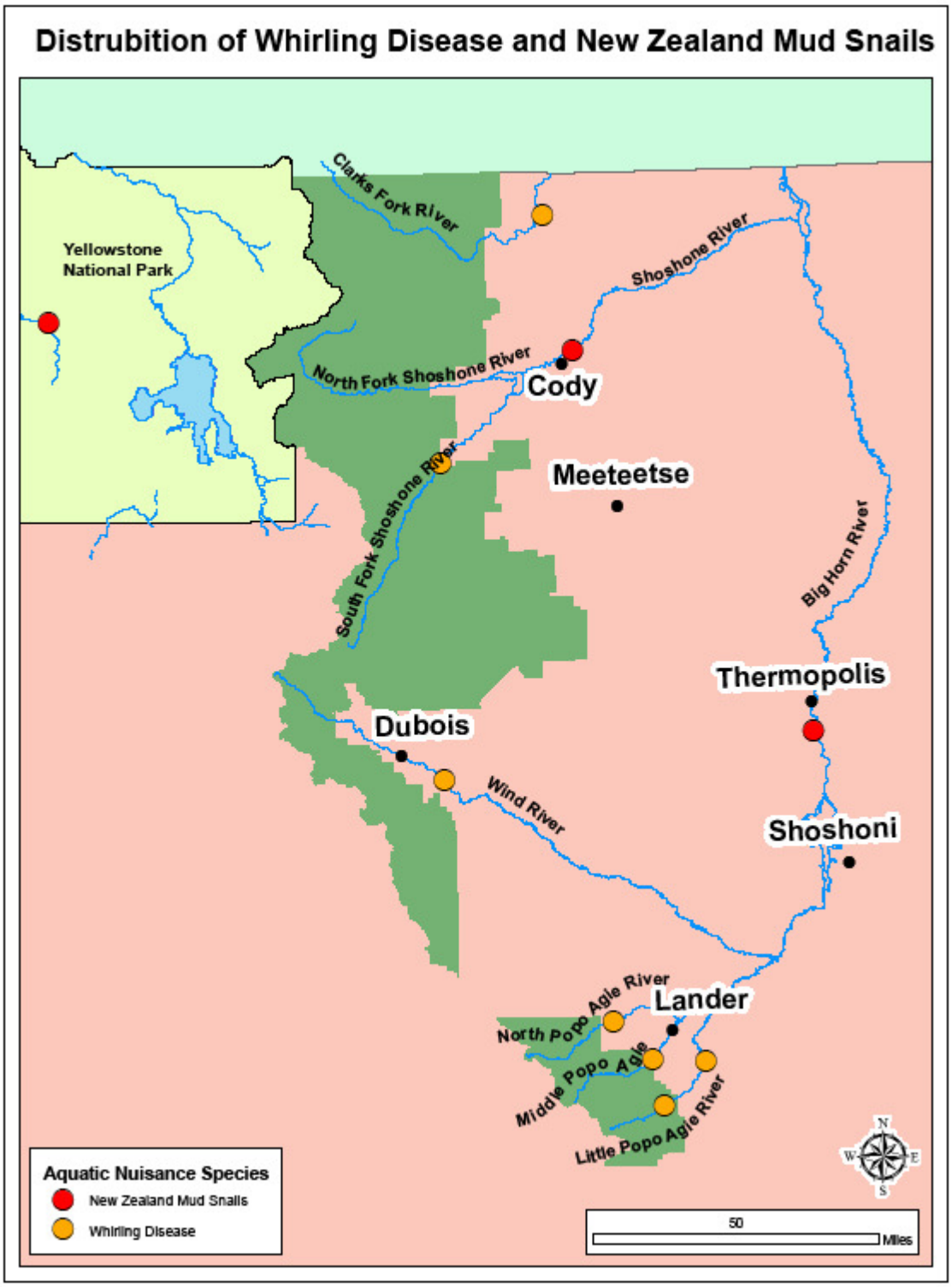
North Fork FMU Map 6 - North Fork FMU Values at Risk

A comprehensive map displaying the values in the FMU that may be at risk is available in hardcopy and can be printed from the SHF fire management electronic reference file. The associated data is also stored in a GIS data format that can be accessed from the Forest's GIS fire files at anytime when needed.

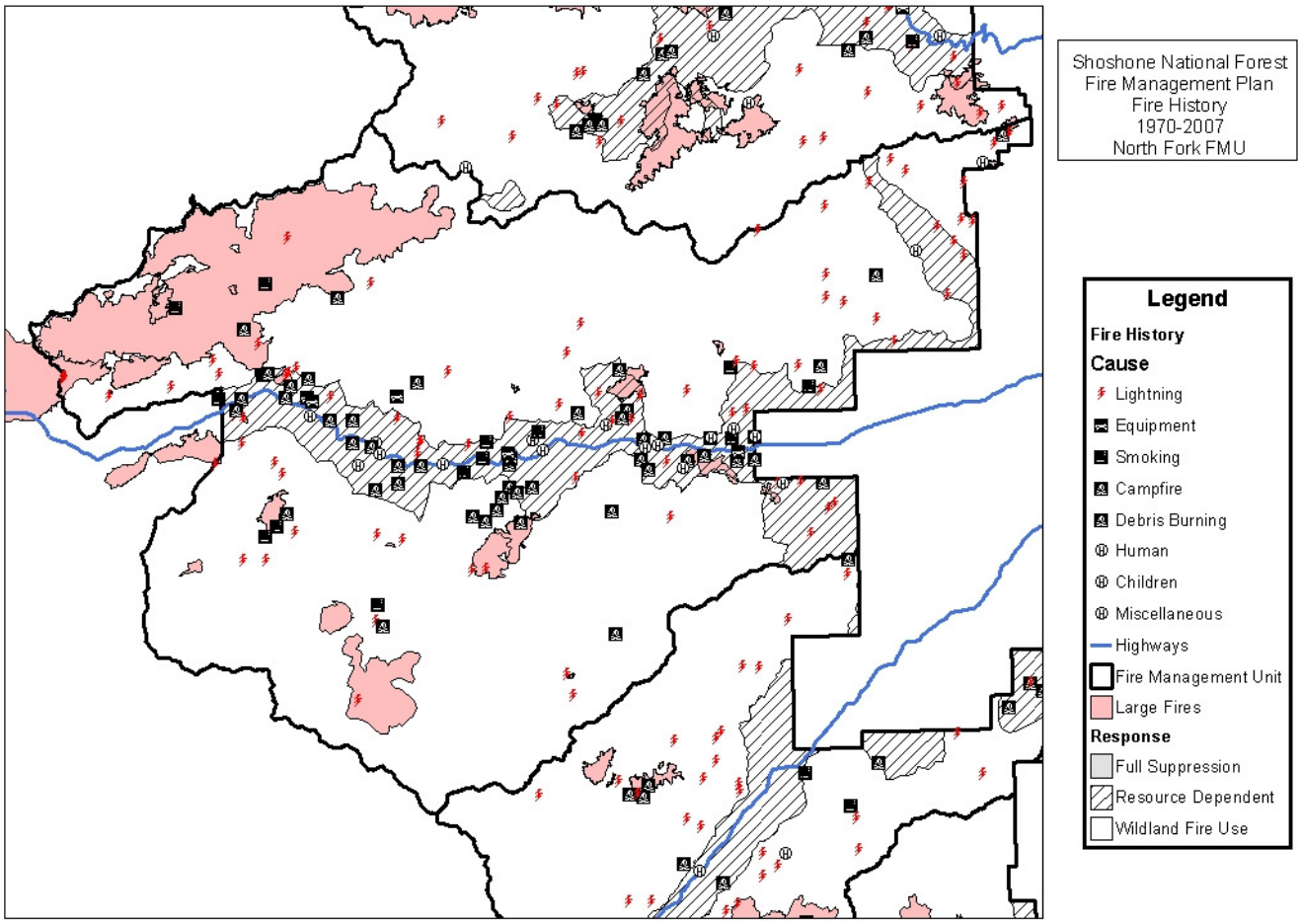
North Fork FMU Map 7 - North Fork FMU Invasive Plants

Invasive plant locations are mapped and available from the Forest's GIS corporate database.

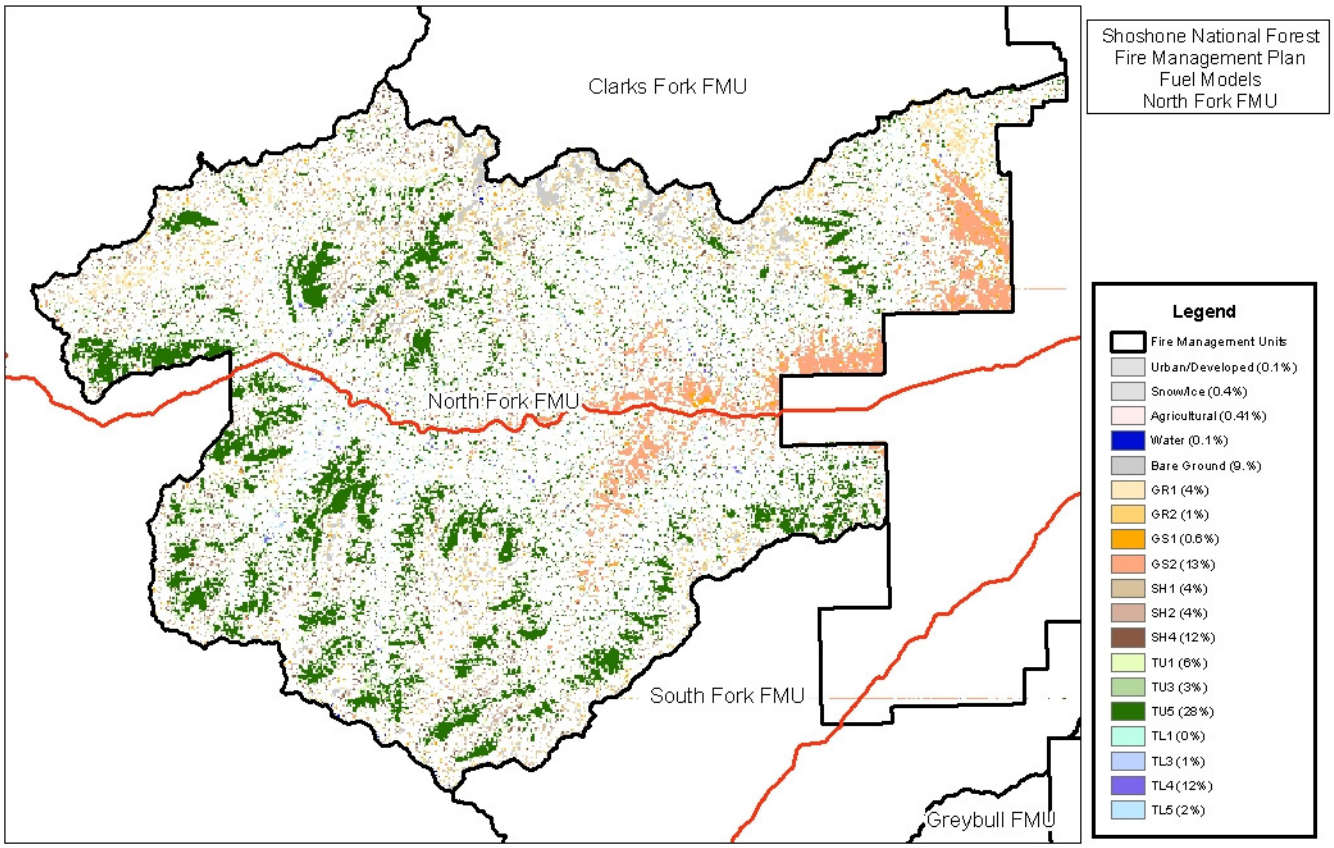
North Fork FMU Map 8 - North Fork FMU Invasive Aquatics



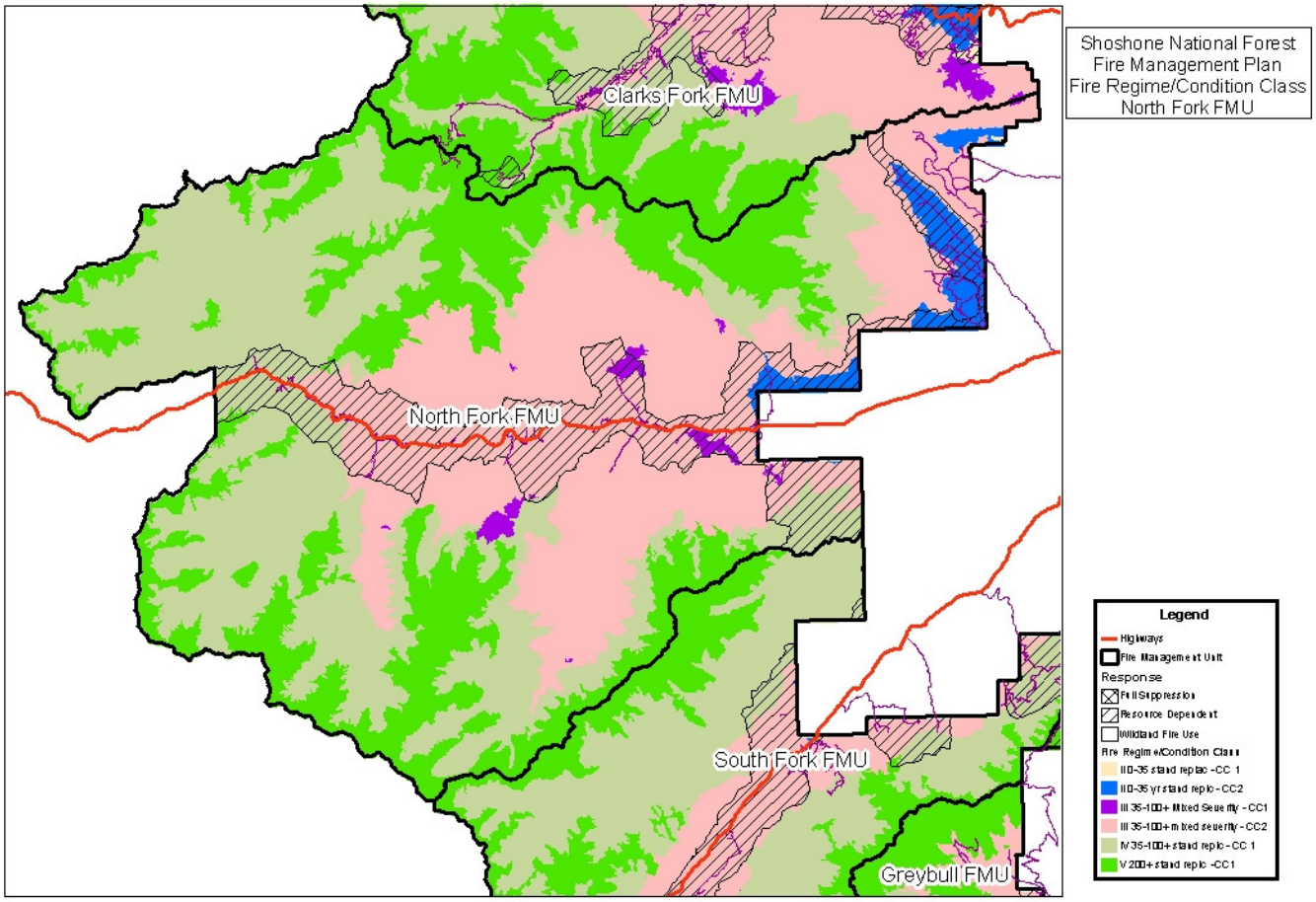
North Fork FMU Map 9 - North Fork FMU Historical Fire Occurrence



North Fork FMU Map 10 - North Fork FMU Fuel Type



North Fork FMU Map 11 - North Fork FMU Fire Regimes and Condition Classes



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3.4. Fire Management Considerations for the South Fork Fire Management Unit

3.4.1. South Fork FMU Snap Shot

Fire Management Unit Identification

Administrative Unit	FMU Name	FMU #	Management Response Zones	Acres
Shoshone National Forest - North Zone	South Fork	1	01 – Suppression	0
			02 – Resource Dependent	33,745
			03 – Fire Use	284,174

Ownership and Jurisdictions

Owner	Jurisdiction	Acres
US Forest Service	Shoshone National Forest	308,798
Private	Park County Fire District #2	9,121
	Total	**317,919**

Dispatch Center

Name	Phone Number
Cody Interagency Dispatch Center	307-578-5140

Radio Frequencies*

Agency	Name	Receive Frequency	Transmit Frequency	Transmit Tone
USFS	North Zone Net	170.5000	170.5000	110.9
USFS	Clayton RPT	170.5000	166.5625	131.8
USFS	Carter Mountain RPT	170.5000	166.5625	146.2

*See the Shoshone National Forest Radio Guide in the SHF fire management electronic file for a complete list of radio frequencies.

NFDRS Weather Stations

Station Number	Station Name & Owner	Fuel Model	Location	NESDIS #	Elevation
480213	Crandall USFS	G - Timber	44° 51.01” 109° 36.41”	32353130	6,612 ft.
480214	Eagle USFS	G - Timber	44° 29.08” 109° 53.47”	326fa142	7,500 ft.

NFDRS Weather Station Fire Behavior Indicators and Thresholds

Preparedness Level	SHF North FDRA SIG (Crandall & Eagle)	
	ERC[9]	100 Hr Fuel Moisture[10]
I	<43	15+
II	43-56	14-13
III	57-64	12-11
IV	65-71	10-9
V	72+	<8

General Risk Category

Subjective overall risk relative to values present, fuel hazard and fire frequency is identified for each fire management unit response zone in the table below. Additional risk information related to fire behavior and length of season are described in Section 3.3.4.

[9] Best indicator for large fire potential

[10] Best indicator of fire occurrence and multi-fire days.

Response Zone	Risk Rating			
	Values Present	Fuel Hazard	Fire Frequency	Overall Risk
01 - Suppression	NA	NA	NA	NA
02 – Resource Dependent	4	2	2	3
03 – Fire Use	1	4	3	2

1 = Low; 2 = Low Moderate; 3 = Moderate; 4 = Moderate High; 5= High

Predominant Vegetation Types

Cover Type	%
Grassland-Sagebrush	31 %
Forest – conifers	53 %
Forest – aspen & willow	2 %
Barren	14 %

3.4.2. South Fork FMU Guidance

Management Guidance

Wildland fire management guidance for the resources associated with the fire management unit is derived from the Shoshone National Forest Land and Resource Management Plan (Forest Plan). Applicable wildland fire management Forest Plan direction, goals, desired conditions, standards, guidelines, and management area prescriptions are detailed in Section 3.1.1. The specific Forest Plan direction that is used to formulate wildland fire benefit and resource protection objectives; initial attack/response actions; and appropriate management response strategies and tactical options that apply to the resources, values and attributes that occur in the fire management unit (FMU) are referenced throughout this section.

Other sources of wildland fire management direction and resource protection measures that originate in other laws, policy, handbooks and guides are also used to provide direction and guidance for wildland fire management activities for this FMU. Many of these sources are located in the Shoshone Fire management electronic reference file.

Fire Management Unit Resources and Values

Air Quality

The Washakie Wildernesses is a federally designated Class I Airsheds in the FMU. Yellowstone National Park located to the west of the FMU is also designated as a Class 1 Airshed. There are no non-attainment areas within or adjacent to the FMU.

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
air quality	Comply with State and Federal air quality standards (Forest Plan 1986, page III-97).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
air quality	Implement smoke management actions in accordance with Wyoming Air Quality Standards and Regulations (Regulations) chapter 10, section 4, Smoke Management Requirements.

Vegetation

Forested vegetation varies widely across the FMU due to variations in elevation, aspect, climatic factors, and past disturbances. The uppermost elevation zone is characterized by alpine tundra and the absence of trees. The next lower elevation zone is the subalpine zone, dominated in most places by Engelmann spruce, subalpine fir, and whitebark pine. Below the subalpine zone lies the montane zone, characterized by Douglas-fir. Other species that occur in the subalpine and montane zones include lodgepole pine, limber pine, and aspen.

Grass, sometimes mixed with sagebrush, regularly occurs in forest openings. In areas where environmental factors do not support tree reproduction, grasslands and shrublands persist. In the foothill zone below the montane zone, grass and shrubs dominate. In the montane and subalpine zones, grass and shrubs persist in areas where site conditions limit moisture, such as well-drained landforms, southern or western exposures, thin or poorly developed soils, and high windswept sites. In the severe environment of the alpine zone, grass and shrubs dominate. In portions of the subalpine and montane zones, lodgepole pine and aspen are common early seral species following fire disturbance. Fire also affects the acres that are dominated by grasses and shrubs.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
vegetation	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. Prescribed fire plays a role in areas where managing unplanned ignitions for resource benefits is not appropriate because of high values (FPA 2008-1 p. 3). Improve the health and vigor of vegetation types outside wilderness and selected types in wilderness where necessary (Forest Plan 1986, page III-6). Integrate vegetation management with resource management in functional areas – range, recreation, water and wildlife (Forest Plan 1986, page III-7).
aspen	Clearcut, burn or treat aspen mechanically to in order to promote suckering and revegetation of aspen patches (Forest Plan 1986, page III-155)

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
vegetation	Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Wildlife habitats – terrestrial and aquatic

Critical Winter Range: Critical wildlife winter range areas are identified on the South Fork FMU Map 2. Currently, there are no issues with condition of the winter range area that would prevent a fire to be managed for resources benefits or require protection.

Grizzly Bear: This species is a Forest Service Region 2 threatened species. Grizzlies have variable habitat, and eat everything from carcasses to moths to whitebark pine seeds to garbage. The most important elements needed to stabilize grizzly bear populations are minimizing bear/human conflicts and protecting key food sources, such as whitebark pine and moth sites. Most of the FMU is inside the South Absaroka Bear Management Unit of the Primary Conservation Area.

Yellowstone Cutthroat Trout: Yellowstone cutthroat trout is a subspecies of cutthroat trout that was historically found in the Yellowstone River drainage and reaches of the Snake River drainage. Stream segments containing Yellowstone cutthroat trout are identified on South Fork FMU Map 2.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
wildlife	Integrate vegetation management with resource management in functional areas – range, recreation, water and wildlife (Forest Plan 1986, page III-7) Maintain fuel conditions that permit fire suppression and prescribed fire to maintain habitat needed for selected species or species population levels (Forest Plan 1986, page III-152).

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
grizzly bear – food storage	Minimize grizzly bear/human conflicts using food storage, information and education, and other management tools (FPA 2006-001).
grizzly bear habitat – food sources	Maintain the productivity, to the extent possible, of the four key grizzly bear food sources as identified in the Conservation Strategy (FPA 2006-001).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
grizzly bear	Implement bear safety and food storage mitigation measures as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.
Yellowstone Cutthroat Trout	Implement protection measures for riparian areas, lakes and streams as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Special areas

Other than the Washakie Wilderness, there are no special areas designated or proposed within the FMU (South Fork FMU Map 3).

Water quality

All the 6th level hydrologic unit watersheds in the FMU are rated as being in good condition or better (South Fork FMU Map 4). At this time there are no concerns with application of fire on the landscape as a means to accomplish resource benefits.

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
water	Improve or maintain water quality to meet state water quality standards (Forest plan 1986, page III-70).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
water quality	Implement protection measures for riparian areas, lakes and streams as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines. Implement practices regarding fire management activities as described in the Forest Service Handbook 2509.25, Watershed Conservation Practices.

Cultural Resources

The general location of known cultural resource sites and not yet surveyed areas that have a high probability of containing sites are located on the Cultural Resources Map for the FMU (South Fork FMU Map 5). The map with the general locations is part of the SHF fire management electronic reference file and is also available for use by fire managers and agency administrators. More specific information regarding site locations will be provided by the heritage program manager when needed.

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
cultural	Wildland fire management activities should protect cultural resources when feasible with priority given to sites listed on the National Register of Historic Places, sites recommended for selection to the Register and to known unevaluated sites (FPA 2008-1 p. 6).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
cultural	Follow procedures for wildland fire management activities as outlined in Appendix G of the Programmatic Agreement with the State Historic Preservation Officer for Compliance with the National Historic Preservation Act on Forest and Grasslands of Wyoming. Implement protection measures for cultural resources as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Wilderness

There is one wilderness in the FMU (South Fork FMU Map 1). The Washakie Wilderness comprises approximately 75% of the FMU. The South Fork Road extends into the middle of the FMU and is bordered by mostly private land with some State and Federal managed lands present.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
wilderness	Permit fires to play, as nearly as possible, their natural ecological role within wilderness area (FPA 2008-1 p. 9). Allow natural succession to proceed without human intervention in designated wilderness, wilderness study areas, and special management areas (Forest Plan 1986, page III-6).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
wilderness	Implement minimum impact suppression and logistic techniques as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Goods and Services

Timber: Lands suitable for timber production are present within the FMU and are primarily located within the resource dependent zone. Lands suitable for timber production are identified on the Values at Risk Map for the FMU (South Fork FMU Map 6) Lands suitable for timber production are considered high value assets and under most circumstances would not be allowed to burn unless it was determined there would be beneficial effects or no effects. Development of strategies to manage a fire for resource benefits would consist of an assessment

of what areas would benefit from fire and what areas should be protected from fire or subject to limited fire intensity.

There may be a few instances where lands suitable for timber production may be allowed to burn and commercial timber products destroyed or damaged while managing a fire for resource benefits or as an unwanted wildland fire. For example, situations where it is infeasible to protect an isolated stand, or where the value of the timber does not warrant the cost or commitment of resources and a substantial resource benefit may be achieved.

South Fork FMU Active and Planned Timber Sales

Sale Name	Location	Status	Purchaser
Carter Mountain Small Firewood/Houselog Sales	T50N, R103W, S10-16, 19	Planned & Active	

Grazing: There several grazing allotments within the FMU and they are identified on the Values at Risk Map (South Fork FMU Map 6). Forest-wide Forest Plan direction and desired conditions regarding vegetation is generally consistent with range management objectives. Whether a fire is being managed for resource benefits or protection objectives, coordination with range management specialist and permittees occur.

Special Uses: Permitted outfitter and guide operations occur throughout the FMU. Camp locations are identified on the Values at Risk Map (South Fork FMU Map 6). Whether a fire is being managed for resource benefits or protection objectives, coordination with special uses managers and outfitters occur.

Minerals: There are no mining, drilling or exploration operations occurring in the FMU.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
timber and grazing	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. Prescribed fire plays a role in areas where managing unplanned ignitions for resource benefits is not appropriate because of high values. Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
goods and services	Wildland fire plays a role within and outside of wilderness where appropriate and desirable, but active suppression of fire occurs where necessary to protect life, investments, and valuable resources. Valuable resources include the wildland urban interface, utility corridors and communication sites. Other valuable resources include public water supply, recreation facilities, administrative sites, range allotments, special management areas, fish and wildlife habitats, and lands suitable for timber production (Forest Plan Amendment 2008-01, page2).

Developments, Facilities and Infrastructure

Developments, facilities and infrastructures occur within and adjacent to the FMU and are displayed on the Values at Risk Map (South Fork FMU Map 6). Most of the sites are located within the Resource Dependent Management Zone. There are some facilities and developments in the Fire Use Management Zone.

South Fork FMU Recreation Sites (developed)

Name	Geographic Location
Ishawooa Trailhead	T50N, R105W, S32
Ishawooa Mesa Trailhead	T49N, R106W, S13
Deer Creek Trailhead	T48N, R106W, S5
Boulder Basin Trailhead	T48N, R106W, S4

South Fork FMU Backcountry Administrative Sites

Name	Geographic Location
Needle Creek	T47N, R107W, S4

Clarks Fork FMU Utilities and Communication Sites

Name	Geographic Location
Carter Mountain Repeater	T49N, R104W, S30
Rocky Mountain Power Powerline	Above ground powerline that parallels the South Fork Road providing power to all the ranches

Quest Phone line	Buried and above ground lines that follow the road systems and powerline to all the ranches
Carter Mountain SNOTEL	T50N, R103W, S16
Younts Peak SNOTEL	T46N, R108W, S29

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
developments, facilities and infrastructure	Wildland fire plays a role within and outside of wilderness where appropriate and desirable, but active suppression of fire occurs where necessary to protect life, investments, and valuable resources. Valuable resources include the wildland urban interface, utility corridors and communication sites. Other valuable resources include public water supply, recreation facilities, administrative sites, range allotments, special management areas, fish and wildlife habitats, and lands suitable for timber production (Forest Plan Amendment 2008-01, page2). Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Wildland Urban Interface

Structures occurring within and adjacent to the FMU are primarily located within the Resource Dependent Management Zone (South Fork FMU Map 1).

Local fire departments and agencies are responsible for structure protection; management of wildland fires burning on the Shoshone National Forest is the responsibility of the Forest Service. Keeping fires from reaching structures and private property adjacent to the Forest as well as permitted lodges and residences located on the Forest is consistent with current federal policy and Forest Plan direction. In addition, cooperative agreements and operating plans are in place that permits Forest Service firefighters to assist local jurisdictions with structure protection on private property, but for not entering structures to suppress fires.

The approach for developing the appropriate management response for wildland fire burning on the Forest that threatens individual structures or the wildland urban interface is the same for fire being managed for resource benefit or suppression objectives. Aggressive or intense management actions would occur in locations that have the highest probability of success in preventing damage or loss while ensuring the safety of the public and firefighters. These actions could occur near structures in close cooperation with the local jurisdiction or at some distance from structures where circumstances are favorable for stopping the advance of a fire toward structures.

South Fork FMU Communities and Subdivisions

Community Name	Geographic Location
Upper South Ranches	Private ranches along the South Fork Shoshone River
Rock Creek Ranch	T50N, R104W, S33
Irma Lake Lodge	T50N, R103W, S8-10
TE Ranch	Private ranches from Ishawooa Creek to Houlihan Creek on both sides of the highway

South Fork FMU Permitted recreation residences

Community Name	Geographic Location
None	

South Fork FMU Permitted lodges

Lodge Name	Geographic Location
None	

South Fork FMU Administrative sites

Site Name	Geographic Location
South Fork Work Center	T48N, R106W, S4

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
wildland urban interface	Wildland fire plays a role within and outside of wilderness where appropriate and desirable, but active suppression of fire occurs where necessary to protect life, investments, and valuable resources. Valuable resources include the wildland urban interface, utility corridors and communication sites. Other valuable resources include public water supply, recreation facilities, administrative sites, range allotments, special management areas, fish and wildlife habitats, and lands suitable for timber production (Forest Plan Amendment 2008-01, page2). Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Invasive species

Invasive plants: There are over 20 high priority terrestrial invasive species on the Shoshone with many more invasive species with the potential to spread across large portions of the Forest. Wildfires of any cause can enhance conditions for spread if fires expose soil, reduce native vegetation, and facilitate the introduction or movement of invasive seed sources into an area. Locations of invasive plants are mapped (South Fork FMU Map 7) and are located in the SHF fire management electronic reference file.

Invasive aquatics: Aquatic nuisance species occur just inside or adjacent to the Forest (South Fork FMU Map 8) including whirling disease, New Zealand mudsnails, and didymo. Fire suppression equipment can travel long distances to the Forest, and with them, the potential to introduce other aquatic nuisance species or move them to another area. Whirling disease has not been documented in any of the streams or lakes in or near the FMU at this time.

Whirling disease has been found adjacent to and within the FMU in the following locations:

- Some of the private ponds in the South Fork off the Forest
- All of the main South Fork Shoshone downstream of Hunter Creek should be considered infected.

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
vegetation	Implement protection measures for invasive plants as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines. Follow practices related to fire management activities described in Forest Service Manual 2080 Noxious Weed Management for Forest Service activities.
aquatic	Implement protection measures for riparian areas, streams and lakes as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Fuels

The South Fork FMU Map 10 displays the fuel types and relative acres for each type associated with the FMU. GIS data layers are also available in the SHF fire management electronic reference file. Additional information regarding fuel conditions and topography that influence fire behavior and potential control problems are described in Section 3.4.4.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
fuels	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels (Forest Plan Amendment 2008-01, page 3). Reduce the accumulation of natural fuels (Forest Plan 1986, page III-8). Prescribed fire will be utilized as a vegetative and fuels management technique where it is the most cost-efficient and acceptable alternative to achieve management objectives (Forest Plan 1986, page III-96). Maintain fuel conditions that permit fire suppression and prescribed fire to maintain habitat needed for selected species or species population levels (Forest Plan 1986, page III-152).

Fire Regime Condition Class

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
fire regime condition class	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. Prescribed fire plays a role in areas where managing unplanned ignitions for resource benefits is not appropriate because of high values (Forest Plan Amendment 2008-01, page 3).

FMU Initial Response Guidance and Assigned Resources

South Fork Fire Management Unit Initial Response/Attack Run Card

Full Suppression Response Zone					
Dispatch Resource	Fire Danger – Eagle RAWS 480214				
	Low	Mod	High	VH	EXT
Engine	NA	NA	NA	NA	NA
Hand Crew (2 - 4 person)	NA	NA	NA	NA	NA
Helicopter/Aerial Recon	NA	NA	NA	NA	NA
Duty Officer/AFMO/FMO Notification	NA	NA	NA	NA	NA
Unplanned ignitions are considered to be unwanted fires and initial attack responses will consist of the safest and most effective and cost efficient actions to contain and control fires as quickly as possible.					

Resource Dependent Response Zone					
Dispatch Resource	**Fire Danger – Eagle RAWS 480214**				
	Low	**Mod**	**High**	**VH**	**EXT**
Engine (T3, T4, or T6)	1	1	1	2	3
Hand Crew (2 - 4 person)			1	1	2
Helicopter/Aerial Recon			1	1	1
Duty Officer/AFMO/FMO Notification	X	X	X	X	X
Local Jurisdiction Notification (if structures are threatened)	X	X	X	X	X
Initial response to fires within the Resource Dependent Response Zone will require an assessment as to whether or not the fire is a candidate to be managed for resource benefits. The Duty Officer/AFMO/FMO begins this assessment immediately by evaluating the probable cause and location of the fire relative to resource values. Commensurate with the assessment, initial attack resources are dispatched to a fire under the assumption that the fire is to receive a suppression response unless directed otherwise. Human caused fires are classed as an unwanted fire and will receive a suppression response.					

Fire Use Response Zone					
Dispatch Resource	**Fire Danger – Eagle RAWS 480214**				
	Low	**Mod**	**High**	**VH**	**EXT**
Engine	1	1	1	1	2
Hand Crew (2 - 4 person)			1	1	2
Helicopter/Aerial Recon			1	1	1
Duty Officer/AFMO/FMO Notification	X	X	X	X	X
Initial response to fires within the Fire Use Response Zone will require an assessment as to whether or not the fire is a candidate to be managed for resource benefits. The Duty Officer/AFMO/FMO begins this assessment immediately by evaluating the probable cause and location of the fire relative to resource values. Initial response resources are dispatched to a fire under the assumption that the fire is a potential candidate to be managed for resource benefits and would not begin suppression actions unless directed otherwise. Human caused fires are classed as an unwanted fire and will receive a suppression response.					

3.4.3. South Fork FMU Characteristics

3.4.3.1. Safety

Firefighter and public safety considerations

Firefighter and public safety is the priority in all fire management activities. Reduce firefighter and public injuries and loss of life, and damage to communities from unwanted wildland fires, by prioritizing firefighter and public safety above other concerns in fire management activities (Forest Plan Amendment 2008-01, page 4).

History on the Forest indicates that while the annual number of fire starts is not particularly high, the fire environment is complex as high intensity fires with rapid rates of spread are common during active burning years. The fire environment is further complicated by a Forest-wide insect epidemic; mature forest, steep terrain, and frequent wind events that are not always well forecasted. There have been three recorded fire fighter entrapments on the Forest. The most serious occurred in 1937 when ten firefighters lost their lives on the Blackwater Fire (North Fork FMU). The most recent entrapment occurred in 2006 on the Little Venus Fire (Greybull FMU) where ten firefighters survived an entrapment, fortunately with only minor injuries.

Environmental and Aviation Hazards

Aviation hazards are identified on the Forest Aviation Hazard Map (SHF fire management electronic reference file). High winds and terrain-influenced winds that affect aviation operations are common. Environmental hazards include steep, rocky and difficult terrain, and grizzly bears.

3.4.3.2. Physical

Terrain

The Shoshone National Forest is in the northern Rocky Mountains in northwest Wyoming. With Yellowstone National Park on its northwestern border, the Shoshone extends more than 180 miles from the Montana state line to South Pass near Lander, Wyoming. It is bordered by the Custer and Gallatin National Forests on the north and by Yellowstone National Park and the Bridger-Teton National Forest on the southwest. The Shoshone is set within the lee of the massive Absaroka, Beartooth, and Wind River Mountains.

The terrain varies widely from sagebrush flats to rugged mountains because the Shoshone is situated on the western edge of the Great Plains and the eastern side of the continental divide. Elevations on the Shoshone range from 4,600 feet at the mouth of the spectacular Clarks Fork Canyon to 13,804 feet on Gannett Peak, Wyoming's highest point. The higher mountains are snow-clad most of the year with immense areas of exposed rock interspersed with meadows and forests. The Shoshone provides a diverse landscape—from lush grasslands to alpine meadows, from crystal-clear lakes to glacial carved valleys, from rolling hills to sheer mountain walls.

Most of the Shoshone is within the upper Missouri River Basin, subdivided by the Wind/Big Horn, and Clarks Fork River basins. The southern tip of the Shoshone is in the Sweetwater drainage, which flows into the Platte River system. Principal rivers within the Shoshone

boundary are the Clarks Fork of the Yellowstone River, North and South Forks of the Shoshone River, and the Greybull, Wind/Big Horn, and Popo Agie Rivers.

FMU Travel routes

Most of the FMU does not have road access. The primary travel route through this portion of the Forest is the South Fork Highway which is hard surface road that turns into a gravel road the dead ends at the Washakie Wilderness boundary. The Highway is used by local residences and is a popular area for Forest visitors engaged in a variety of activities. There are a few arterial roads that access private property and the lower portions of the Forest where developed recreation sites and trailheads are located. This area of development and access corresponds closely with the Resource Dependent Management Response Zone boundary.

3.4.3.3. Biological

See Fire Management Unit Resources and Values in Section 3.4.2 and maps in Section 3.4.5 for information regarding biological features.

3.4.3.4. Resources

See Fire Management Unit Resources and Values in Section 3.4.2 and maps in Section 3.4.5 for information regarding resources.

3.4.4. South Fork FMU Fire Environment

3.4.4.1. Fire History and Behavior

Historic Fire Occurrence and Behavior

South Fork FMU Map 9 displays the historic fire occurrence and cause for the FMU. Since 1970, the Forest has averaged 26 wildfires annually. Due to persistent drought and widespread insect epidemics in combination with changes in fire management philosophy, the trend in acreage burned since 1998 has been increasing. The annual average acres burned for the past 30 years is approximately 7,200 acres. The annual ten-year average is over 8,900 acres; the annual average for the last five years is approximately 16,400 acres burned.

Natural ignitions account for 51% of the fire starts (87% of the acres burned). Human-caused fires account for 49% of historical fire occurrence (13% of the acres burned); escaped campfires reflect 60% of these ignitions. Fire size classes A and B account for 90% of the fires. The annual fire occurrence for each FMU was generated from PC Historical Analysis (PCHA) using representative locations (RL) to determine wildland fire distribution. Large fires have occurred all months of the established season but typically are anticipated in August and September.

During the summer of 1988, the Clover and Mist Fires burned 194,430 acres in the Clarks Fork and North Fork FMUs. Fires of this size are considered low in frequency, one in a hundred year occurrence; the importance of the two events is recognized as normal in the natural fire ecology of the Shoshone National Forest. Considering the rare occurrence in conjunction with fires analyzed in the historical period, the annual acres burned are 2,334. Fire data (1909 - 1982) in the Forest Plan shows the fire occurrence about the same as today but with 873 acres burning annually. Before 1900, fire history studies indicate areas equal or larger to Clover/Mist burned on the Forest.

Fires in 2003 were record setting from most points of view. Total acreage burned was 26,094. Number of fires was 48. Number of starts in a day set a new record of 5 (August 10, 2003). Consecutive days with multiple starts set a record with 8.

The 2006 fire season was significant on the Forest. Low snow pack, below average spring precipitation, and a widespread insect epidemic resulted in conditions conducive to stand replacement type fires in low frequency fire regimes. Although the number of fires recorded was near average, the total acres burned exceeded 40,000. The two most significant fires were Little Venus which burned in the Greybull FMU and the Purdy Fire in the Wind River FMU. Large fire growth began in earnest in mid July and continued until early September.

The 2007 fire season continued to reflect the trend of large fire growth resulting from the build-up of fuels on the Forest and persistent drought conditions. Again the number of fires were near average, but the total acres burned were on the Forest were approximately 5,700 acres. The Citadel Fire (South Fork FMU) began in mid-June and burned approximately 2,000 acres and the Columbine Fire (North Fork FMU), which originated during August in Yellowstone National Park, burned approximately 3,700 acres on the Forest. Total acres burned for the Columbine Fire was approximately 18,000 acres.

The 2008 fire season was below average for number of starts with 23; however, the acres burned were approximately 68,200. The most significant fire of the season was the Gunbarrel Fire that burned in the North Fork FMU for months and consumed over 68,100 acres. There were several days of large fire growth and extreme fire behavior observed during this fire.

Fire Behavior and Fuels

The South Fork FMU Map 10 displays the fuel types and relative acres for each type associated with the FMU. GIS data layers are also available in the SHF fire management electronic reference file. Vegetation within the Forest is classified into five broad communities: alpine, coniferous forest, montane meadow-parkland, sage-grass, and riparian. Coniferous forest represents the largest vegetation type on the Forest. National Fire Danger Rating System fuel model G is most typical of the coniferous forest fuel bed. Low rate of spread accompanied with high heat intensity typifies this model but in drought years, high rates of spread have been observed from wind and plume dominated crown fires. In review of large fires on this Forest, the coniferous forest has been the primary carrier of fire and is the only fuel type represented in the suppression analysis.

Insect and disease infestations have become epidemic on most of the Forest, and fuel model characteristics are changing. The Forest is experimenting with fuel model modification using FARSITE to better match the changing condition.

Fire Regime Condition Class

Eighty-seven percent of the FMU is in a fire regime condition class 1. One vegetation conditions is in some jeopardy based on the time since the last disturbance. This includes approximately 39,314 acres of fire regimes III that are in condition class 2. This represents approximately 12 percent of the FMU. A summary of the number of acres by fire regime condition class are displayed in the table below and on the .

South Fork FMU Fire Regimes and Condition Classes

Fire regime	Condition class	Fire return interval	Burn severity	Acres	Percent
II	1	35 – 70 years	Stand replacement	0	0%
	2			44	0%
III	1	35 -100 years	Mixed	48	0%
	2			39,314	12%
IV	1	70 - 150 years	Stand replacement	173,869	55%
V	1	200 – 300 years	Stand replacement	101,671	32%
Barren	None	None	None	2,973	1%

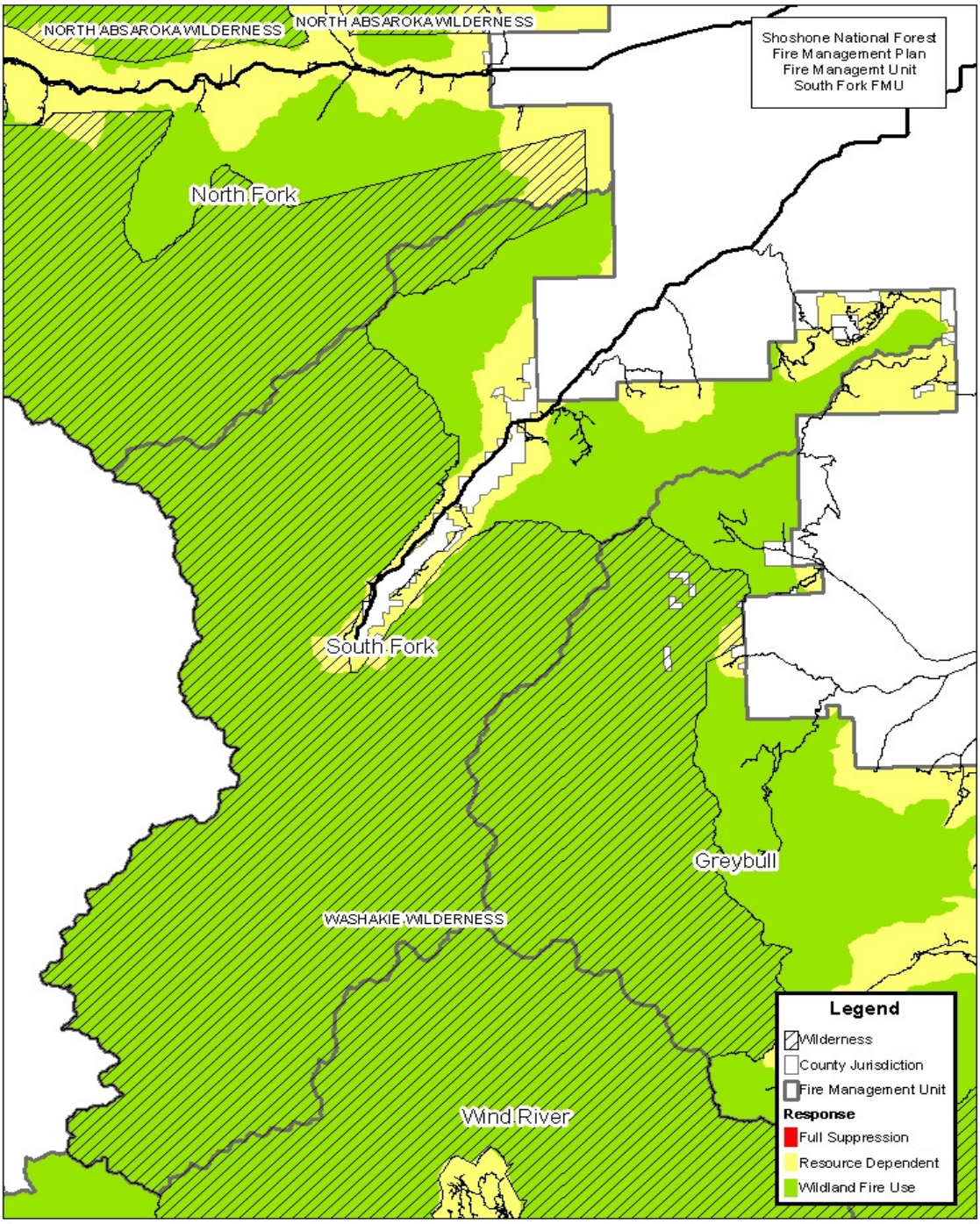
3.4.4.2. Weather

The prevailing climate is categorized as "continental mountainous." Moisture is brought into the Greater Yellowstone Area from storms tracking west to east. As the storms are forced up and over the continental divide, moisture is leached from the storm system at the upper elevations. The average annual precipitation, ranging from 15 to 70 inches, varies with topography and elevation. Eighty percent of the precipitation in the upper elevations occurs in the winter and spring; thunderstorms in the summer provide 20%. In the lower elevations, seasonal distribution of precipitation shifts to a lower accumulation with the same seasonal percent distribution. Typical summer temperatures vary with elevation; highs ranging from 65 to 90 degrees and lows from 35 to 60 degrees are common with respect to elevation. The average summer relative humidity varies also with elevation and topography; relative humidities of single digits are not uncommon in the upper elevations while the lower drainages are measuring 30%. During the established fire season, a typical summer sees numerous thunderstorms and 23 cold front passages. Additional weather and fire behavior related information is located in the Shoshone National Forest fire management electronic reference file..

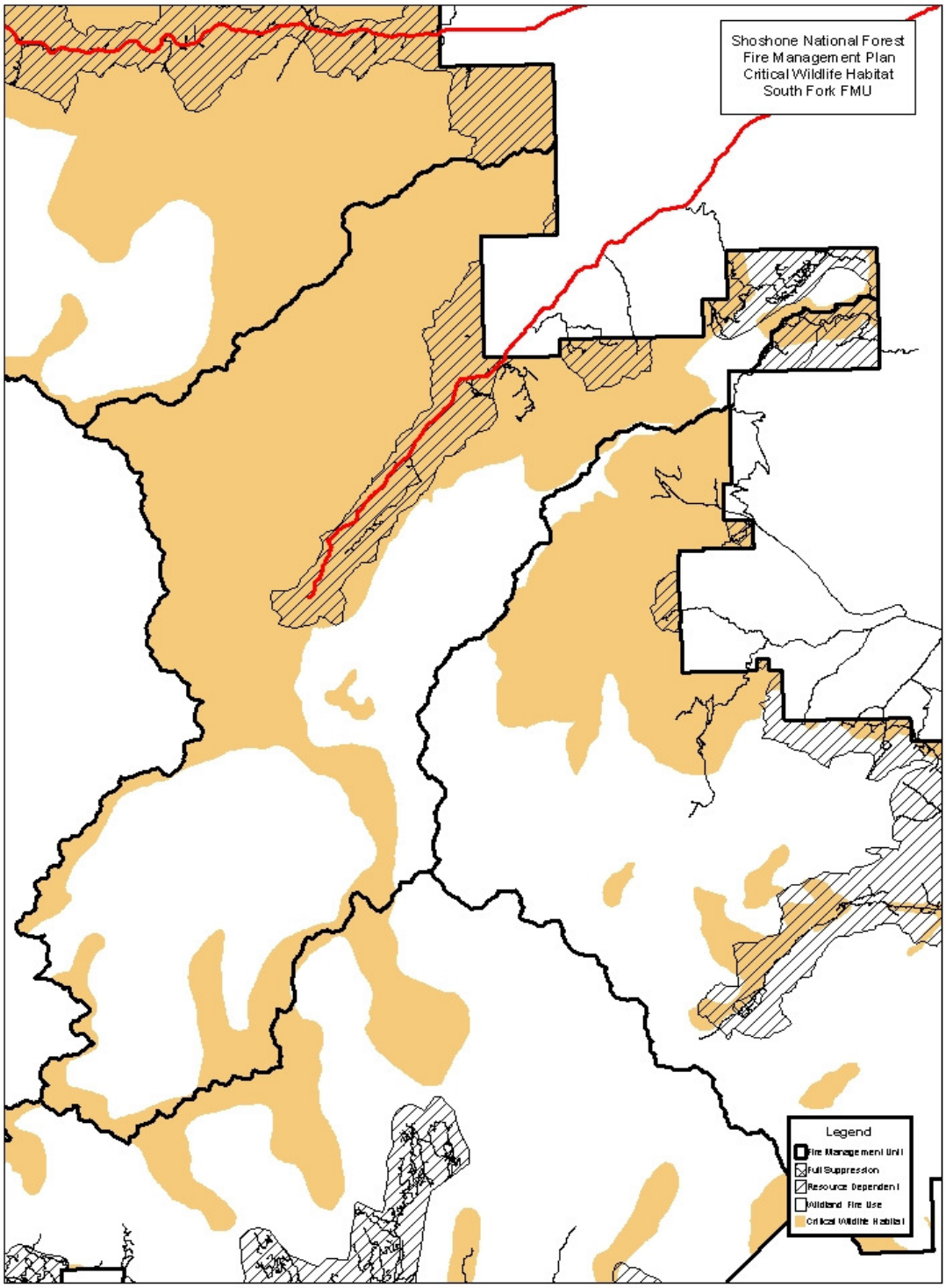
3.4.5. South Fork FMU Maps

The following maps identify key resources, features, and other attributes of the FMU that are intended for use when determining objectives and developing fire management objectives for an incident. Key maps for the FMU are included in this document when possible or can be found in the SHF fire management electronic reference file.

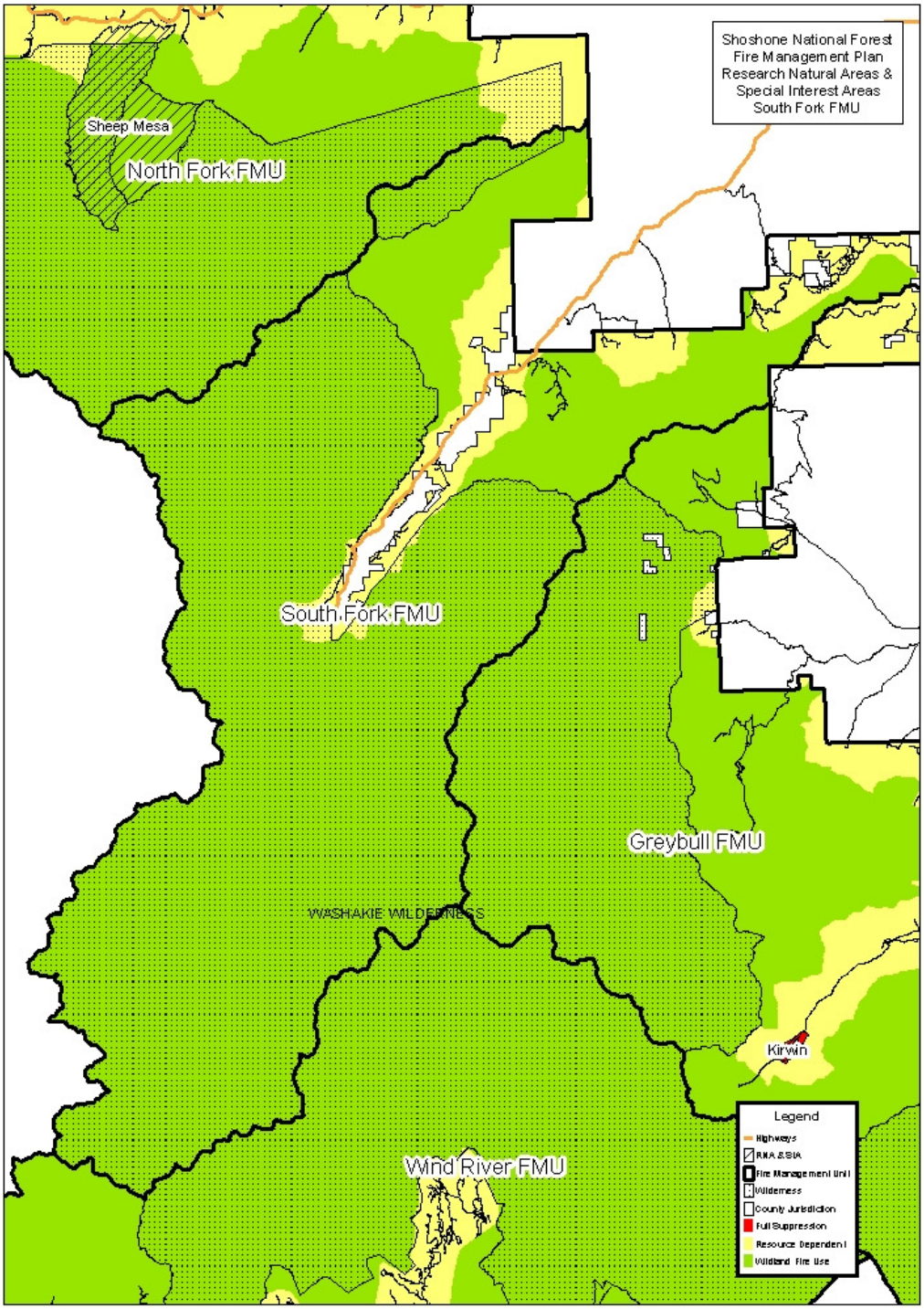
South Fork FMU Map 1 - South Fork FMU Boundaries and Response Zones



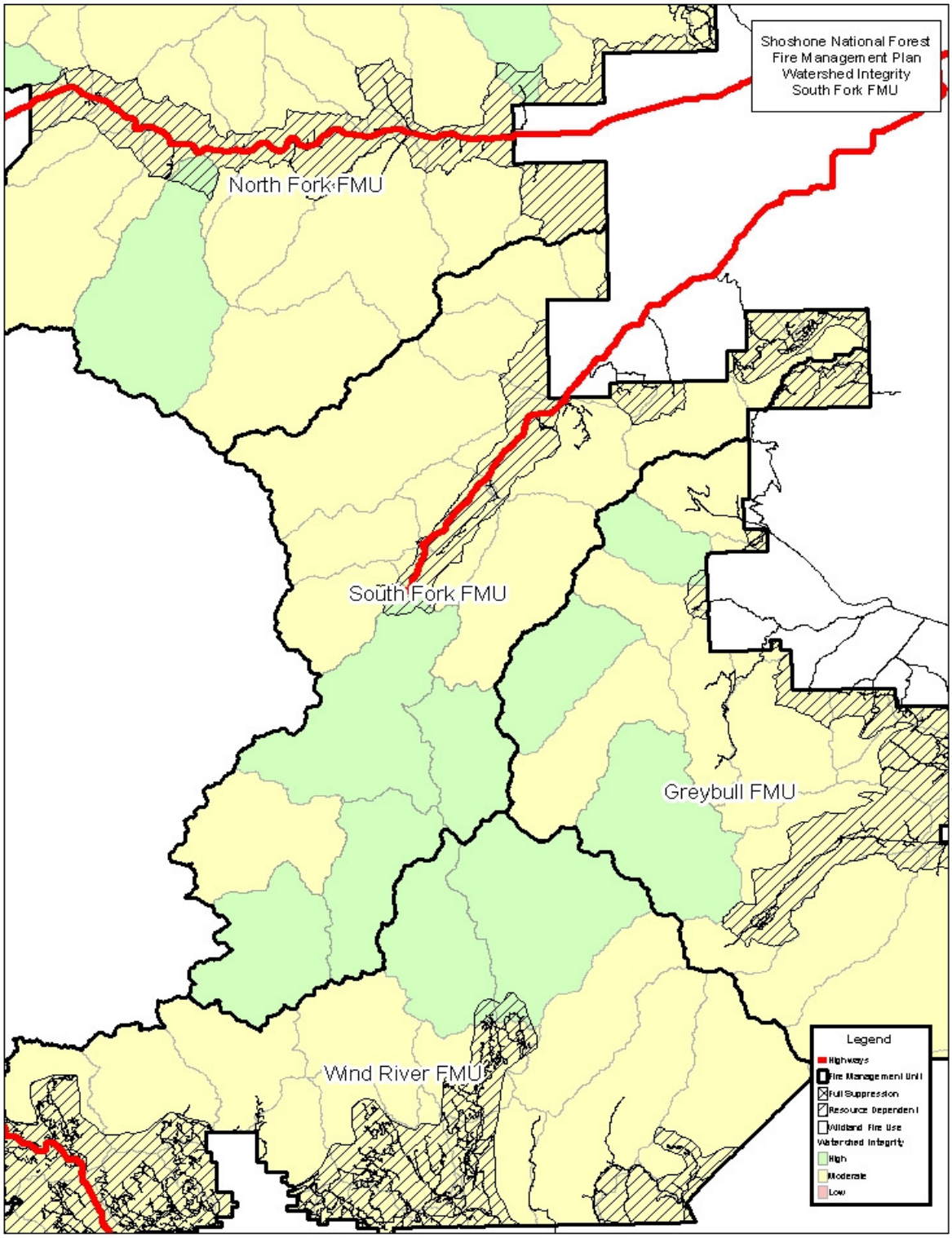
South Fork FMU Map 2- South Fork FMU Wildlife Critical Winter Range and Yellowstone Cutthroat Trout Locations



South Fork FMU Map 3 - South Fork FMU Special Areas



South Fork FMU Map 4 - South Fork FMU Watershed Condition



South Fork FMU Map 5 - South Fork FMU Cultural Resources

A hard copy map of the approximate location of known cultural sites and not yet surveyed areas that have a high probability of containing sites have been distributed to the zone FMOs. Detailed site-specific information is held by the Forest heritage program manager and can be obtained when needed. The information is stored in a GIS database as well.

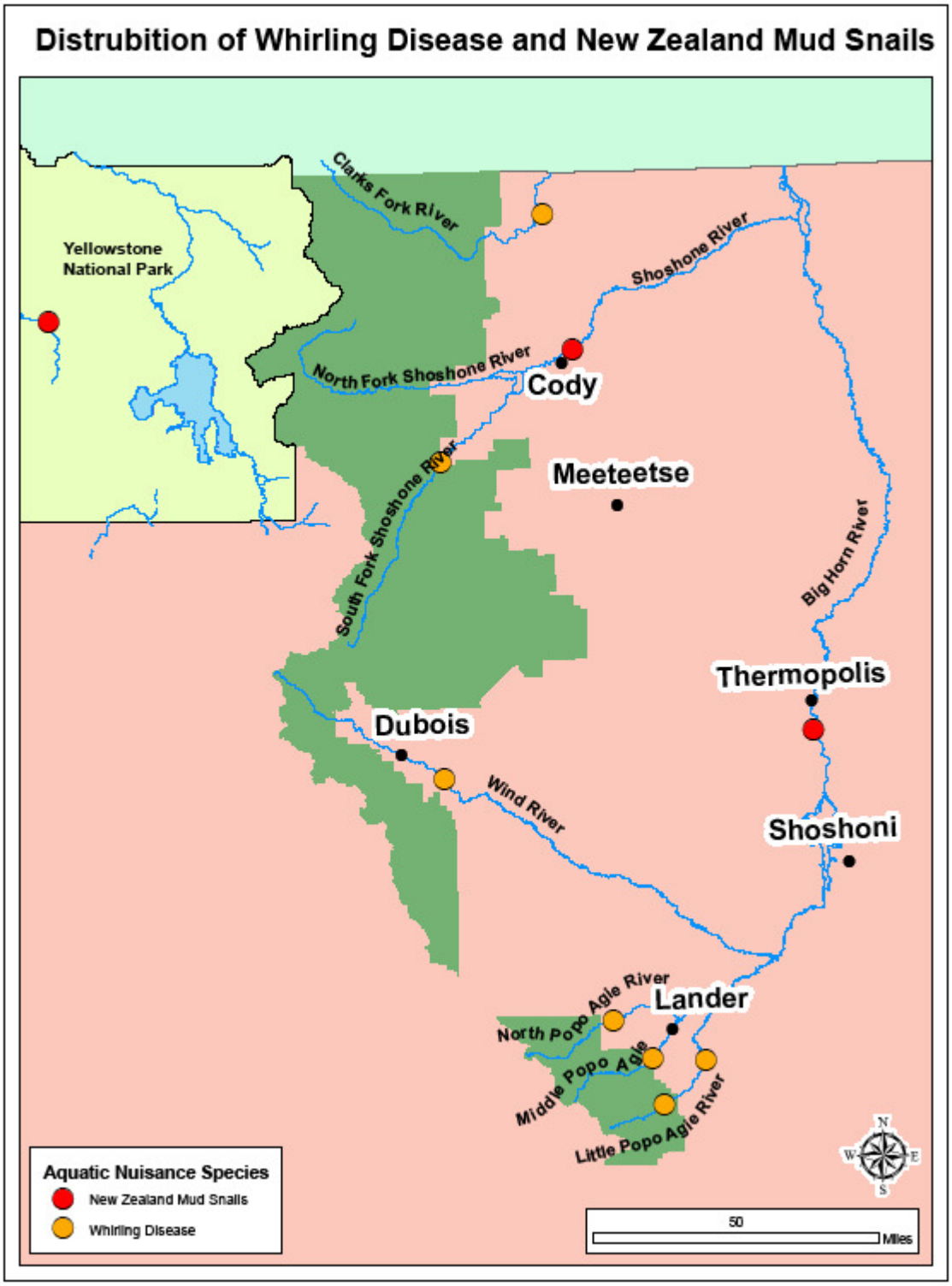
South Fork FMU Map 6 - South Fork FMU Values at Risk

A comprehensive map displaying the values in the FMU that may be at risk is available in hardcopy and can be printed from the SHF fire management electronic reference file. The associated data is also stored in a GIS data format that can be accessed from the Forest's GIS fire files at anytime when needed.

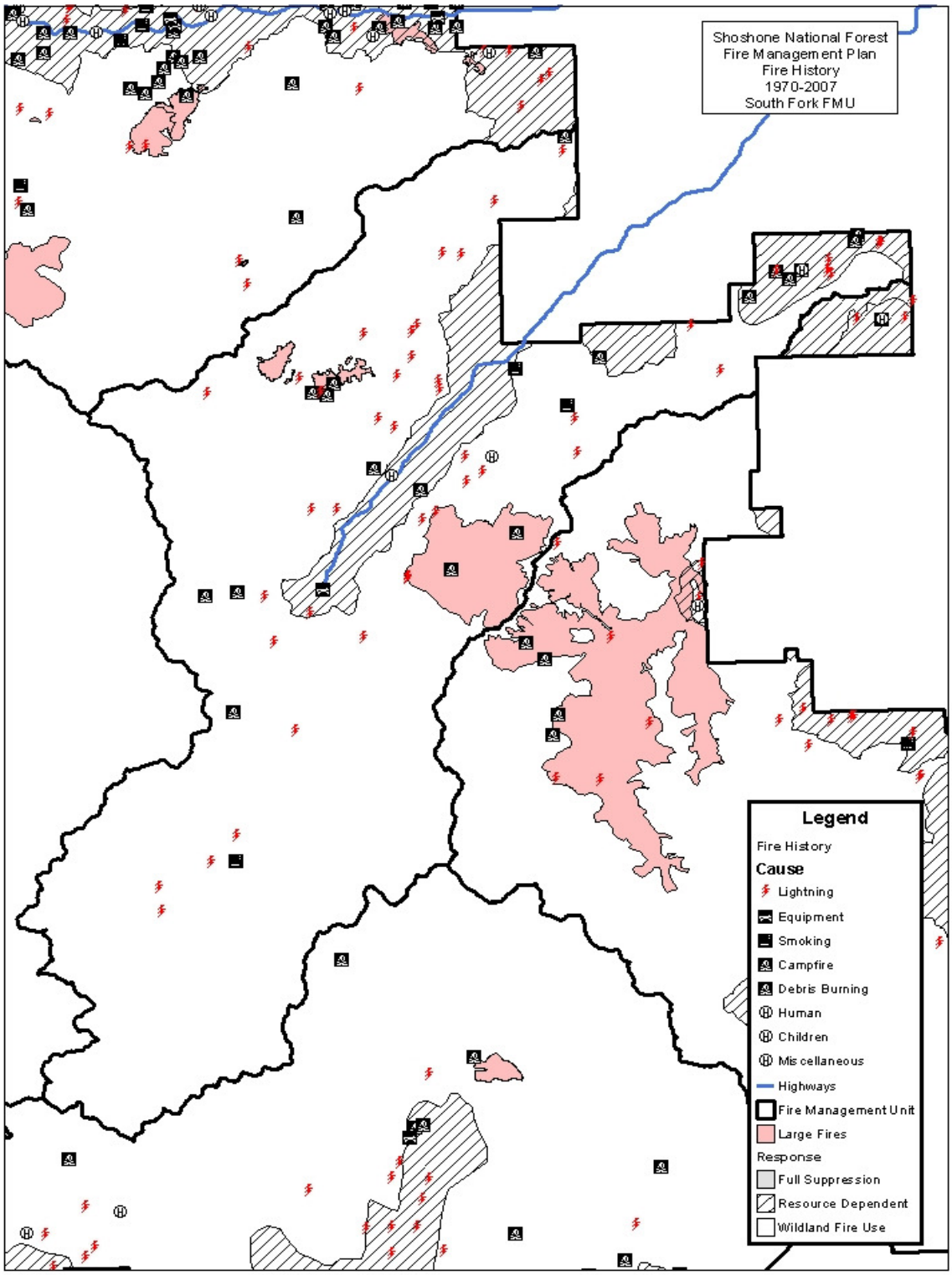
South Fork FMU Map 7 - South Fork FMU Invasive Plants

Invasive plant locations are mapped and available from the Forest's GIS corporate database.

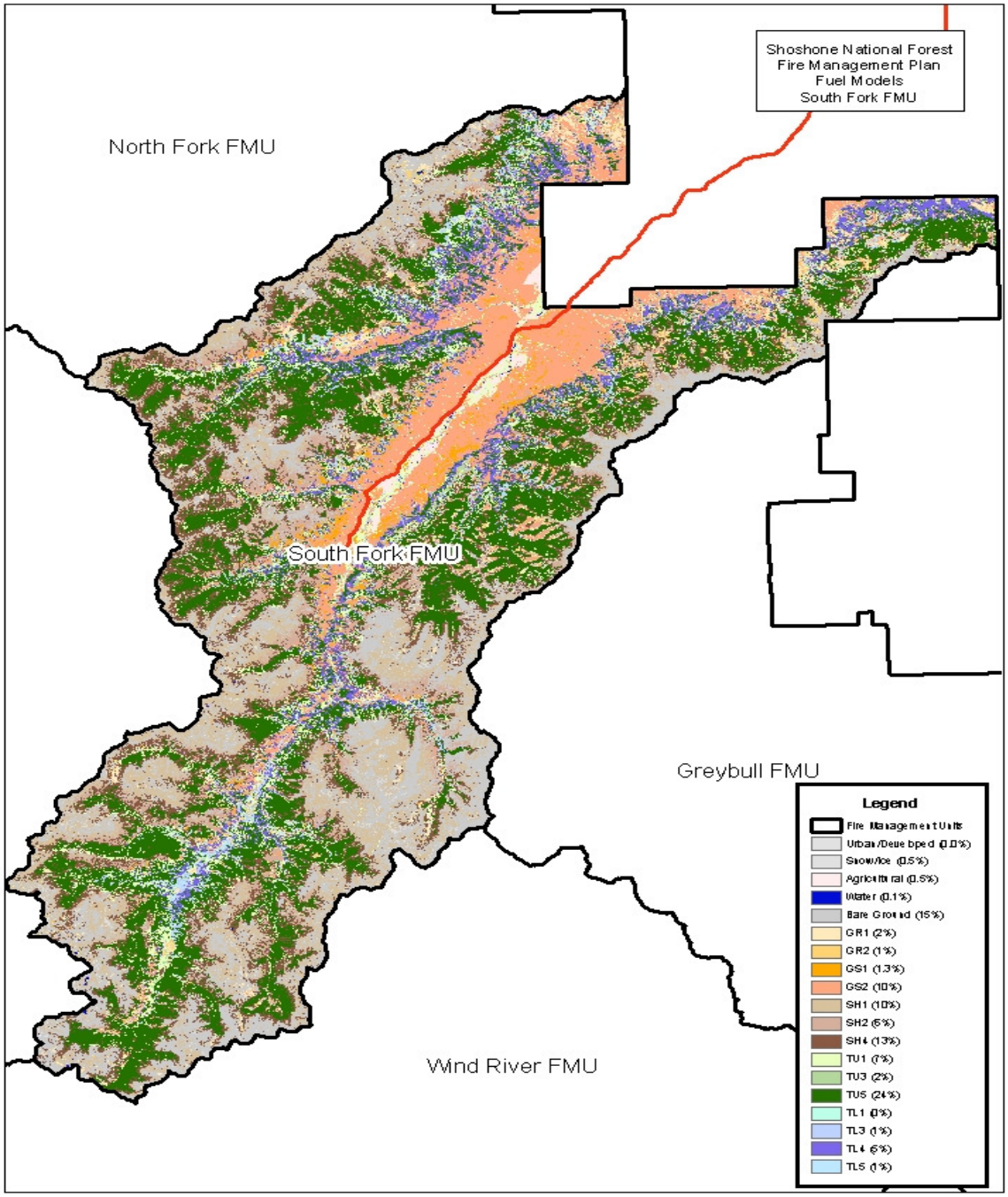
South Fork FMU Map 8 - South Fork FMU Invasive Aquatics



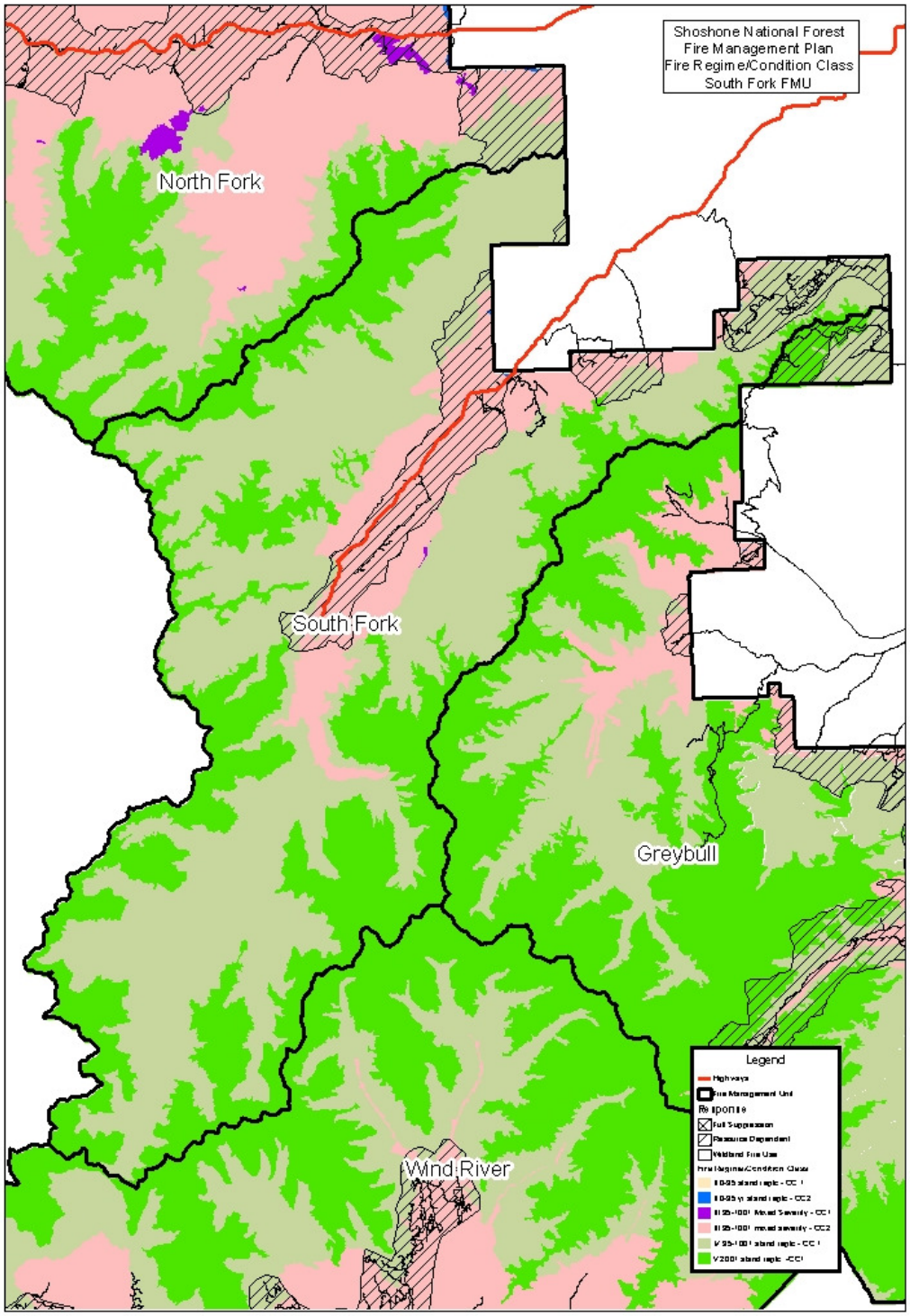
South Fork FMU Map 9 - South Fork FMU Historical Fire Occurrence



South Fork FMU Map 10 - South Fork FMU Fuel Type



South Fork FMU Map 11 - South Fork FMU Fire Regimes and Condition Classes



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3.5. Fire Management Considerations for the Greybull Fire Management Unit

3.5.1. Greybull FMU Snap Shot

Fire Management Unit Identification

Administrative Unit	FMU Name	FMU #	Management Response Zones	Acres
Shoshone National Forest - North Zone	Greybull	1	01 – Suppression	0
			02 – Resource Dependent	63,796
			03 – Fire Use	246,954

Ownership and Jurisdictions

Owner	Jurisdiction	Acres
US Forest Service	Shoshone National Forest	308,365
Private	Park Co. Fire Dist. # 3 – Meeteetse Hot Springs County Fire District	2,385
	Total	**310,750**

Dispatch Center

Name	Phone Number
Cody Interagency Dispatch Center	307-578-5140

Radio Frequencies*

Agency	Name	Receive Frequency	Transmit Frequency	Transmit Tone
USFS	North Zone Net	170.5000	170.5000	110.9
USFS	Carter Mountain RPT	170.5000	166.5625	146.2
USFS	Wood Ridge RPT	170.5000	166.5625	103.5

*See the Shoshone National Forest Radio Guide in the SHF fire management electronic file for a complete list of radio frequencies.

NFDRS Weather Stations

Station Number	Station Name & Owner	Fuel Model	Location	NESDIS #	Elevation
480804	Grass Creek BLM	G - Timber	43° 56.0” 108° 51.14”	3264C70C	7,100 ft.
480214	Eagle USFS	G - Timber	44° 29.08” 109° 53.47”	326fa142	7,500 ft.

NFDRS Weather Station Fire Behavior Indicators and Thresholds

Preparedness Level	SHF North FDRA SIG (Crandall & Eagle)	
	ERC[11]	100 Hr Fuel Moisture[12]
I	<43	15+
II	43-56	14-13
III	57-64	12-11
IV	65-71	10-9
V	72+	<8

[11] Best indicator for large fire potential

[12] Best indicator of fire occurrence and multi-fire days.

General Risk Category

Subjective overall risk relative to values present, fuel hazard and fire frequency is identified for each fire management unit response zone in the table below. Additional risk information related to fire behavior and length of season are described in Section 3.4.4.

Response Zone	Risk Rating			
	Values Present	Fuel Hazard	Fire Frequency	Overall Risk
01 - Suppression	3	3	1	2
02 – Resource Dependent	4	3	1	2
03 – Fire Use	1	3	1	1

1 = Low; 2 = Low Moderate; 3 = Moderate; 4 = Moderate High; 5= High

Predominant Vegetation Types

Cover Type	%
Grassland-Sagebrush	31 %
Forest – conifers	53 %
Forest – aspen & willow	2 %
Barren	14 %

3.5.2. Greybull FMU Guidance

Management Guidance

Wildland fire management guidance for the resources associated with the fire management unit is derived from the Shoshone National Forest Land and Resource Management Plan (Forest Plan). Applicable wildland fire management Forest Plan direction, goals, desired conditions, standards, guidelines, and management area prescriptions are detailed in Section 3.1.1. The specific Forest Plan direction that is used to formulate wildland fire benefit and resource protection objectives; initial attack/response actions; and appropriate management response strategies and tactical options that apply to the resources, values and attributes that occur in the fire management unit (FMU) are referenced throughout this section.

Other sources of wildland fire management direction and resource protection measures that originate in other laws, policy, handbooks and guides are also used to provide direction and guidance for wildland fire management activities for this FMU. Many of these sources are located in the Shoshone Fire management electronic reference file.

Fire Management Unit Resources and Values

Air Quality

The Washakie Wildernesses is a federally designated Class I Airsheds in the FMU. Yellowstone National Park located to the west of the FMU is also designated as a Class 1 Airshed. There are no non-attainment areas within or adjacent to the FMU.

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
air quality	Comply with State and Federal air quality standards (Forest Plan 1986, page III-97).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
air quality	Implement smoke management actions in accordance with Wyoming Air Quality Standards and Regulations (Regulations) chapter 10, section 4, Smoke Management Requirements.

Vegetation

Forested vegetation varies widely across the FMU due to variations in elevation, aspect, climatic factors, and past disturbances. The uppermost elevation zone is characterized by alpine tundra and the absence of trees. The next lower elevation zone is the subalpine zone, dominated in most places by Engelmann spruce, subalpine fir, and whitebark pine. Below the subalpine zone lies the montane zone, characterized by Douglas-fir. Other species that occur in the subalpine and montane zones include lodgepole pine, limber pine, and aspen.

Grass, sometimes mixed with sagebrush, regularly occurs in forest openings. In areas where environmental factors do not support tree reproduction, grasslands and shrublands persist. In the foothill zone below the montane zone, grass and shrubs dominate. In the montane and subalpine zones, grass and shrubs persist in areas where site conditions limit moisture, such as well-drained landforms, southern or western exposures, thin or poorly developed soils, and high windswept sites. In the severe environment of the alpine zone, grass and shrubs dominate. In portions of the subalpine and montane zones, lodgepole pine and aspen are common early seral species following fire disturbance. Fire also affects the acres that are dominated by grasses and shrubs.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
vegetation	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. Prescribed fire plays a role in areas where managing unplanned ignitions for resource benefits is not appropriate because of high values (FPA 2008-1 p. 3). Improve the health and vigor of vegetation types outside wilderness and selected types in wilderness where necessary (Forest Plan 1986, page III-6). Integrate vegetation management with resource management in functional areas – range, recreation, water and wildlife (Forest Plan 1986, page III-7).
aspen	Clearcut, burn or treat aspen mechanically to in order to promote suckering and revegetation of aspen patches (Forest Plan 1986, page III-155)

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
vegetation	Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Wildlife habitats – terrestrial and aquatic

Critical Winter Range: Critical wildlife winter range areas are identified on the Greybull FMU Map 2. Currently, there are no issues with condition of the winter range area that would prevent a fire to be managed for resources benefits or require protection.

Grizzly Bear: This species is a Forest Service Region 2 threatened species. Grizzlies have variable habitat, and eat everything from carcasses to moths to whitebark pine seeds to garbage. The most important elements needed to stabilize grizzly bear populations are minimizing bear/human conflicts and protecting key food sources, such as whitebark pine and moth sites. Most of the FMU is inside the South Absaroka Bear Management Unit of the Primary Conservation Area.

Yellowstone Cutthroat Trout: Yellowstone cutthroat trout is a subspecies of cutthroat trout that was historically found in the Yellowstone River drainage and reaches of the Snake River drainage. Stream segments containing Yellowstone cutthroat trout are identified on the Greybull FMU Map 2.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
wildlife	Integrate vegetation management with resource management in functional areas – range, recreation, water and wildlife (Forest Plan 1986, page III-7) Maintain fuel conditions that permit fire suppression and prescribed fire to maintain habitat needed for selected species or species population levels (Forest Plan 1986, page III-152).

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
grizzly bear – food storage	Minimize grizzly bear/human conflicts using food storage, information and education, and other management tools (FPA 2006-001).
grizzly bear habitat – food sources	Maintain the productivity, to the extent possible, of the four key grizzly bear food sources as identified in the Conservation Strategy (FPA 2006-001).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
grizzly bear	Implement bear safety and food storage mitigation measures as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.
Yellowstone Cutthroat Trout	Implement protection measures for riparian areas, lakes and streams as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Special areas

Special management area designations in the FMU include the Washakie Wilderness and the Proposed Kirwin Historic Area. Direction regarding wildland fire management for the Kirwin Area is described under the cultural resources section.

See Greybull FMU Map 2 for the location of special areas.

Water quality

All the 6th level hydrologic unit watersheds in the FMU are rated as being in good condition or better (Greybull FMU Map 4). At this time there are no concerns with application of fire on the landscape as a means to accomplish resource benefits.

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
water	Improve or maintain water quality to meet state water quality standards (Forest plan 1986, page III-70).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
water quality	Implement protection measures for riparian areas, lakes and streams as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines. Implement practices regarding fire management activities as described in the Forest Service Handbook 2509.25, Watershed Conservation Practices.

Cultural Resources

The general location of known cultural resource sites and not yet surveyed areas that have a high probability of containing sites are located on the Cultural Resources Map for the FMU (Greybull FMU Map 5). The map with the general locations is part of the SHF fire management electronic reference file and is also available for use by fire managers and agency administrators. More specific information regarding site locations will be provided by the heritage program manager when needed.

The Greybull FMU contains a significant historic site. The Proposed Kirwin Historic Area is located in the Wood River drainage (Greybull FMU Map 3) and is a mining town that was formed in the 1880s after gold and silver was discovered in the area. The property contains cabins, mining equipment and a mine shaft.

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
cultural	Wildland fire management activities should protect cultural resources when feasible with priority given to sites listed on the National Register of Historic Places, sites recommended for selection to the Register and to known unevaluated sites (FPA 2008-1 p. 6).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
cultural	Follow procedures for wildland fire management activities as outlined in Appendix G of the Programmatic Agreement with the State Historic Preservation Officer for Compliance with the National Historic Preservation Act on Forest and Grasslands of Wyoming. Implement protection measures for cultural resources as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Wilderness

There is one wilderness in the FMU (Greybull FMU Map 1). The Washakie Wilderness comprises approximately 50% of the FMU.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
wilderness	Permit fires to play, as nearly as possible, their natural ecological role within wilderness area (FPA 2008-1 p. 9). Allow natural succession to proceed without human intervention in designated wilderness, wilderness study areas, and special management areas (Forest Plan 1986, page III-6).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
wilderness	Implement minimum impact suppression and logistic techniques as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Goods and Services

Timber: Lands suitable for timber production are present within the FMU and are primarily located within the resource dependent zone. Lands suitable for timber production are identified on the Values at Risk Map for the FMU (Greybull FMU Map 6) Lands suitable for timber production are considered high value assets and under most circumstances would not be allowed to burn unless it was determined there would be beneficial effects or no effects. Development of strategies to manage a fire for resource benefits would consist of an assessment of what areas would benefit from fire and what areas should be protected from fire or subject to limited fire intensity.

There may be a few instances where lands suitable for timber production may be allowed to burn and commercial timber products destroyed or damaged while managing a fire for resource benefits or as an unwanted wildland fire. For example, situations where it is infeasible to protect an isolated stand, or where the value of the timber does not warrant the cost or commitment of resources and a substantial resource benefit may be achieved.

Greybull FMU Active and Planned Timber Sales

Sale Name	Location	Status	Purchaser
Lower Wood River TS	T46N, R103W, S23-25; T46N R102W, S28-30, 33	Advertise 09	
Dick Creek TS	Dick Creek, North Dick and South Dick Creeks	Appealed Nepa – in planning	
Cottonwood TS	T45N R101W, S29-32	Planning	
Gooseberry TS	T45N, R102W, S1,2,12; T45N, R101W, S6,7,8,17-20	Planning	

Grazing: There several grazing allotments within the FMU and they are identified on the Values at Risk Map (Greybull FMU Map 6). Forest-wide Forest Plan direction and desired conditions regarding vegetation is generally consistent with range management objectives. Whether a fire is being managed for resource benefits or protection objectives, coordination with range management specialist and permittees occur.

Special Uses: Permitted outfitter and guide operations occur throughout the FMU. Camp locations are identified on the Values at Risk Map (Greybull FMU Map 6). Whether a fire is being managed for resource benefits or protection objectives, coordination with special uses managers and outfitters occur.

Minerals: There are no mining, drilling or exploration operations occurring in the FMU.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
timber and grazing	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. Prescribed fire plays a role in areas where managing unplanned ignitions for resource benefits is not appropriate because of high values. Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
goods and services	Wildland fire plays a role within and outside of wilderness where appropriate and desirable, but active suppression of fire occurs where necessary to protect life, investments, and valuable resources. Valuable resources include the wildland urban interface, utility corridors and communication sites. Other valuable resources include public water supply, recreation facilities, administrative sites, range allotments, special management areas, fish and wildlife habitats, and lands suitable for timber production (Forest Plan Amendment 2008-01, page2).

Developments, Facilities and Infrastructure

Developments, facilities and infrastructures occur within and adjacent to the FMU and are displayed on the Values at Risk Map (Greybull FMU Map 6). Most of the sites are located within the Resource Dependent Management Zone. There are some facilities and developments in the Fire Use Management Zone.

Greybull FMU Recreation Sites (developed)

Name	Geographic Location
Brown Mountain Campground	T46N, R103W, S23
Wood River Trailhead	T46N, R102W, S30
Wood River Campground	T46N, R102W, S29
South Fork Wood River Trail-head	T46N, R102W, S29

Jack Creek Campground/TH	T48N, R104W, S21

Greybull FMU Backcountry Administrative and Range Improvement Sites

Name	Geographic Location
Venus Cabin	T47N, R105W, S23
Anderson Lodge	T48N, R105W, S26
Haymaker Cow Camp (range improvement)	T47N, R105W13
Betty Cabin (range improvement)	T48N, R104W, S7

Greybull FMU Utilities and Communication Sites

Name	Geographic Location
Timber Creek SNOTEL	T47N, R103W, S23
Kirwin SNOTEL	T45N, R104W, S15

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
developments, facilities and infrastructure	Wildland fire plays a role within and outside of wilderness where appropriate and desirable, but active suppression of fire occurs where necessary to protect life, investments, and valuable resources. Valuable resources include the wildland urban interface, utility corridors and communication sites. Other valuable resources include public water supply, recreation facilities, administrative sites, range allotments, special management areas, fish and wildlife habitats, and lands suitable for timber production (Forest Plan Amendment 2008-01, page2). Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Wildland Urban Interface

Structures occurring within and adjacent to the FMU are primarily located within the Resource Dependent Management Zone (Greybull FMU Map 1).

Local fire departments and agencies are responsible for structure protection; management of wildland fires burning on the Shoshone National Forest is the responsibility of the Forest Service. Keeping fires from reaching structures and private property adjacent to the Forest as well as permitted lodges and residences located on the Forest is consistent with current federal policy and Forest Plan direction. In addition, cooperative agreements and operating plans are in place that permits Forest Service firefighters to assist local jurisdictions with structure protection on private property, but for not entering structures to suppress fires.

The approach for developing the appropriate management response for wildland fire burning on the Forest that threatens individual structures or the wildland urban interface is the same for fire being managed for resource benefit or suppression objectives. Aggressive or intense management actions would occur in locations that have the highest probability of success in preventing damage or loss while ensuring the safety of the public and firefighters. These actions could occur near structures in close cooperation with the local jurisdiction or at some distance from structures where circumstances are favorable for stopping the advance of a fire toward structures.

Greybull FMU Communities and Subdivisions

Community Name	Geographic Location
Meeteetse Creek Ranches	Meeteetse Creek
Meeteetse Creek Cabin (in-holding)	Meeteetse Creek
Upper Greybull River Ranches	Timber Creek to Jack Creek along the Greybull River
Wood River Ranches	Wood River
Grass Creek Ranches	Grass Creek
Cottonwood Creek Ranches	Cottonwood Creek
Deer Creek Cabin In-holding	T46N, R102W, S19,30
Sunshine Cabin (in-holding)	Sunshine Creek
HD Cabin	Owl Creek Mountains
High Island Ranch	Owl Creek Mountains
Campbell's Cabin	Owl Creek Mountains
Gooseberry Cabins	Gooseberry Creek

Greybull FMU Permitted recreation residences

Community Name	Geographic Location
Wood River Cabin Group	T46N, R103W, S23

Greybull FMU Permitted lodges

Lodge Name	Geographic Location
None	

Greybull FMU Administrative and Range Improvement Sites

Site Name	Geographic Location
Timber Creek Ranger Station	T47N, R103W, S14
Wood River Guard Station	T46N, R102W, S21 (located off forest)
Kirwin	T45N, R104W, S11-14
Double D Ranch	T46N, R103W, S21
Jack Creek Cow Camp (range improvement)	T47N, R104W, S3
Pickett Creek Cow Camp	
Game And Fish Cabin	T47N, R104W, S9

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
wildland urban interface	Wildland fire plays a role within and outside of wilderness where appropriate and desirable, but active suppression of fire occurs where necessary to protect life, investments, and valuable resources. Valuable resources include the wildland urban interface, utility corridors and communication sites. Other valuable resources include public water supply, recreation facilities, administrative sites, range allotments, special management areas, fish and wildlife habitats, and lands suitable for timber production (Forest Plan Amendment 2008-01, page2). Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Invasive species

Invasive plants: There are over 20 high priority terrestrial invasive species on the Shoshone with many more invasive species with the potential to spread across large portions of the Forest. Wildfires of any cause can enhance conditions for spread if fires expose soil, reduce native vegetation, and facilitate the introduction or movement of invasive seed sources into an area. Locations of invasive plants are mapped (Greybull FMU Map 7) and are located in the SHF fire management electronic reference file.

Invasive aquatics: Aquatic nuisance species occur just inside or adjacent to the Forest (Greybull FMU Map 8) including whirling disease, New Zealand mudsnails, and didymo. Fire suppression equipment can travel long distances to the Forest, and with them, the potential to introduce other aquatic nuisance species or move them to another area. Whirling disease has not been documented in any of the streams or lakes in or near the FMU at this time.

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
vegetation	Implement protection measures for invasive plants as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines. Follow practices related to fire management activities described in Forest Service Manual 2080 Noxious Weed Management for Forest Service activities.
aquatic	Implement protection measures for riparian areas, streams and lakes as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Fuels

The Greybull FMU Map 10 displays the fuel types and relative acres for each type associated with the FMU. GIS data layers are also available in the SHF fire management electronic reference file. Additional information regarding fuel conditions and topography that influence fire behavior and potential control problems are described in Section 3.5.4.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
fuels	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels (Forest Plan Amendment 2008-01, page 3). Reduce the accumulation of natural fuels (Forest Plan 1986, page III-8). Prescribed fire will be utilized as a vegetative and fuels management technique where it is the most cost-efficient and acceptable alternative to achieve management objectives (Forest Plan 1986, page III-96). Maintain fuel conditions that permit fire suppression and prescribed fire to maintain habitat needed for selected species or species population levels (Forest Plan 1986, page III-152).

Fire Regime Condition Class

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
fire regime condition class	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. Prescribed fire plays a role in areas where managing unplanned ignitions for resource benefits is not appropriate because of high values (Forest Plan Amendment 2008-01, page 3).

FMU Initial Response Guidance and Assigned Resources

Greybull Fire Management Unit Initial Response/Attack Run Card

Full Suppression Response Zone					
Dispatch Resource	**Fire Danger – Eagle RAWS 480214**				
	Low	**Mod**	**High**	**VH**	**EXT**
Engine	1	1	1	1	2
Hand Crew (2 - 4 person)			1	1	2
Helicopter/Aerial Recon		1	1	1	1
Duty Officer/AFMO/FMO Notification	X	X	X	X	X
Unplanned ignitions are considered to be unwanted fires and initial attack responses will consist of the safest and most effective and cost efficient actions to contain and control fires as quickly as possible.					

Resource Dependent Response Zone					
Dispatch Resource	**Fire Danger – Eagle RAWS 480214**				
	Low	**Mod**	**High**	**VH**	**EXT**
Engine (T3, T4, or T6)	1	1	1	2	3
Hand Crew (2 - 4 person)			1	1	2
Helicopter/Aerial Recon				1	1
Duty Officer/AFMO/FMO Notification	X	X	X	X	X
Local Jurisdiction Notification (if structures are threatened)	X	X	X	X	X
Initial response to fires within the Resource Dependent Response Zone will require an assessment as to whether or not the fire is a candidate to be managed for resource benefits. The Duty Officer/AFMO/FMO begins this assessment immediately by evaluating the probable cause and location of the fire relative to resource values. Commensurate with the assessment, initial attack resources are dispatched to a fire under the assumption that the fire is to receive a suppression response unless directed otherwise. Human caused fires are classed as an unwanted fire and will receive a suppression response.					

Fire Use Response Zone					
Dispatch Resource	**Fire Danger – Eagle RAWS 480214**				
	Low	**Mod**	**High**	**VH**	**EXT**
Engine	1	1	1	1	2
Hand Crew (2 - 4 person)			1	1	2
Helicopter/Aerial Recon			1	1	1
Duty Officer/AFMO/FMO Notification	X	X	X	X	X
Initial response to fires within the Fire Use Response Zone will require an assessment as to whether or not the fire is a candidate to be managed for resource benefits. The Duty Officer/AFMO/FMO begins this assessment immediately by evaluating the probable cause and location of the fire relative to resource values. Initial response resources are dispatched to a fire under the assumption that the fire is a potential candidate to be managed for resource benefits and would not begin suppression actions unless directed otherwise. Human caused fires are classed as an unwanted fire and will receive a suppression response.					

3.5.3. Greybull FMU Characteristics

3.5.3.1. Safety

Firefighter and public safety considerations

Firefighter and public safety is the priority in all fire management activities. Reduce firefighter and public injuries and loss of life, and damage to communities from unwanted wildland fires, by prioritizing firefighter and public safety above other concerns in fire management activities (Forest Plan Amendment 2008-01, page 4).

History on the Forest indicates that while the annual number of fire starts is not particularly high, the fire environment is complex as high intensity fires with rapid rates of spread are common during active burning years. The fire environment is further complicated by a Forest-wide insect epidemic; mature forest, steep terrain, and frequent wind events that are not always well forecasted. There have been three recorded fire fighter entrapments on the Forest. The most serious occurred in 1937 when ten firefighters lost their lives on the Blackwater Fire (North Fork FMU). The most recent entrapment occurred in 2006 on the Little Venus Fire (Greybull FMU) where ten firefighters survived an entrapment, fortunately with only minor injuries.

Environmental and Aviation Hazards

Aviation hazards are identified on the Forest Aviation Hazard Map (SHF fire management electronic reference file). High winds and terrain-influenced winds that affect aviation operations are common. Environmental hazards include steep, rocky and difficult terrain, and grizzly bears.

3.5.3.2. Physical

Terrain

The Shoshone National Forest is in the northern Rocky Mountains in northwest Wyoming. With Yellowstone National Park on its northwestern border, the Shoshone extends more than 180 miles from the Montana state line to South Pass near Lander, Wyoming. It is bordered by the Custer and Gallatin National Forests on the north and by Yellowstone National Park and the Bridger-Teton National Forest on the southwest. The Shoshone is set within the lee of the massive Absaroka, Beartooth, and Wind River Mountains.

The terrain varies widely from sagebrush flats to rugged mountains because the Shoshone is situated on the western edge of the Great Plains and the eastern side of the continental divide. Elevations on the Shoshone range from 4,600 feet at the mouth of the spectacular Clarks Fork Canyon to 13,804 feet on Gannett Peak, Wyoming's highest point. The higher mountains are snow-clad most of the year with immense areas of exposed rock interspersed with meadows and forests. The Shoshone provides a diverse landscape—from lush grasslands to alpine meadows, from crystal-clear lakes to glacial carved valleys, from rolling hills to sheer mountain walls.

Most of the Shoshone is within the upper Missouri River Basin, subdivided by the Wind/Big Horn, and Clarks Fork River basins. The southern tip of the Shoshone is in the Sweetwater drainage, which flows into the Platte River system. Principal rivers within the Shoshone boundary are the Clarks Fork of the Yellowstone River, North and South Forks of the Shoshone River, and the Greybull, Wind/Big Horn, and Popo Agie Rivers.

FMU Travel routes

Approximately 50% of the FMU is wilderness and another 25% is roadless. Road access is limited to the eastern portion of the FMU. The Greybull River Road provides access to the Phelps Mountain area and to the Jack Creek Trailhead which leads into the Washakie Wilderness. The Wood River, Timber Creek, Gooseberry, and Cottonwood Creek have a network of forest roads that provide access to the southeast part of the FMU. There are no roads that pass through the FMU.

3.5.3.3. Biological

See Fire Management Unit Resources and Values in Section 3.5.2 and maps in Section 3.5.5 for information regarding biological features.

3.5.3.4. Resources

See Fire Management Unit Resources and Values in Section 3.5.2 and maps in Section 3.5.5 for information regarding resources.

3.5.4. Greybull FMU Fire Environment

3.5.4.1. Fire History and Behavior

Historic Fire Occurrence and Behavior

Greybull FMU Map 9 displays the historic fire occurrence and cause for the FMU. Since 1970, the Forest has averaged 26 wildfires annually. Due to persistent drought and widespread insect epidemics in combination with changes in fire management philosophy, the trend in acreage burned since 1998 has been increasing. The annual average acres burned for the past 30 years is approximately 7,200 acres. The annual ten-year average is over 8,900 acres; the annual average for the last five years is approximately 16,400 acres burned.

Natural ignitions account for 51% of the fire starts (87% of the acres burned). Human-caused fires account for 49% of historical fire occurrence (13% of the acres burned); escaped campfires reflect 60% of these ignitions. Fire size classes A and B account for 90% of the fires. The annual fire occurrence for each FMU was generated from PC Historical Analysis (PCHA) using representative locations (RL) to determine wildland fire distribution. Large fires have occurred all months of the established season but typically are anticipated in August and September.

During the summer of 1988, the Clover and Mist Fires burned 194,430 acres in the Clarks Fork and North Fork FMUs. Fires of this size are considered low in frequency, one in a hundred year occurrence; the importance of the two events is recognized as normal in the natural fire ecology of the Shoshone National Forest. Considering the rare occurrence in conjunction with fires analyzed in the historical period, the annual acres burned are 2,334. Fire data (1909 - 1982) in the Forest Plan shows the fire occurrence about the same as today but with 873 acres burning annually. Before 1900, fire history studies indicate areas equal or larger to Clover/Mist burned on the Forest.

Fires in 2003 were record setting from most points of view. Total acreage burned was 26,094. Number of fires was 48. Number of starts in a day set a new record of 5 (August 10, 2003). Consecutive days with multiple starts set a record with 8.

The 2006 fire season was significant on the Forest. Low snow pack, below average spring precipitation, and a widespread insect epidemic resulted in conditions conducive to stand

replacement type fires in low frequency fire regimes. Although the number of fires recorded were near average, the total acres burned exceeded 40,000. The two most significant fires were Little Venus which burned in the Greybull FMU and the Purdy Fire in the Wind River FMU. Large fire growth began in earnest in mid July and continued until early September.

The 2007 fire season continued to reflect the trend of large fire growth resulting from the build-up of fuels on the Forest and persistent drought conditions. Again the number of fires were near average, but the total acres burned were on the Forest were approximately 5,700 acres. The Citadel Fire (South Fork FMU) began in mid-June and burned approximately 2,000 acres and the Columbine Fire (North Fork FMU), which originated during August in Yellowstone National Park, burned approximately 3,700 acres on the Forest. Total acres burned for the Columbine Fire was approximately 18,000 acres.

The 2008 fire season was below average for number of starts with 23; however, the acres burned were approximately 68,200. The most significant fire of the season was the Gunbarrel Fire that burned in the North Fork FMU for months and consumed over 68,100 acres. There were several days of large fire growth and extreme fire behavior observed during this fire.

Fire Behavior and Fuels

The Greybull FMU Map 1 displays the fuel types and relative acres for each type associated with the FMU. GIS data layers are also available in the SHF fire management electronic reference file. Vegetation within the Forest is classified into five broad communities: alpine, coniferous forest, montane meadow-parkland, sage-grass, and riparian. Coniferous forest represents the largest vegetation type on the Forest. National Fire Danger Rating System fuel model G is most typical of the coniferous forest fuel bed. Low rate of spread accompanied with high heat intensity typifies this model but in drought years, high rates of spread have been observed from wind and plume dominated crown fires. In review of large fires on this Forest, the coniferous forest has been the primary carrier of fire and is the only fuel type represented in the suppression analysis.

Insect and disease infestations have become epidemic on most of the Forest, and fuel model characteristics are changing. The Forest is experimenting with fuel model modification using FARSITE to better match the changing condition.

Fire Regime Condition Class

Eighty-six percent of the FMU is in a fire regime condition class 1. One vegetation conditions is in some jeopardy based on the time since the last disturbance. This includes approximately 42,065 acres of fire regime III that are in condition class 2. This represents approximately 14 percent of the FMU. A summary of the number of acres by fire regime condition class are displayed in the table below and on Greybull FMU Map 11.

Greybull FMU Fire Regimes and Condition Classes

Fire regime	Condition class	Fire return interval	Burn severity	Acres	Percent
II	1	35 – 70 years	Stand replacement	0	0%
	2			9	0%
III	1	35 -100 years	Mixed	0	0%
	2			42,065	14%
IV	1	70 - 150 years	Stand replacement	127,247	41%
V	1	200 – 300 years	Stand replacement	138,862	45%
Barren	None	None	None	2,568	<1%

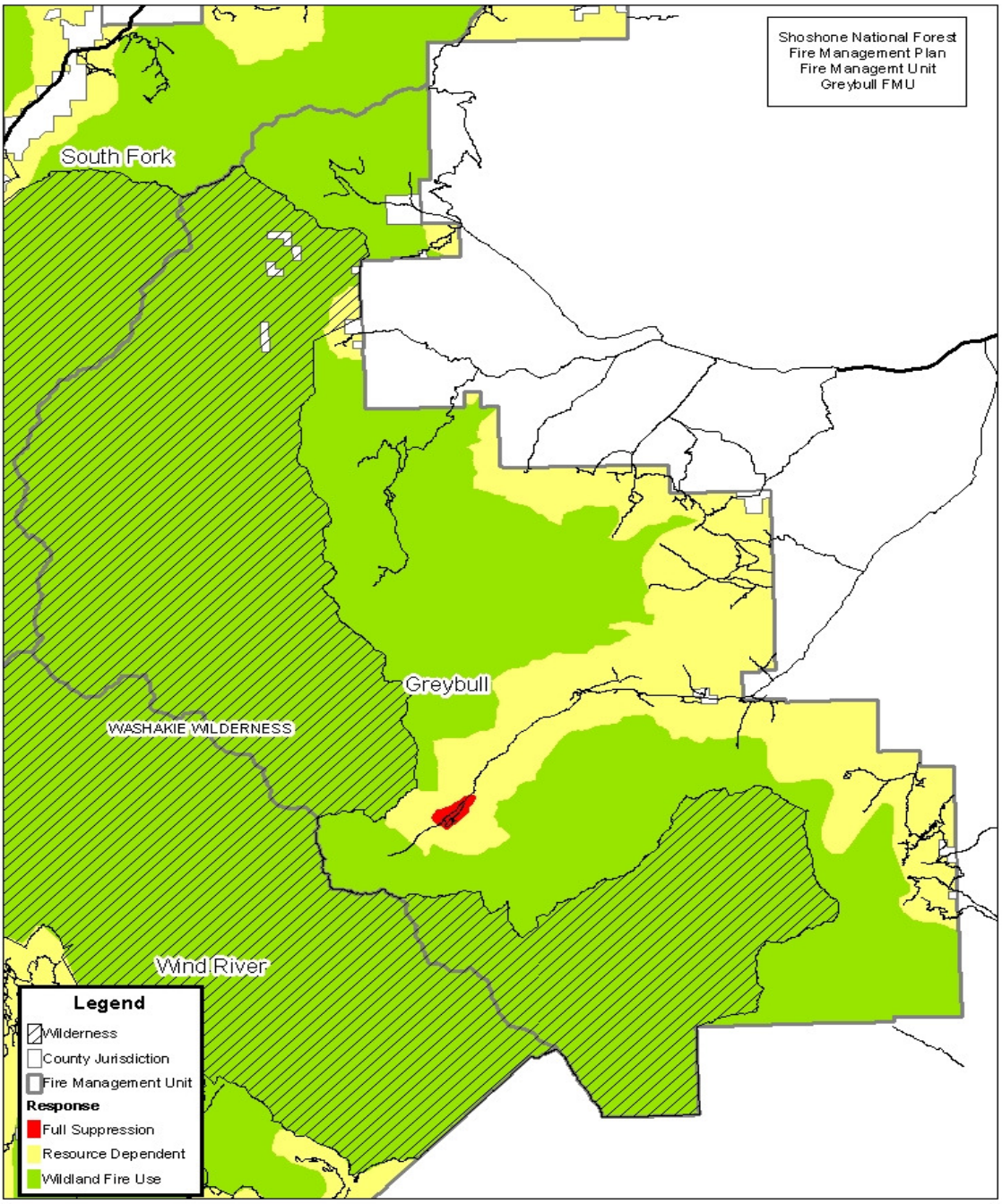
3.5.4.2. Weather

The prevailing climate is categorized as "continental mountainous." Moisture is brought into the Greater Yellowstone Area from storms tracking west to east. As the storms are forced up and over the continental divide, moisture is leached from the storm system at the upper elevations. The average annual precipitation, ranging from 15 to 70 inches, varies with topography and elevation. Eighty percent of the precipitation in the upper elevations occurs in the winter and spring; thunderstorms in the summer provide 20%. In the lower elevations, seasonal distribution of precipitation shifts to a lower accumulation with the same seasonal percent distribution. Typical summer temperatures vary with elevation; highs ranging from 65 to 90 degrees and lows from 35 to 60 degrees are common with respect to elevation. The average summer relative humidity varies also with elevation and topography; relative humidity of single digits are not uncommon in the upper elevations while the lower drainages are measuring 30%. During the established fire season, a typical summer sees numerous thunderstorms and 23 cold front passages. Additional weather and fire behavior related information is located in the Shoshone National Forest fire management electronic reference file..

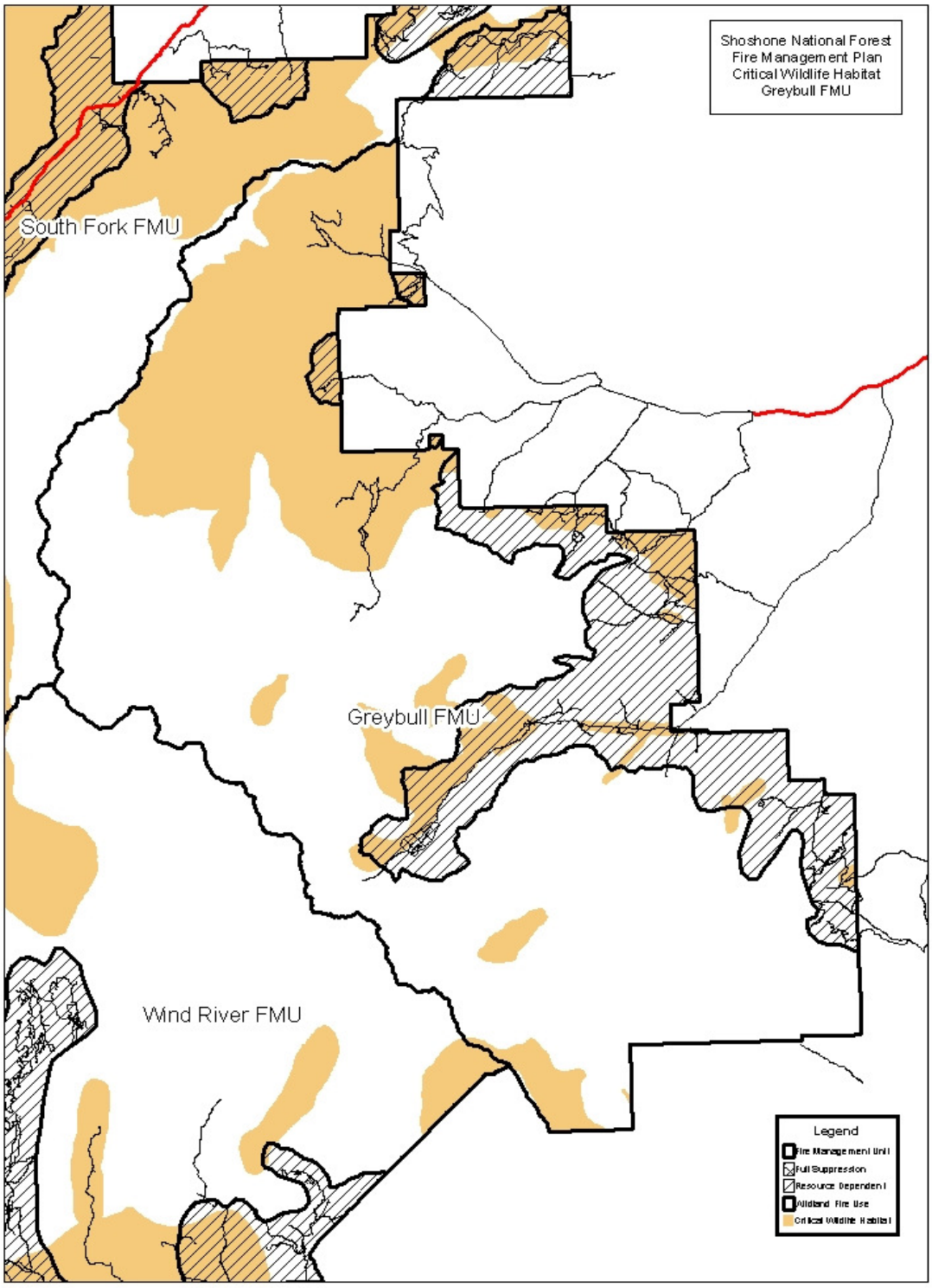
3.5.5. Greybull FMU Maps

The following maps identify key resources, features, and other attributes of the FMU that are intended for use when determining objectives and developing fire management objectives for an incident. Key maps for the FMU are included in this document when possible or can be found in the SHF fire management electronic reference file.

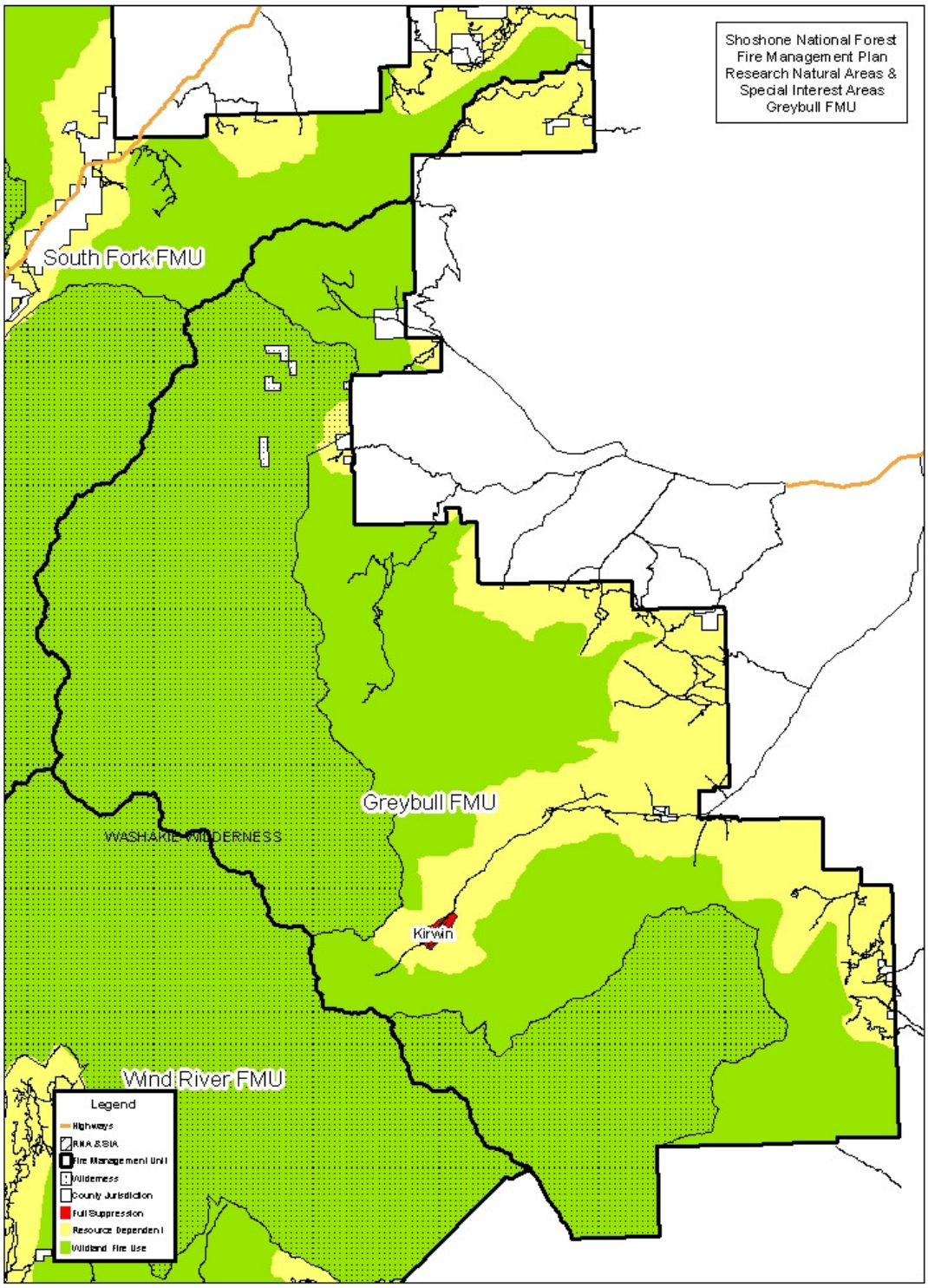
Greybull FMU Map 1 - Greybull FMU Boundaries and Response Zones



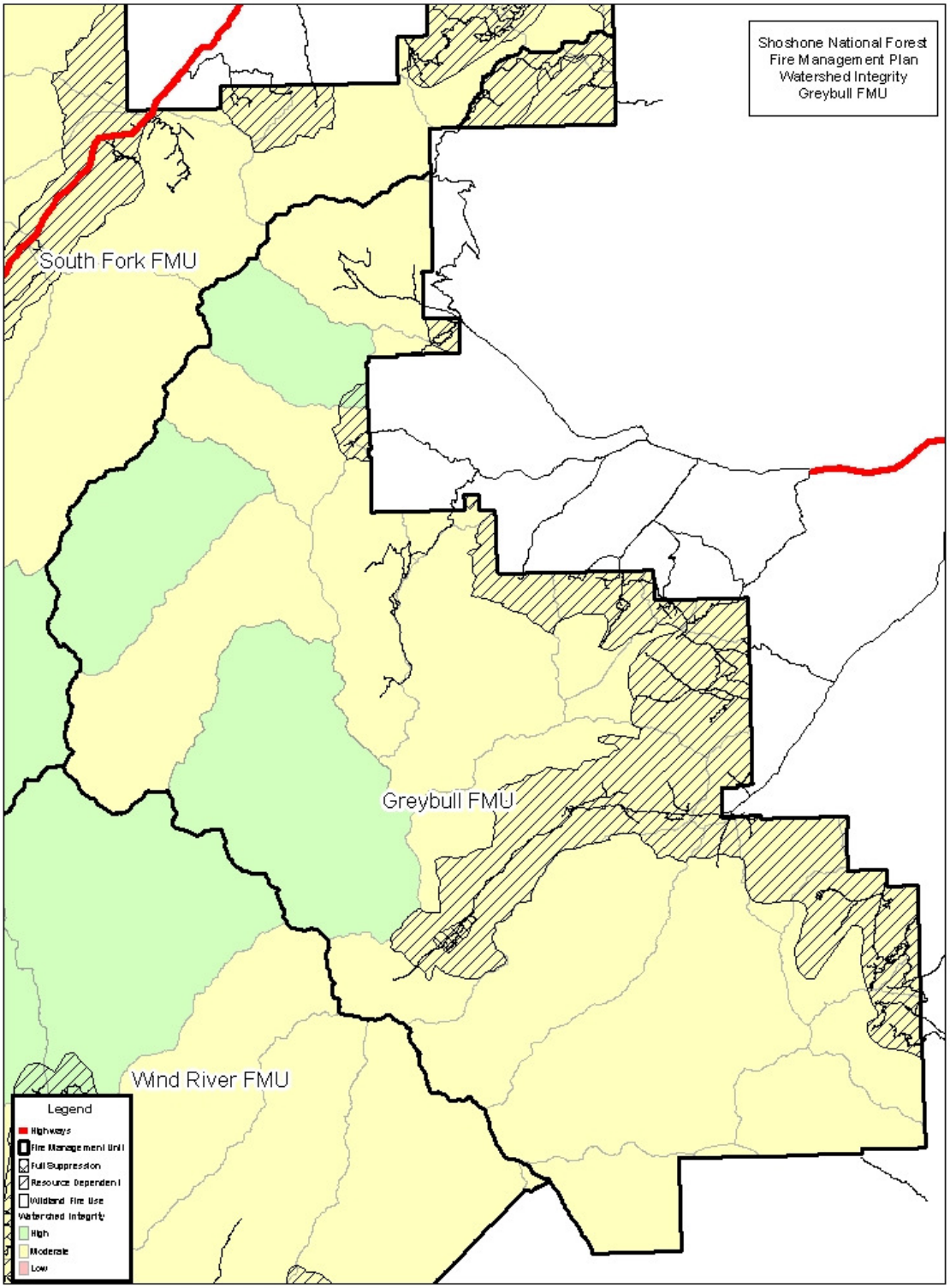
Greybull FMU Map 2 - Greybull FMU Wildlife Critical Winter Range and Yellowstone Cutthroat Trout Locations



Greybull FMU Map 3 - Greybull FMU Special Areas



Greybull FMU Map 4 - Greybull FMU Watershed Condition



Greybull FMU Map 5 - Greybull FMU Cultural Resources

A hard copy map of the approximate location of known cultural sites and not yet surveyed areas that have a high probability of containing sites have been distributed to the zone FMOs. Detailed site-specific information is held by the Forest heritage program manager and can be obtained when needed. The information is stored in a GIS database as well.

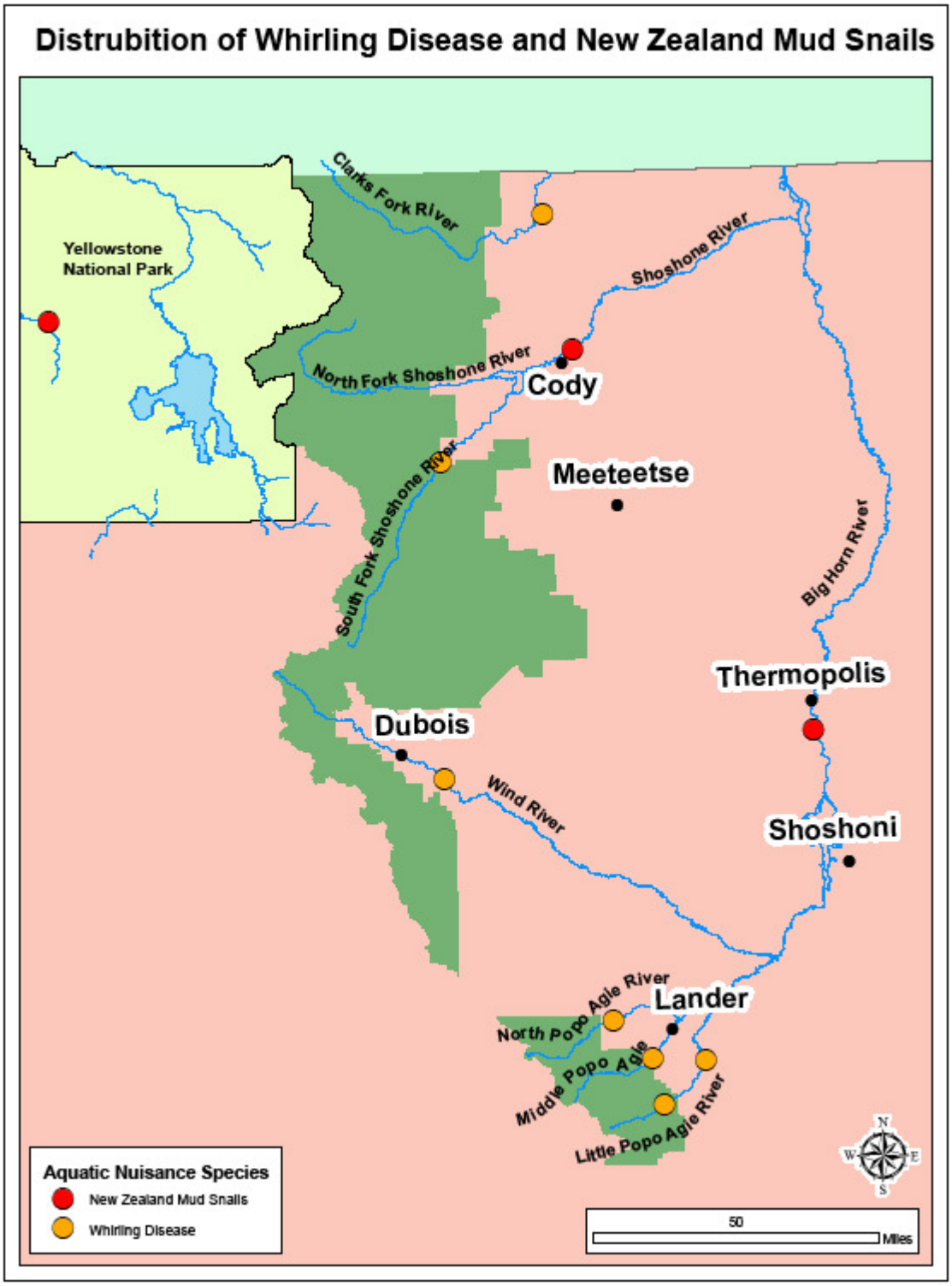
Greybull FMU Map 6 - Greybull FMU Values at Risk

A comprehensive map displaying the values in the FMU that may be at risk is available in hardcopy and can be printed from the SHF fire management electronic reference file. The associated data is also stored in a GIS data format that can be accessed from the Forest's GIS fire files at anytime when needed.

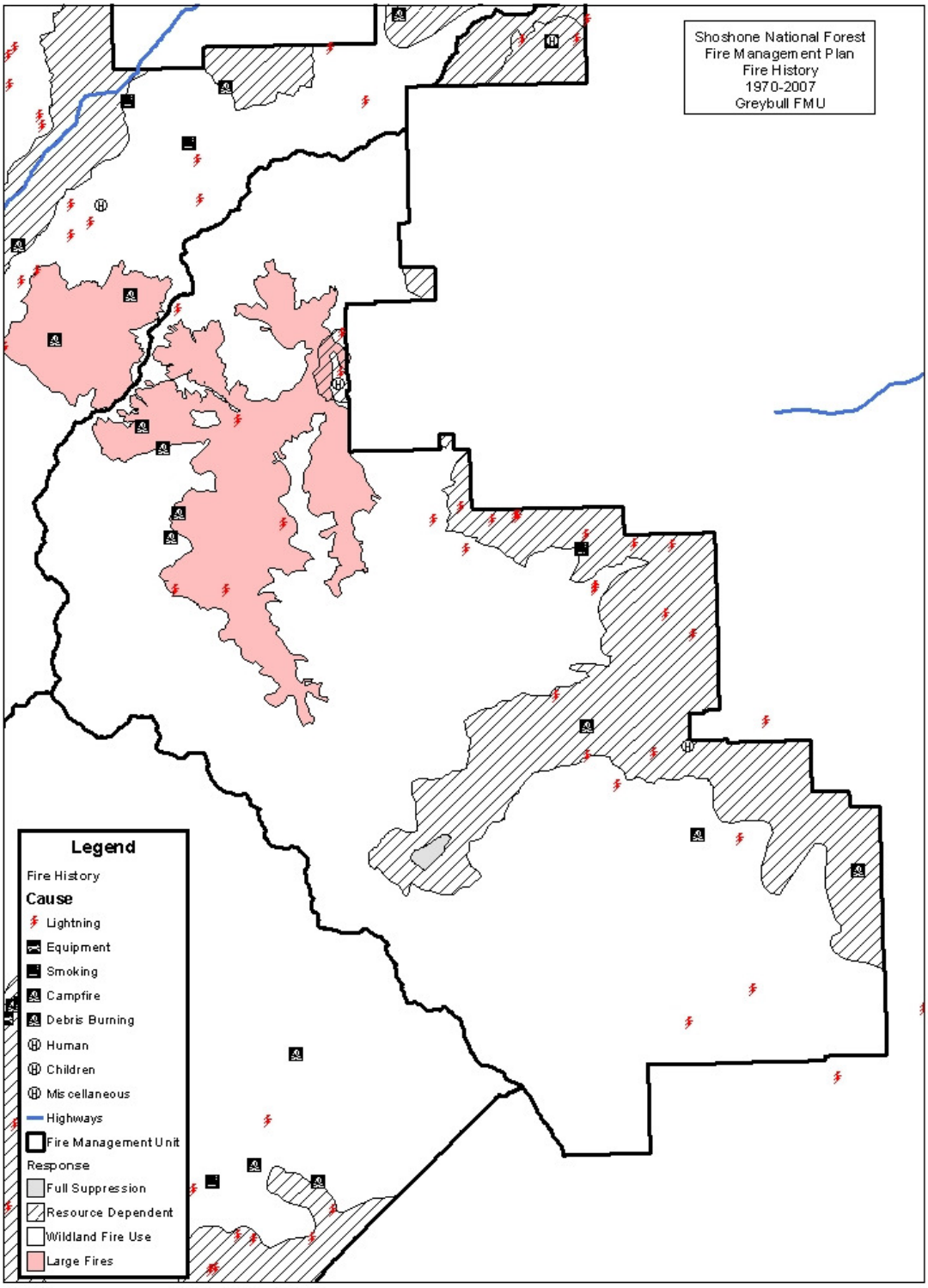
Greybull FMU Map 7 - Greybull FMU Invasive Plants

Invasive plant locations are mapped and available from the Forest's GIS corporate database.

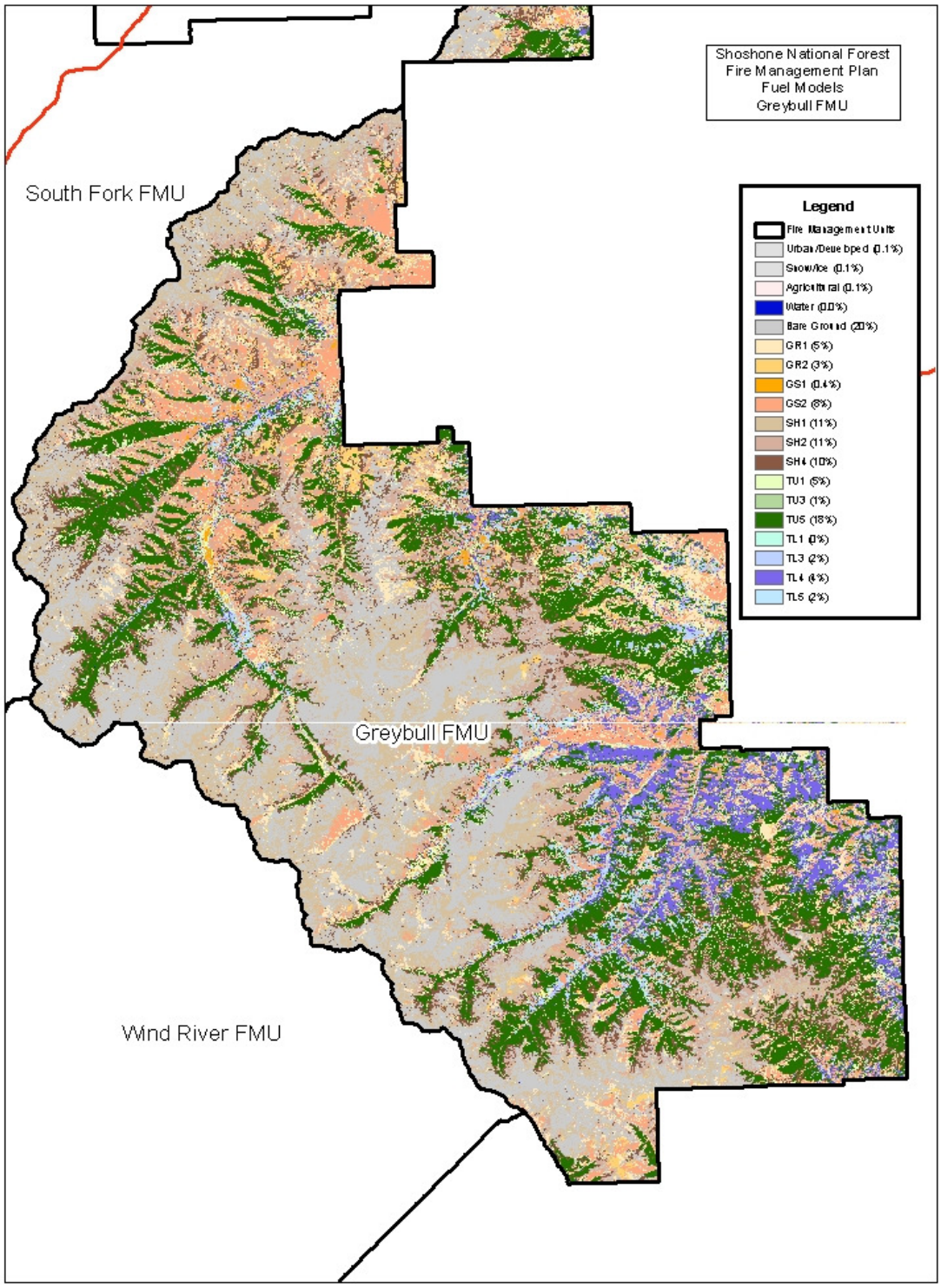
Greybull FMU Map 8 - Greybull FMU Invasive Aquatics



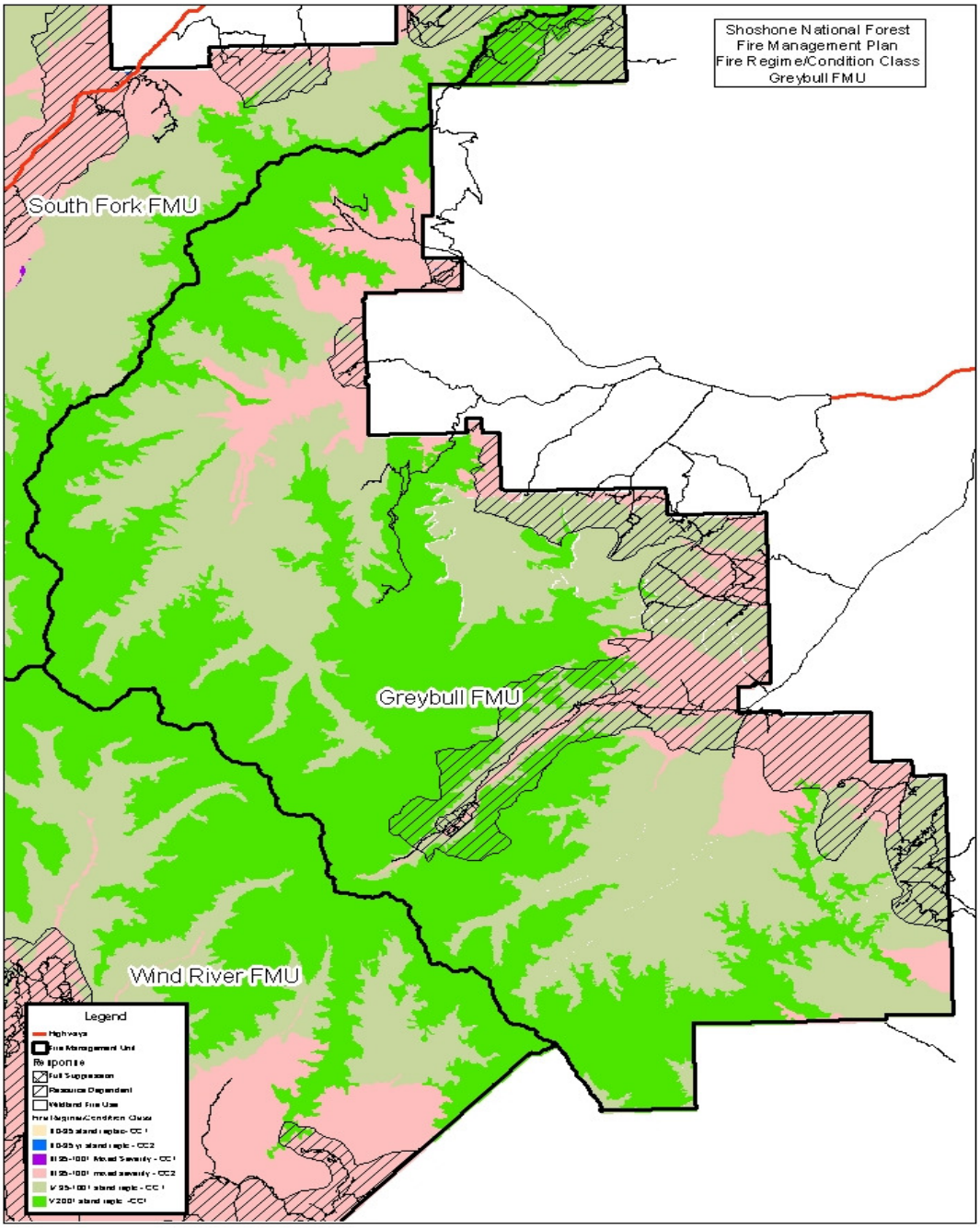
Greybull FMU Map 9 - Greybull FMU Historical Fire Occurrence



Greybull FMU Map 10 - Greybull FMU Fuel Type



Greybull FMU Map 11 - Greybull FMU Fire Regimes and Condition Classes



3.6. Fire Management Considerations for the Wind River Fire Management Unit

3.6.1. Wind River FMU Snap Shot

Fire Management Unit Identification

Administrative Unit	FMU Name	FMU #	Management Response Zones	Acres
Shoshone National Forest - South Zone	Wind River	5	01 – Suppression	0
			02 – Resource Dependent	189,056
			03 – Fire Use	357,028

Ownership and Jurisdictions

Owner	Jurisdiction	Acres
US Forest Service	Shoshone National Forest	544,104
Private	Fremont County Fire Protection	1,979
Total		546,083

Dispatch Center

Name	Phone Number
Cody Interagency Dispatch Center	307-578-5140

Radio Frequencies[13]

Agency	Name	Receive Frequency	Transmit Frequency	Transmit Tone
USFS	South Net	172.3750	172.3750	110.9
USFS	Black Mountain	172.3750	168.7500	131.8
USFS	Lava	172.3750	168.7500	103.5

[13] See the Shoshone National Forest Radio Guide in the SHF fire management electronic file for a complete list of radio frequencies

USFS	Windy	172.3750	168.7500	110.9
USFS	Indian Ridge	172.3750	168.7500	146.2

NFDRS Weather Stations

Station Number	Station Name & Owner	Fuel Model	Location	NESDIS #	Elevation
481410	Elkhorn USFS	G - Timber	43° 40.46” 109° 36.39”	323a114e	8,085 ft.

NFDRS Weather Station Fire Behavior Indicators and Thresholds

Preparedness Level	SHF South FDRA SIG (Elkhorn & Anderson Ridge)	
	ERC	100 Hr Fuel Moisture
I	<40	15+
II	40-54	14-13
III	55-68	12-11
IV	69-79	10-9
V	79	<8

General Risk Category

Subjective overall risk relative to values present, fuel hazard and fire frequency is identified for each fire management unit response zone in the table below. Additional risk information related to fire behavior and length of season are described in Section 3.6.4.

Response Zone	Risk Rating			
	Values Present	Fuel Hazard	Fire Frequency	Overall Risk
01 - Suppression	NA	NA	NA	NA
02 – Resource Dependent	3	3	2	3
03 – Fire Use	2	2	1	2

1 = Low; 2 = Low Moderate; 3 = Moderate; 4 = Moderate High; 5= High

Predominant Vegetation Types

Cover Type	%
Grassland-Sagebrush	31 %
Forest – conifers	53 %
Forest – aspen & willow	2 %
Barren	14 %

3.6.2. Wind River FMU Guidance

Management Guidance

Wildland fire management guidance for the resources associated with the fire management unit is derived from the Shoshone National Forest Land and Resource Management Plan (Forest Plan). Applicable wildland fire management Forest Plan direction, goals, desired conditions, standards, guidelines, and management area prescriptions are detailed in Section 3.1.1. The specific Forest Plan direction that is used to formulate wildland fire benefit and resource protection objectives; initial attack/response actions; and appropriate management response strategies and tactical options that apply to the resources, values and attributes that occur in the fire management unit (FMU) are referenced throughout this section.

Other sources of wildland fire management direction and resource protection measures that originate in other laws, policy, handbooks and guides are also used to provide direction and guidance for wildland fire management activities for this FMU. Many of these sources are located in the Shoshone Fire management electronic reference file.

Fire Management Unit Resources and Values

Air Quality

The Fitzpatrick and Washakie Wildernesses are federally designated Class I Airsheds in the FMU. There are no non-attainment areas within or adjacent to the FMU.

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
air quality	Comply with State and Federal air quality standards (Forest Plan 1986, page III-97).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
air quality	Implement smoke management actions in accordance with Wyoming Air Quality Standards and Regulations (Regulations) chapter 10, section 4, Smoke Management Requirements.

Vegetation

Forested vegetation varies widely across the FMU due to variations in elevation, aspect, climatic factors, and past disturbances. The uppermost elevation zone is characterized by alpine tundra and the absence of trees. The next lower elevation zone is the subalpine zone, dominated in most places by Engelmann spruce, subalpine fir, and whitebark pine. Below the subalpine zone lies the montane zone, characterized by Douglas-fir. Other species that occur in the subalpine and montane zones include lodgepole pine, limber pine, and aspen.

Grass, sometimes mixed with sagebrush, regularly occurs in forest openings. In areas where environmental factors do not support tree reproduction, grasslands and shrublands persist. In the foothill zone below the montane zone, grass and shrubs dominate. In the montane and subalpine zones, grass and shrubs persist in areas where site conditions limit moisture, such as well-drained landforms, southern or western exposures, thin or poorly developed soils, and high windswept sites. In the severe environment of the alpine zone, grass and shrubs dominate. In portions of the subalpine and montane zones, lodgepole pine and aspen are common early seral species following fire disturbance. Fire also affects the acres that are dominated by grasses and shrubs.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
vegetation	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. Prescribed fire plays a role in areas where managing unplanned ignitions for resource benefits is not appropriate because of high values (FPA 2008-1 p. 3). Improve the health and vigor of vegetation types outside wilderness and selected types in wilderness where necessary (Forest Plan 1986, page III-6). Integrate vegetation management with resource management in functional areas – range, recreation, water and wildlife (Forest Plan 1986, page III-7).
aspen	Clearcut, burn or treat aspen mechanically to in order to promote suckering and revegetation of aspen patches (Forest Plan 1986, page III-155)

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
vegetation	Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Wildlife habitats – terrestrial and aquatic

Critical Winter Range: Critical wildlife winter range areas are identified on the Wind River Map 2. Currently, there are no issues with condition of the winter range area that would prevent a fire to be managed for resources benefits or require protection.

Grizzly Bear: This species is a Forest Service Region 2 threatened species. Grizzlies have variable habitat, and eat everything from carcasses to moths to whitebark pine seeds to garbage. The most important elements needed to stabilize grizzly bear populations are minimizing bear/human conflicts and protecting key food sources, such as whitebark pine and moth sites. Most of the FMU is inside the South Absaroka Bear Management Unit of the Primary Conservation Area.

Yellowstone Cutthroat Trout: Yellowstone cutthroat trout is a subspecies of cutthroat trout that was historically found in the Yellowstone River drainage and reaches of the Snake River drainage. Stream segments containing Yellowstone cutthroat trout are identified on Wind River FMU Map 2.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
wildlife	Integrate vegetation management with resource management in functional areas – range, recreation, water and wildlife (Forest Plan 1986, page III-7) Maintain fuel conditions that permit fire suppression and prescribed fire to maintain habitat needed for selected species or species population levels (Forest Plan 1986, page III-152).

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
grizzly bear – food storage	Minimize grizzly bear/human conflicts using food storage, information and education, and other management tools (FPA 2006-001).
grizzly bear habitat – food sources	Maintain the productivity, to the extent possible, of the four key grizzly bear food sources as identified in the Conservation Strategy (FPA 2006-001).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
grizzly bear	Implement bear safety and food storage mitigation measures as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.
Yellowstone Cutthroat Trout	Implement protection measures for riparian areas, lakes and streams as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Special areas

Research Natural Areas: There is one proposed research natural areas in the FMU: Arrow Mountain. This proposed research natural area is located within the Fitzpatrick Wilderness. Research Natural Areas are part of a national network of ecological areas designated in perpetuity for research, education, and to maintain biological diversity on National Forest System lands.

See Wind River FMU Map 3 for the location of special areas.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
special management areas	Allow natural succession to proceed without human intervention in designated wilderness, wilderness study areas, and special management areas (Forest Plan 1986, page III-6). Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. (Forest Plan Amendment 2008-1 p. 3).

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
research natural areas	Fires within research natural areas (established and proposed) should be suppressed when they threaten the values for which the research natural area was established or threaten other values outside the research natural area. For unwanted wildland fires that threaten to burn into research natural areas, the appropriate management response should consist of strategies and tactics that keep fires from burning into research natural areas (FPA 2008-1 p. 6).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
Research Natural Areas	Use minimum impact suppression techniques when suppressing fires within research natural areas area (FPA 2008-1 p. 6).

Water quality

All the 6th level hydrologic unit watersheds in the FMU are rated as being in good condition or better (Wind River FMU Map 4). At this time there are no concerns with application of fire on the landscape as a means to accomplish resource benefits.

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
water	Improve or maintain water quality to meet state water quality standards (Forest plan 1986, page III-70).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
water quality	Implement protection measures for riparian areas, lakes and streams as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines. Implement practices regarding fire management activities as described in the Forest Service Handbook 2509.25, Watershed Conservation Practices.

Cultural Resources

The general location of known cultural resource sites and not yet surveyed areas that have a high probability of containing sites are located on the Cultural Resources Map for the FMU (Wind River FMU Map 5). The map with the general locations is part of the SHF fire management electronic reference file and is also available for use by fire managers and agency administrators. More specific information regarding site locations will be provided by the heritage program manager when needed.

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
cultural	Wildland fire management activities should protect cultural resources when feasible with priority given to sites listed on the National Register of Historic Places, sites recommended for selection to the Register and to known unevaluated sites (FPA 2008-1 p. 6).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
cultural	Follow procedures for wildland fire management activities as outlined in Appendix G of the Programmatic Agreement with the State Historic Preservation Officer for Compliance with the National Historic Preservation Act on Forest and Grasslands of Wyoming. Implement protection measures for cultural resources as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Wilderness

There are two designated wildernesses in the FMU (Wind River FMU Map 1). The Washakie Wilderness comprises a significant portion of the northern portion of the FMU and extends into the South Fork and Greybull FMUs to the north. The Fitzpatrick Wilderness comprises the southern tip of the Wind River FMU. It extends into the Washakie FMU. Also, located in the

Wind River FMU is the Dunoir Special Management Unit. Forest Plan Land management emphasis is for maintenance of existing wilderness resource characteristics (Forest Plan 1986, page III-245).

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
wilderness	Permit fires to play, as nearly as possible, their natural ecological role within wilderness area (FPA 2008-1 p. 9).
Dunoir Special Management Unit	Allow natural succession to proceed without human intervention in designated wilderness, wilderness study areas, and special management areas (Forest Plan 1986, page III-6).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
wilderness Dunoir Special Management Unit	Implement minimum impact suppression and logistic techniques as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Goods and Services

Timber: Lands suitable for timber production are present within the FMU and are primarily located within the resource dependent zone. Lands suitable for timber production are identified on the Values at Risk Map for the FMU (Wind River FMU Map 6) Lands suitable for timber production are considered high value assets and under most circumstances would not be allowed to burn unless it was determined there would be beneficial effects or no effects. Development of strategies to manage a fire for resource benefits would consist of an assessment of what areas would benefit from fire and what areas should be protected from fire or subject to limited fire intensity.

There may be a few instances where lands suitable for timber production may be allowed to burn and commercial timber products destroyed or damaged while managing a fire as for resource benefits or as an unwanted wildland fire. For example, situations where it is infeasible to protect an isolated stand, or where the value of the timber does not warrant the cost or commitment of resources and a substantial resource benefit may be achieved.

Wind River FMU Active and Planned Timber Sales

Sale Name	Location	Status	Purchaser
Bachelor Creek Re-Offer	T41N, R107W Sec. 30	Active	Mt. Man Timber / Zeb Gould
New Sheridan Creek	T42N, R109W	Default	Wyoming Wood / Hickerson
Purdy Salvage	T42N, R109W, Sec. 30	Active	RY Timber, Inc
Rainbow Lake	T43N, R107W, Sec. 11	Active	Frank Cole
Togwotee ROW	T44N, R110W	Active	Wyo Dept Of Transportation
Fence Salvage	T43N, R107W, Sec 17	Active	John Raith
Horseshoe	T43N, R107WSec, 13	Active	John Raith
Lava Salvage	T43N, R109W, Sec 17	Active	Kent Cole
Lodge Salvage	T43N, R109W, Sec 17	Active	Kent Cole
Meadow Salvage	T42N, R110W, Sec 12	Active	Wayne Suda
Power Line Salvage	T43N, R109W, Sec 17	Active	Carter Lumber Co.
Upper Wind 1	T43N, R109W, Sec 27	Active	Frank Cole
Upper Wind 2	T43N, R109W, Sec 27	Active	Frank Cole
Upper Wind 3	T43N, R109W, Sec 27	Active	Frank Cole
Warm Springs	T42N, R108W, Sec 30	Active	Ron Eliasen
Wolf Salvage	T43N, R108W, Sec 30	Active	Ed Neale
Timber Line	T42N, R108W, Sec 30	Planned	
Patch	T42N, R108W, Sec 30	Planned	
Section 12 Salvage	T42N, R108W, Sec 30	Planned	
Sale Name	Location	Status	Purchaser
Bachelor Creek Re-Offer	T41N, R107W Sec. 30	Active	Mt. Man Timber / Zeb Gould

New Sheridan Creek	T42N, R109W	Default	Wyoming Wood / Hickerson
Purdy Salvage	T42N, R109W, Sec. 30	Active	RY Timber, Inc
Rainbow Lake	T43N, R107W, Sec. 11	Active	Frank Cole
Togwotee ROW	T44N, R110W	Active	Wyo Dept Of Transportation
Baker Salvage		Active	Stone Baker

Grazing: There several grazing allotments within the FMU and they are identified on the Values at Risk Map (Wind River FMU Map 6). Forest-wide Forest Plan direction and desired conditions regarding vegetation is generally consistent with range management objectives. Whether a fire is being managed for resource benefits or protection objectives, coordination with range management specialist and permittees occur.

Special Uses: Permitted outfitter and guide operations occur throughout the FMU. Camp locations are identified on the Values at Risk Map (Wind River FMU Map 6). Whether a fire is being managed for resource benefits or protection objectives, coordination with special uses managers and outfitters occur.

Minerals: There are no mining, drilling or exploration operations occurring in the FMU.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
timber and grazing	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. Prescribed fire plays a role in areas where managing unplanned ignitions for resource benefits is not appropriate because of high values. Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
goods and services	Wildland fire plays a role within and outside of wilderness where appropriate and desirable, but active suppression of fire occurs where necessary to protect life, investments, and valuable resources. Valuable resources include the wildland urban interface, utility corridors and communication sites. Other valuable resources include public water supply, recreation facilities, administrative sites, range allotments, special management areas, fish and wildlife habitats, and lands suitable for timber production (Forest Plan Amendment 2008-01, page2).

Developments, Facilities and Infrastructure

Developments, facilities and infrastructures occur within and adjacent to the FMU and are displayed on the Values at Risk Map (Wind River FMU Map 6). Most of the sites are located within the Resource Dependent Management Zone. There are some facilities and developments in the Fire Use Management Zone.

Wind River Fork FMU Recreation Sites (developed)

Name	Geographic Location
Dunoir TH	T44N, R110W, Sec. 24
Brooks Lake CG	T44N, R110W, Sec. 24
Brooks Lake TH	T44N, R110W, Sec. 24
Pinnacles TH	T44N, R110W, Sec. 24
Pinnacles CG	T44N, R110W, Sec. 24
Falls CG	T44N, R109W, Sec. 8
Wolf Creek TH	T43N, R109W, Sec. 1
Deacon Lake TH	T44N, R107W, Sec. 35
Double Cabin CG	T44N, R106W, Sec. 3
Bug Creek TH	T44N, R106W, Sec. 3
Horse Creek TH	T43N, R106W, Sec. 19
Horse Creek CG	T43N, R106W, Sec. 30

Bear Basin TH	T44N, R105W, Sec. 27
East Fork TH	T43N, R104W, Sec. 17
Trail Lake TH	T40N, R106W, Sec. 21
Wind River Lake Picnic Area	T44N, R110W, Sec. 28
Bonneville TH	T44N, R110W, Sec. 24

Wind River Fork FMU Backcountry Administrative Sites

Name	Geographic Location
Double Cabin Guard Station	T44N, R106W, Sec. 3
Dunoir Cabin	T44N, R109W, Sec. 26

Wind River Fork FMU Utilities and Communication Sites

Name	Geographic Location
Windy Mountain Cell Towers	T41N, R107W, Sec.22
Lava Mt Repeater	T43N, R110W, Sec. 23
Indian Ridge Repeater	T43N, R106W, Sec. 13
Windy Ridge Repeater	T41N, R107W, Sec.22

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
developments, facilities and infrastructure	Wildland fire plays a role within and outside of wilderness where appropriate and desirable, but active suppression of fire occurs where necessary to protect life, investments, and valuable resources. Valuable resources include the wildland urban interface, utility corridors and communication sites. Other valuable resources include public water supply, recreation facilities, administrative sites, range allotments, special management areas, fish and wildlife habitats, and lands suitable for timber production (Forest Plan Amendment 2008-01, page2). Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Wildland Urban Interface

Structures occurring within and adjacent to the FMU are primarily located within the Resource Dependent Management Zone (Wind River FMU Map 1).

Local fire departments and agencies are responsible for structure protection; management of wildland fires burning on the Shoshone National Forest is the responsibility of the Forest Service. Keeping fires from reaching structures and private property adjacent to the Forest as well as permitted lodges and residences located on the Forest is consistent with current federal policy and Forest Plan direction. In addition, cooperative agreements and operating plans are in place that permits Forest Service firefighters to assist local jurisdictions with structure protection on private property, but for not entering structures to suppress fires.

The approach for developing the appropriate management response for wildland fire burning on the Forest that threatens individual structures or the wildland urban interface is the same for fire being managed for resource benefit or suppression objectives. Aggressive or intense management actions would occur in locations that have the highest probability of success in preventing damage or loss while ensuring the safety of the public and firefighters. These actions could occur near structures in close cooperation with the local jurisdiction or at some distance from structures where circumstances are favorable for stopping the advance of a fire toward structures.

Wind River Fork FMU Communities and Subdivisions

Community Name	Geographic Location
Dubois Area	T41N, R106W
Buffalo Butte	T43N, R107W
Little Warm Springs	T41N, R107W

Upper Little Warm Springs	T41N, R107W
Union Pass Area	T42N, R107W
Aspen Meadows	
Crooked Creek	T42N, R107W
Dunoir Valley	T43N, R108W
High Country Estates	T42W, R107W
J & J	T42W, R107W
Porcupine Subdivisions	T42N, R107W
Russells Union Pass	T42W, R107W
Wagon Box Highlands	T42W, R107W
Warm Springs Mountain Subdivisions	T41N, R107W
Upper Wind River Area	T43N, R109W
Brooks Lake Cabins	T43N & T44N, R109W and R110W
Buck and Rail Estates	T43N, R109W
Long Creek Area	T43N, R109W
Roaring River Area	T43N, R109W
Tetterington Acres	T42W, R107W
Buckboard Estates	T42W, R107W
Rawhide Area	T42W, R107W
Roaring River	T42W, R107W

Wind River Fork FMU Permitted recreation residences

Community Name	Geographic Location
Pinnacle Heights Summer Home Group	T43N, R109W, Sec. 5 and 6

Wind River Fork FMU Permitted lodges

Lodge Name	Geographic Location
Brooks Lake Lodge	T44N, R110W, Sec. 25
Triangle C	T43N, R109W, Sec. 33

Wind River Fork FMU Administrative sites

Site Name	Geographic Location
Horse Creek Guard Station	T43N, R107W, Sec.24
East Fork Guard Station	T43N, R104W, Sec. 17

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
wildland urban interface	Wildland fire plays a role within and outside of wilderness where appropriate and desirable, but active suppression of fire occurs where necessary to protect life, investments, and valuable resources. Valuable resources include the wildland urban interface, utility corridors and communication sites. Other valuable resources include public water supply, recreation facilities, administrative sites, range allotments, special management areas, fish and wildlife habitats, and lands suitable for timber production (Forest Plan Amendment 2008-01, page2). Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Invasive species

Invasive plants: There are over 20 high priority terrestrial invasive species on the Shoshone with many more invasive species with the potential to spread across large portions of the Forest. Wildfires of any cause can enhance conditions for spread if fires expose soil, reduce native vegetation, and facilitate the introduction or movement of invasive seed sources into an area. Locations of invasive plants are mapped (Wind River FMU Map 7) and are located in the SHF fire management electronic reference file.

Invasive aquatics: Aquatic nuisance species occur just inside or adjacent to the Forest (Wind River FMU Map 8) including whirling disease, New Zealand mudsnails, and didymo. Fire suppression equipment can travel long distances to the Forest, and with them, the potential to introduce other aquatic nuisance species or move them to another area. Whirling disease has been found adjacent to the FMU in the following locations:

- Jakey's Fork – below hatchery off of the Forest
- East Fork Wind River on Forest - tested and waiting for results

New Zealand mudsnails and didymo have not been documented on or near the forest at this time.

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
vegetation	Implement protection measures for invasive plants as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines. Follow practices related to fire management activities described in Forest Service Manual 2080 Noxious Weed Management for Forest Service activities.
aquatic	Implement protection measures for riparian areas, streams and lakes as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Fuels

The Wind River FMU Map 10 displays the fuel types and relative acres for each type associated with the FMU. GIS data layers are also available in the SHF fire management electronic reference file. Additional information regarding fuel conditions and topography that influence fire behavior and potential control problems are described in Section 3.6.4.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
fuels	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels (Forest Plan Amendment 2008-01, page 3). Reduce the accumulation of natural fuels (Forest Plan 1986, page III-8). Prescribed fire will be utilized as a vegetative and fuels management technique where it is the most cost-efficient and acceptable alternative to achieve management objectives (Forest Plan 1986, page III-96). Maintain fuel conditions that permit fire suppression and prescribed fire to maintain habitat needed for selected species or species population levels (Forest Plan 1986, page III-152).

Fire Regime Condition Class

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
fire regime condition class	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. Prescribed fire plays a role in areas where managing unplanned ignitions for resource benefits is not appropriate because of high values (Forest Plan Amendment 2008-01, page 3).

FMU Initial Response Guidance and Assigned Resources

Wind River Fork Fire Management Unit Initial Response/Attack Run Card

Full Suppression Response Zone					
Dispatch Resource	Fire Danger – Eagle RAWS 480214				
	Low	Mod	High	VH	EXT
Engine	1	1	1	1 - 2	1 - 2
Hand Crew (2 - 4 person)			1	0 - 1	0 - 1
Helicopter/Aerial Recon			0 - 1	1	1
Duty Officer/AFMO/FMO Notification	X	X	X	X	X
Unplanned ignitions are considered to be unwanted fires and initial attack responses will consist of the safest and most effective and cost efficient actions to contain and control fires as quickly as possible.					

Resource Dependent Response Zone					
Dispatch Resource	**Fire Danger – Eagle RAWS 480214**				
	Low	**Mod**	**High**	**VH**	**EXT**
Engine (T3, T4, or T6)	1	1	1	1 - 2	1 - 2
Hand Crew (2 - 4 person)			1	0 - 1	0 - 1
Helicopter/Aerial Recon			0 - 1	1	1
Duty Officer/AFMO/FMO Notification	X	X	1	1 - 2	1 - 2
Local Jurisdiction Notification (if structures are threatened)	X	X	X	X	X
Initial response to fires within the Resource Dependent Response Zone will require an assessment as to whether or not the fire is a candidate to be managed for resource benefits. The Duty Officer/AFMO/FMO begins this assessment immediately by evaluating the probable cause and location of the fire relative to resource values. Commensurate with the assessment, initial attack resources are dispatched to a fire under the assumption that the fire is to receive a suppression response unless directed otherwise. Human caused fires are classed as an unwanted fire and will receive a suppression response.					

Fire Use Response Zone					
Dispatch Resource	**Fire Danger – Eagle RAWS 480214**				
	Low	**Mod**	**High**	**VH**	**EXT**
Engine			1	1 - 2	1 - 2
Hand Crew (2 - 4 person)	1	1	1	0 - 1	0 - 1
Helicopter/Aerial Recon			1	1	1
Duty Officer/AFMO/FMO Notification	X	X	X	X	X
Initial response to fires within the Fire Use Response Zone will require an assessment as to whether or not the fire is a candidate to be managed for resource benefits. The Duty Officer/AFMO/FMO begins this assessment immediately by evaluating the probable cause and location of the fire relative to resource values. Initial response resources are dispatched to a fire under the assumption that the fire is a potential candidate to be managed for resource benefits and would not begin suppression actions unless directed otherwise. Human caused fires are classed as an unwanted fire and will receive a suppression response.					

3.6.3. Wind River FMU Characteristics

3.6.3.1. Safety

Firefighter and public safety considerations

Firefighter and public safety is the priority in all fire management activities. Reduce firefighter and public injuries and loss of life, and damage to communities from unwanted wildland fires, by prioritizing firefighter and public safety above other concerns in fire management activities (Forest Plan Amendment 2008-01, page 4).

History on the Forest indicates that while the annual number of fire starts is not particularly high, the fire environment is complex as high intensity fires with rapid rates of spread are common during active burning years. The fire environment is further complicated by a Forest-wide insect epidemic; mature forest, steep terrain, and frequent wind events that are not always well forecasted. There have been three recorded fire fighter entrapments on the Forest. The most serious occurred in 1937 when ten firefighters lost their lives on the Blackwater Fire (North Fork FMU). The most recent entrapment occurred in 2006 on the Little Venus Fire (Wind River FMU) where ten firefighters survived an entrapment, fortunately with only minor injuries.

Environmental and Aviation Hazards

Aviation hazards are identified on the Forest Aviation Hazard Map (SHF fire management electronic reference file). High winds and terrain-influenced winds that affect aviation operations are common. Environmental hazards include steep, rocky and difficult terrain, and grizzly bears.

3.6.3.2. Physical

Terrain

The Shoshone National Forest is in the northern Rocky Mountains in northwest Wyoming. With Yellowstone National Park on its northwestern border, the Shoshone extends more than 180 miles from the Montana state line to South Pass near Lander, Wyoming. It is bordered by the Custer and Gallatin National Forests on the north and by Yellowstone National Park and the Bridger-Teton National Forest on the southwest. The Shoshone is set within the lee of the massive Absaroka, Beartooth, and Wind River Mountains.

The terrain varies widely from sagebrush flats to rugged mountains because the Shoshone is situated on the western edge of the Great Plains and the eastern side of the continental divide. Elevations on the Shoshone range from 4,600 feet at the mouth of the spectacular Clarks Fork Canyon to 13,804 feet on Gannett Peak, Wyoming's highest point. The higher mountains are snow-clad most of the year with immense areas of exposed rock interspersed with meadows and forests. The Shoshone provides a diverse landscape—from lush grasslands to alpine meadows, from crystal-clear lakes to glacial carved valleys, from rolling hills to sheer mountain walls.

Most of the Shoshone is within the upper Missouri River Basin, subdivided by the Wind/Big Horn, and Clarks Fork River basins. The southern tip of the Shoshone is in the Sweetwater drainage, which flows into the Platte River system. Principal rivers within the Shoshone boundary are the Clarks Fork of the Yellowstone River, North and South Forks of the Shoshone River, and the Wind River, Wind/Big Horn, and Popo Agie Rivers.

FMU Travel routes

The Wind River FMU is the most roaded on the Forest. It is bisected by U.S. 287 which is a popular travel route to Jackson, Wyoming, Grand Teton NP and Yellowstone NP. There is a network of Forest Roads open to vehicle travel in the western and north central portion of the FMU. The network of roads corresponds closely to the Forest's timber management base. There are several private and other public roads that provide access to lodges, residences and ranches that are within or adjacent to the Forest boundary. The Union Pass Road passes through the portions of the Shoshone and Bridger-Teton National Forests and connects Dubois with Pinedale, WY. It also provides access to the Union Pass subdivision.

3.6.3.3. Biological

See Fire Management Unit Resources and Values in Section 3.6.2 and maps in Section 3.6.5 for information regarding biological features.

3.6.3.4. Resources

See Fire Management Unit Resources and Values in Section 3.6.2 and maps in Section 3.6.5 for information regarding resources.

3.6.4. Wind River FMU Fire Environment

3.6.4.1. Fire History and Behavior

Historic Fire Occurrence and Behavior

Wind River FMU Map 9 displays the historic fire occurrence and cause for the FMU. Since 1970, the Forest has averaged 26 wildfires annually. Due to persistent drought and widespread insect epidemics in combination with changes in fire management philosophy, the trend in acreage burned since 1998 has been increasing. The annual average acres burned for the past 30 years is approximately 7,200 acres. The annual ten-year average is over 8,900 acres; the annual average for the last five years is approximately 16,400 acres burned.

Natural ignitions account for 51% of the fire starts (87% of the acres burned). Human-caused fires account for 49% of historical fire occurrence (13% of the acres burned); escaped campfires reflect 60% of these ignitions. Fire size classes A and B account for 90% of the fires. The annual fire occurrence for each FMU was generated from PC Historical Analysis (PCHA) using representative locations (RL) to determine wildland fire distribution. Large fires have occurred all months of the established season but typically are anticipated in August and September.

During the summer of 1988, the Clover and Mist Fires burned 194,430 acres in the Clarks Fork and North Fork FMUs. Fires of this size are considered low in frequency, one in a hundred year occurrence; the importance of the two events is recognized as normal in the natural fire ecology of the Shoshone National Forest. Considering the rare occurrence in conjunction with fires analyzed in the historical period, the annual acres burned are 2,334. Fire data (1909 - 1982) in the Forest Plan shows the fire occurrence about the same as today but with 873 acres burning annually. Before 1900, fire history studies indicate areas equal or larger to Clover/Mist burned on the Forest.

Fires in 2003 were record setting from most points of view. Total acreage burned was 26,094. Number of fires was 48. Number of starts in a day set a new record of 5 (August 10, 2003). Consecutive days with multiple starts set a record with 8.

The 2006 fire season was significant on the Forest. Low snow pack, below average spring precipitation, and a widespread insect epidemic resulted in conditions conducive to stand replacement type fires in low frequency fire regimes. Although the number of fires recorded were near average, the total acres burned exceeded 40,000. The two most significant fires were Little Venus which burned in the Wind River FMU and the Purdy Fire in the Wind River FMU. Large fire growth began in earnest in mid July and continued until early September.

The 2007 fire season continued to reflect the trend of large fire growth resulting from the build-up of fuels on the Forest and persistent drought conditions. Again the number of fires were near average, but the total acres burned were on the Forest were approximately 5,700 acres. The Citadel Fire (South Fork FMU) began in mid-June and burned approximately 2,000 acres and the Columbine Fire (North Fork FMU), which originated during August in Yellowstone National Park, burned approximately 3,700 acres on the Forest. Total acres burned for the Columbine Fire was approximately 18,000 acres.

The 2008 fire season was below average for number of starts with 23; however, the acres burned were approximately 68,200. The most significant fire of the season was the Gunbarrel Fire that burned in the North Fork FMU for months and consumed over 68,100 acres. There were several days of large fire growth and extreme fire behavior observed during this fire.

Fire Behavior and Fuels

The Wind River FMU Map 10 displays the fuel types and relative acres for each type associated with the FMU. GIS data layers are also available in the SHF fire management electronic reference file. Vegetation within the Forest is classified into five broad communities: alpine, coniferous forest, montane meadow-parkland, sage-grass, and riparian. Coniferous forest represents the largest vegetation type on the Forest. National Fire Danger Rating System fuel model G is most typical of the coniferous forest fuel bed. Low rate of spread accompanied with high heat intensity typifies this model but in drought years, high rates of spread have been observed from wind and plume dominated crown fires. In review of large fires on this Forest, the coniferous forest has been the primary carrier of fire and is the only fuel type represented in the suppression analysis.

Insect and disease infestations have become epidemic on most of the Forest, and fuel model characteristics are changing. The Forest is experimenting with fuel model modification using FARSITE to better match the changing condition.

Fire Regime Condition Class

Seventy percent of the FMU is in a fire regime condition class 1. One vegetation conditions is in some jeopardy based on the time since the last disturbance. This consists of approximately 160,646 acres of fire regimes III that is in condition class 2. This represents approximately 30 percent of the FMU. A summary of the number of acres by fire regime condition class are displayed in the table below and on Wind River FMU Map 11.

Figure 3. Wind River Fork FMU Fire Regimes and Condition Classes

Fire regime	Condition class	Fire return interval	Burn severity	Acres	Percent
II	1	35 – 70 years	Stand replacement	0	0%
	2			0	0%
III	1	35 -100 years	Mixed	3,174	<1%
	2			160,918	30%
IV	1	70 - 150 years	Stand replacement	209,646	38%
V	1	200 – 300 years	Stand replacement	167,716	31%
Barren	None	None	None	0	0%

3.6.4.2. Weather

The prevailing climate is categorized as "continental mountainous." Moisture is brought into the Greater Yellowstone Area from storms tracking west to east. As the storms are forced up and over the continental divide, moisture is leached from the storm system at the upper elevations. The average annual precipitation, ranging from 15 to 70 inches, varies with topography and elevation. Eighty percent of the precipitation in the upper elevations occurs in the winter and spring; thunderstorms in the summer provide 20%. In the lower elevations, seasonal distribution of precipitation shifts to a lower accumulation with the same seasonal percent distribution. Typical summer temperatures vary with elevation; highs ranging from 65 to 90 degrees and lows from 35 to 60 degrees are common with respect to elevation. The average summer relative humidity varies also with elevation and topography; relative humidity of single digits are not uncommon in the upper elevations while the lower drainages are measuring 30%. During the established fire season, a typical summer sees numerous thunderstorms and 23 cold front passages. Additional weather and fire behavior related information is located in the Shoshone National Forest fire management electronic reference file..

3.6.5. Wind River FMU Maps

The following maps identify key resources, features, and other attributes of the FMU that are intended for use when determining objectives and developing fire management objectives for an incident. Key maps for the FMU are included in this document when possible or can be found in the SHF fire management electronic reference file.

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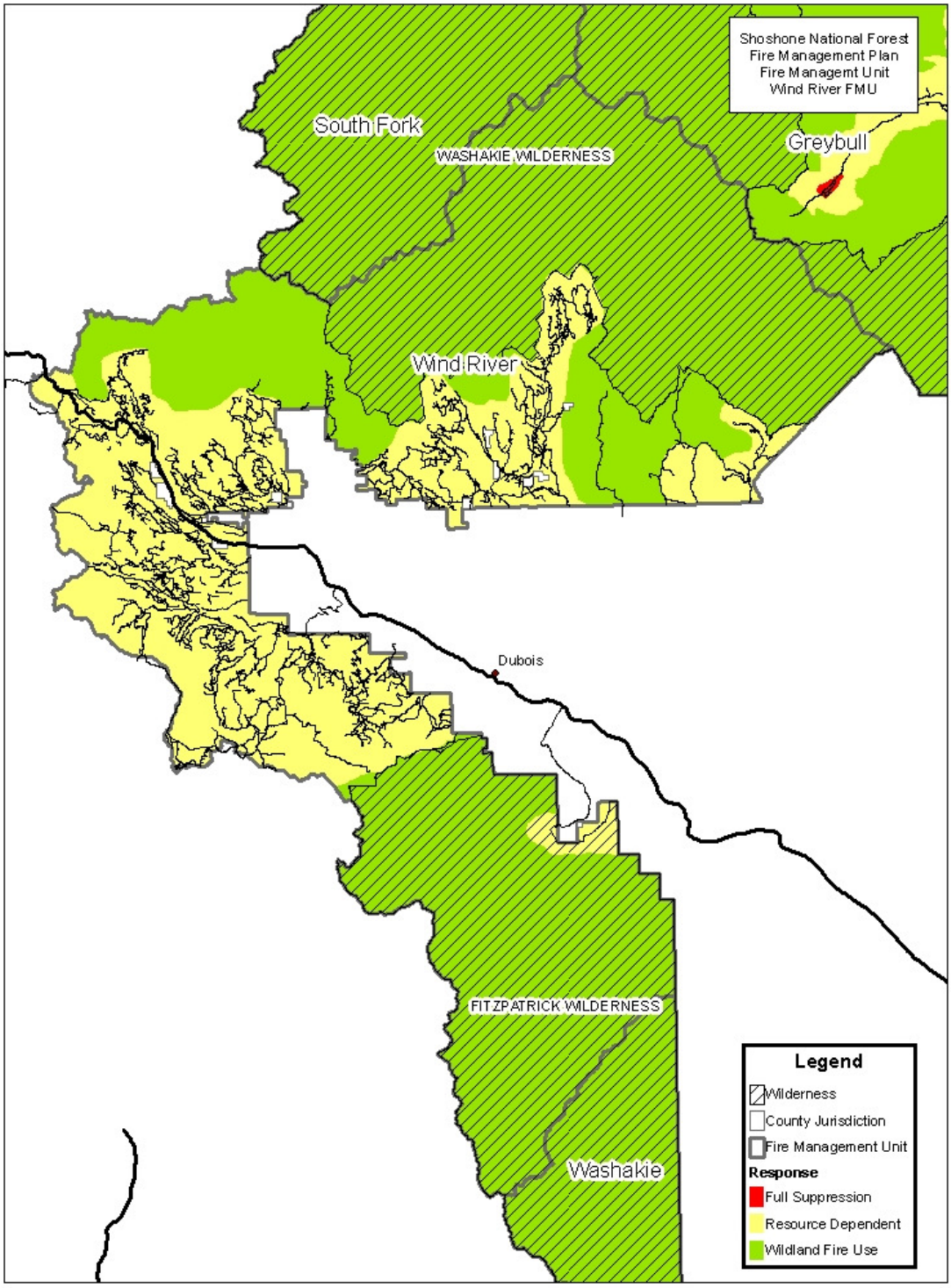
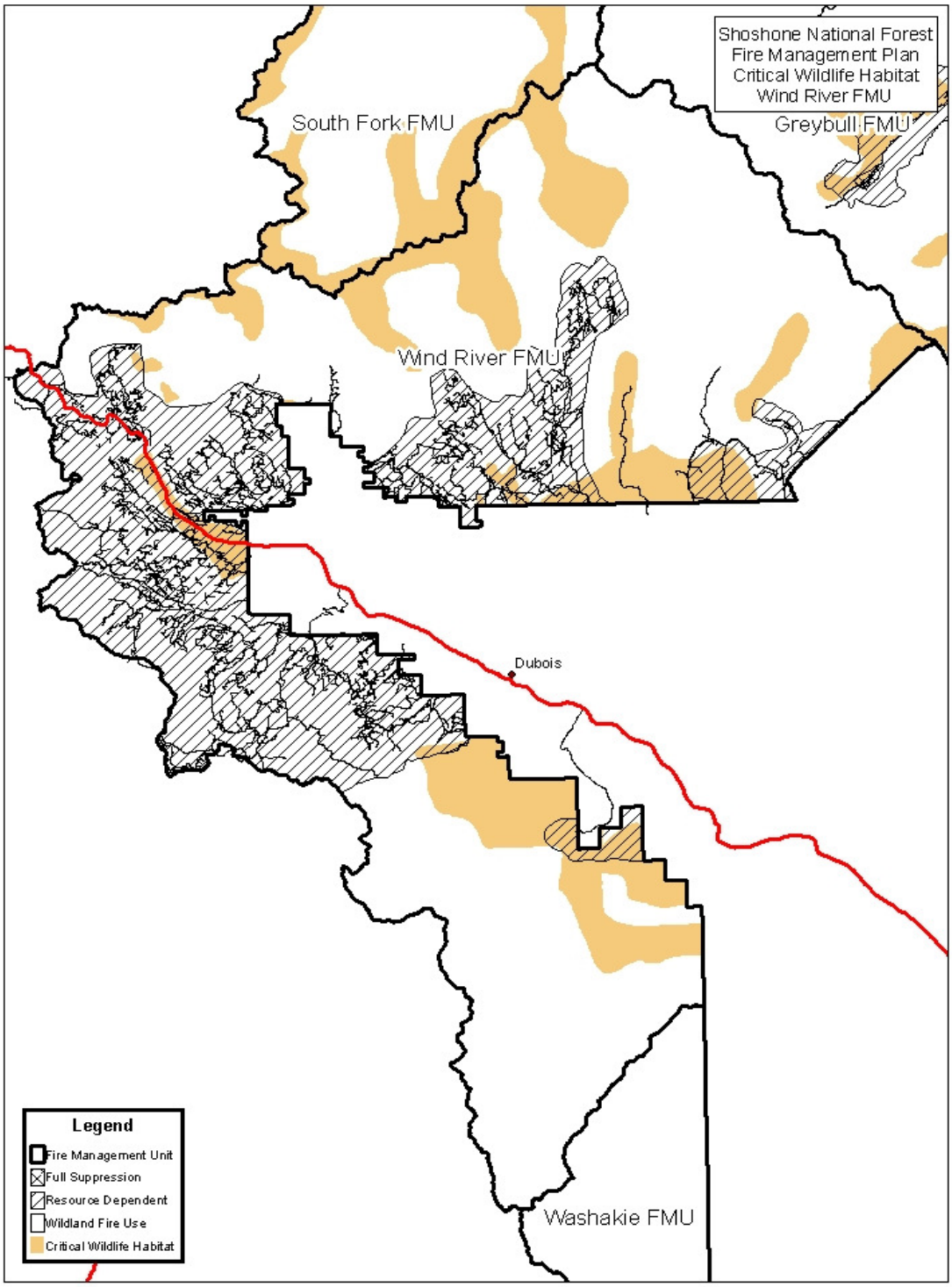
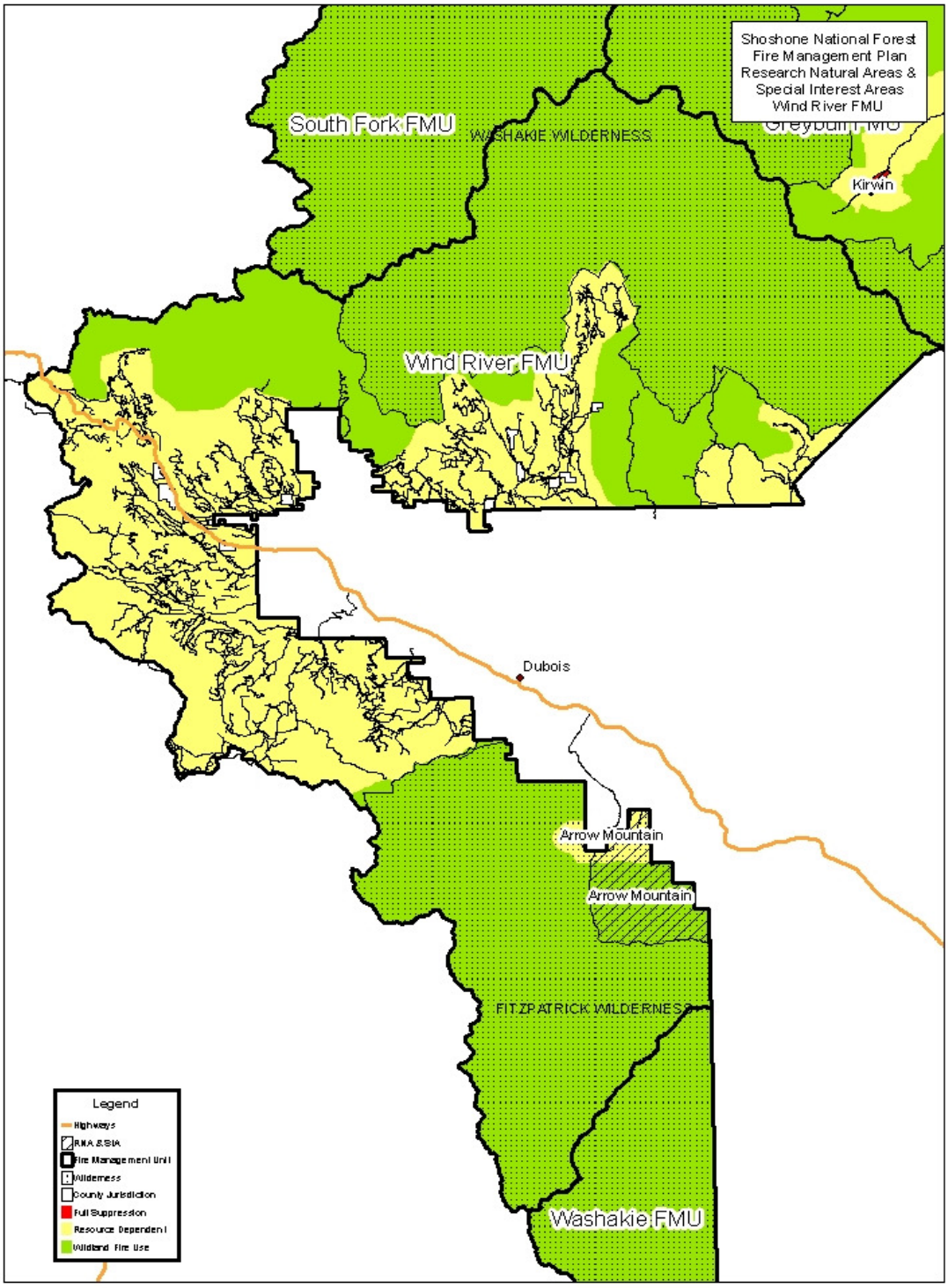
Wind River FMU Map 1 - Wind River Fork FMU Boundaries and Response Zones



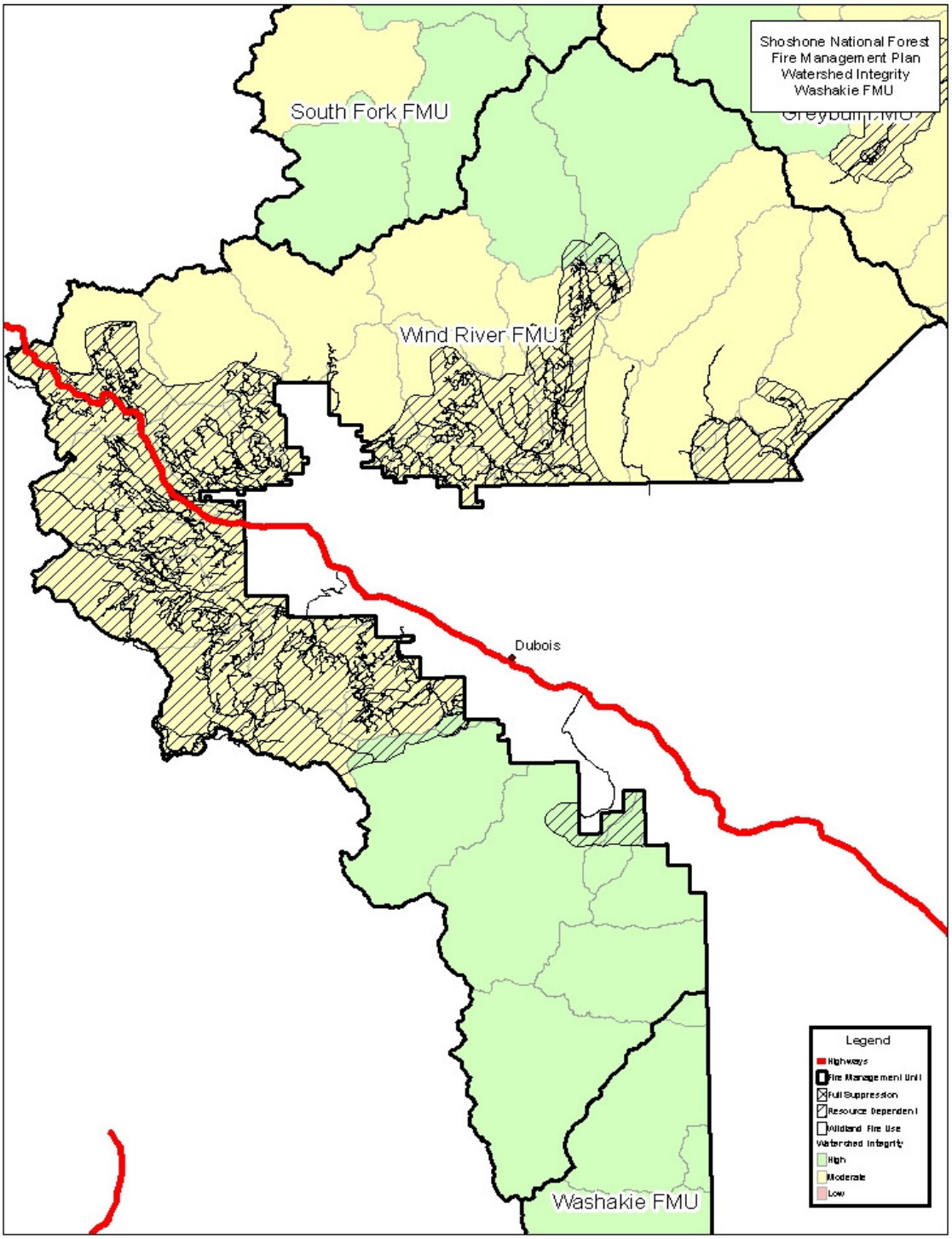
Wind River FMU Map 2 - Wind River Fork FMU Wildlife Critical Winter Range and Yellowstone Cutthroat Trout Locations



Wind River FMU Map 3 - Wind River Fork FMU Special Areas



Wind River FMU Map 4 - Wind River Fork FMU Watershed Condition



Wind River FMU Map 5 - Wind River Fork FMU Cultural Resources

A hard copy map of the approximate location of known cultural sites and not yet surveyed areas that have a high probability of containing sites have been distributed to the zone FMOs. Detailed site-specific information is held by the Forest heritage program manager and can be obtained when needed. The information is stored in a GIS database as well.

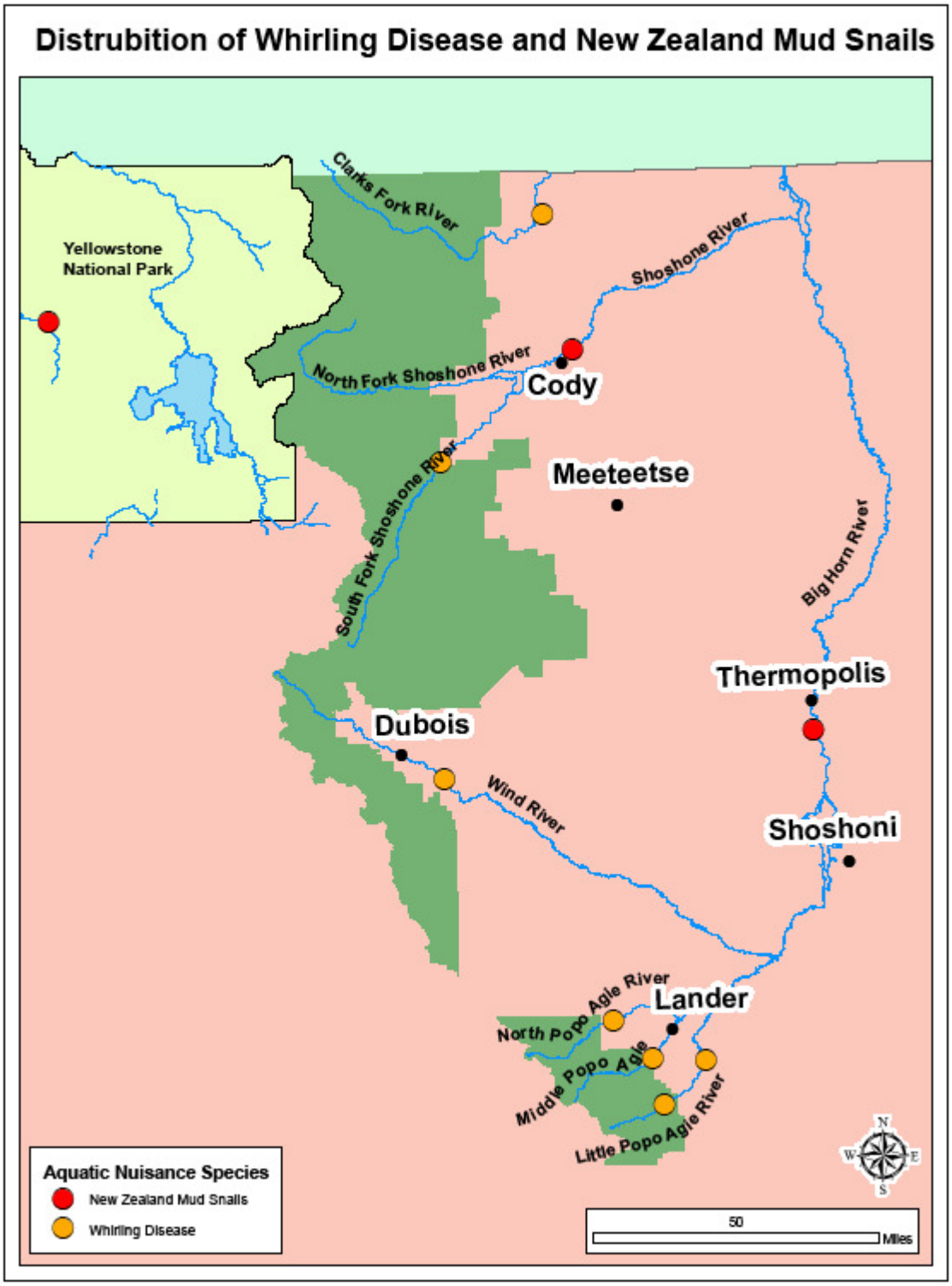
Wind River FMU Map 6 - Wind River Fork FMU Values at Risk

A comprehensive map displaying the values in the FMU that may be at risk is available in hardcopy and can be printed from the SHF fire management electronic reference file. The associated data is also stored in a GIS data format that can be accessed from the Forest's GIS fire files at anytime when needed.

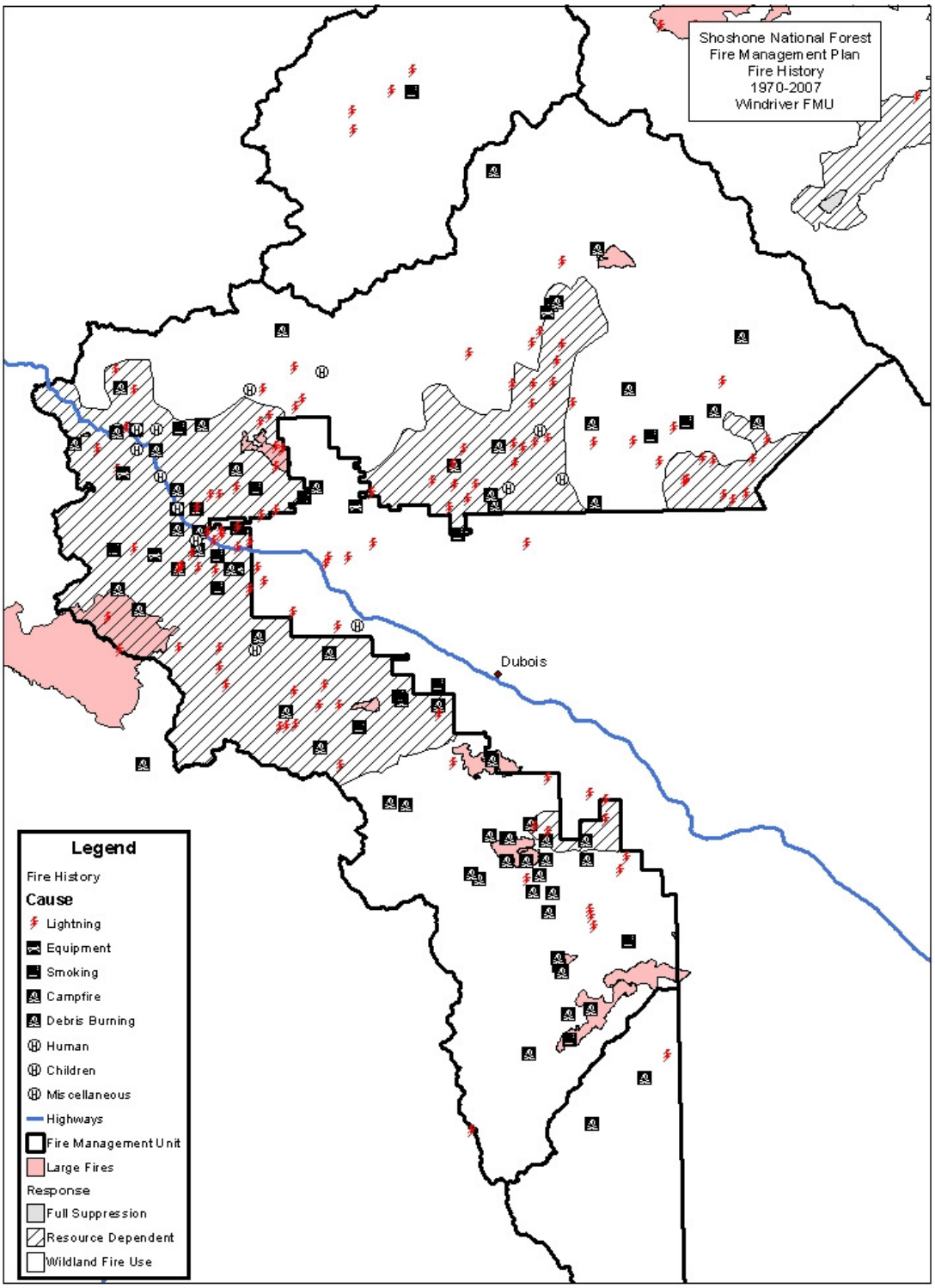
Wind River FMU Map 7 - Wind River Fork FMU Invasive Plants

Invasive plant locations are mapped and available from the Forest's GIS corporate database.

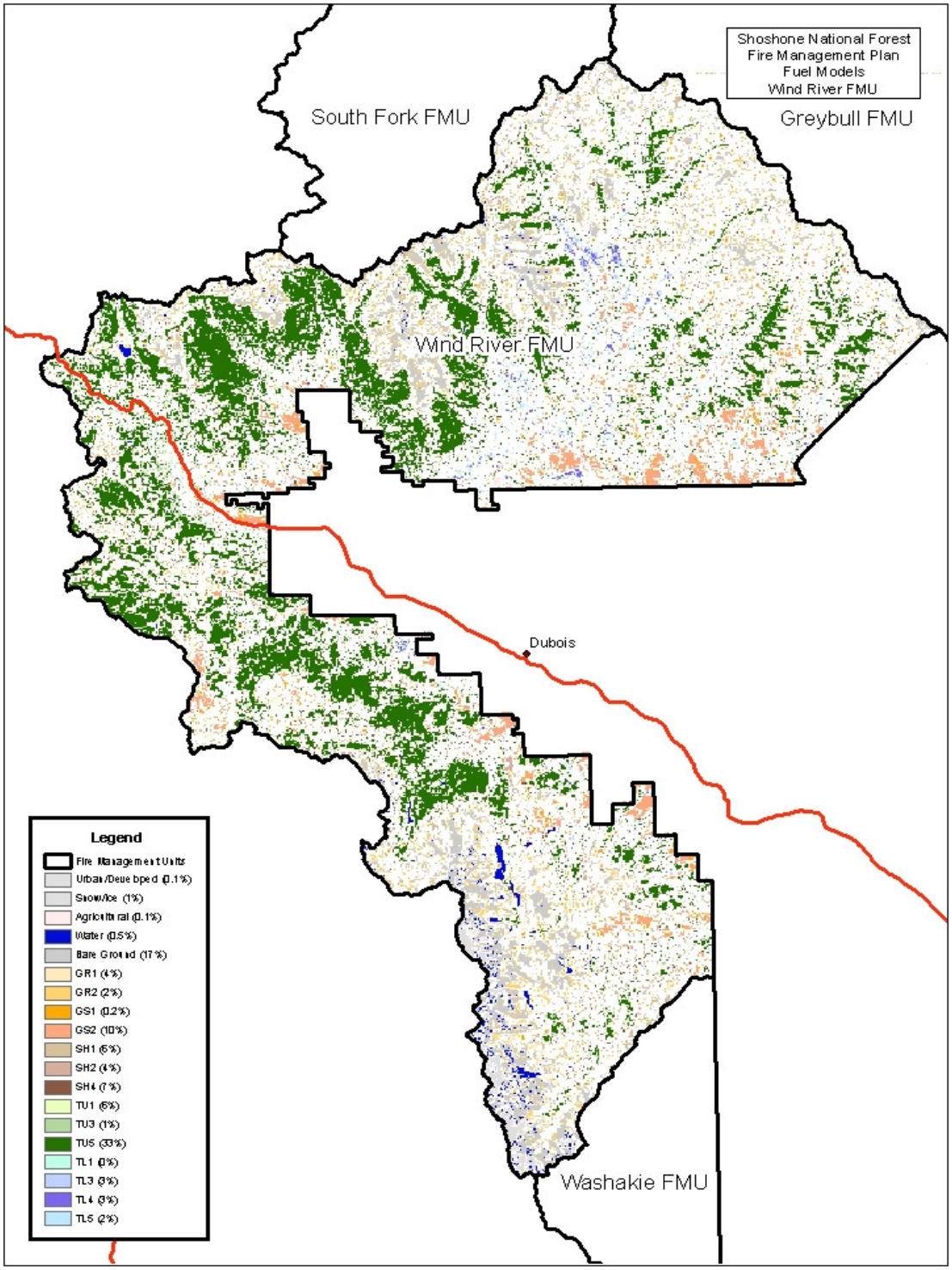
Wind River FMU Map 8 - Wind River Fork FMU Invasive Aquatics



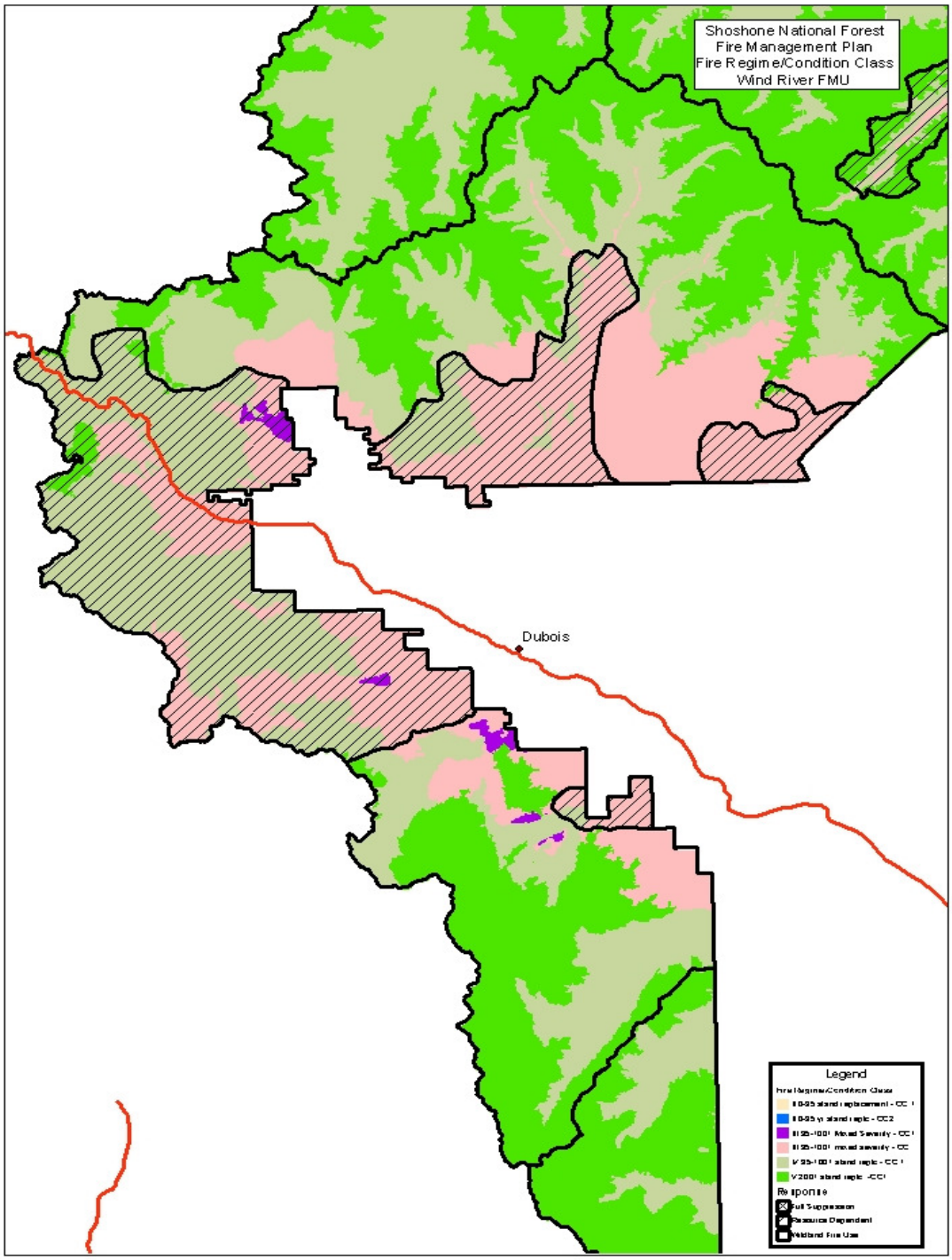
Wind River FMU Map 9 - Wind River Fork FMU Historical Fire Occurrence



Wind River FMU Map 10 - Wind River Fork FMU Fuel Type



Wind River FMU Map 11- Wind River Fork FMU Fire Regimes and Condition Classes



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3.7. Fire Management Considerations for the Washakie Fire Management Unit

3.7.1. Washakie FMU Snap Shot

Fire Management Unit Identification

Administrative Unit	FMU Name	FMU #	Management Response Zones	Acres
Shoshone National Forest - South Zone	Washakie	1	01 – Suppression	17,065
			02 – Resource Dependent	84,039
			03 – Fire Use	219,008

Ownership and Jurisdictions

Owner	Jurisdiction	Acres
US Forest Service	Shoshone National Forest	315,008
Private	Fremont County Fire District	5,103
	Total	**320,111**

Dispatch Center

Name	Phone Number
Cody Interagency Dispatch Center	307-578-5140

Radio Frequencies*

Agency	Name	Receive Frequency	Transmit Frequency	Transmit Tone
USFS	South Net	172.3750	172.3750	110.9
USFS	Cyclone	172.3750	168.7500	156.7
USFS	Black	172.3750	168.7500	131.8
USFS	S Pass	172.3750	168.7500	123.0
USFS	Lava	172.3750	168.7500	103.5

USFS	Windy	172.3750	168.7500	110.9
USFS	Indian Ridge	172.3750	168.7500	146.2
USFS	Blue Ridge	172.3750	168.7500	167.9
USFS	SZ Port	172.3750	168.7500	114.8

*See the Shoshone National Forest Radio Guide in the SHF fire management electronic file for a complete list of radio frequencies.

NFDRS Weather Stations

Station Number	Station Name & Owner	Fuel Model	Location	NESDIS #	Elevation
481903	Anderson Ridge - BLM	G - Timber	42° 14.14” 108° 56.27”	32787280	8,120 ft.

NFDRS Weather Station Fire Behavior Indicators and Thresholds

Preparedness Level	SHF South FDRA SIG (Elkhorn & Anderson Ridge)	
	ERC	100 Hr Fuel Moisture
I	<40	15+
II	40-54	14-13
III	55-68	12-11
IV	69-79	10-9
V	79	<8

General Risk Category

Subjective overall risk relative to values present, fuel hazard and fire frequency is identified for each fire management unit response zone in the table below. Additional risk information related to fire behavior and length of season are described in Section 3.7.4.

Response Zone	Risk Rating			
	Values Present	Fuel Hazard	Fire Frequency	Overall Risk
01 - Suppression	4	3	2	3
02 – Resource Dependent	3	3	2	3
03 – Fire Use	2	2	1	2

1 = Low; 2 = Low Moderate; 3 = Moderate; 4 = Moderate High; 5= High

Predominant Vegetation Types

Cover Type	%
Grassland-Sagebrush	31 %
Forest – conifers	53 %
Forest – aspen & willow	2 %
Barren	14 %

3.7.2. Washakie FMU Guidance

Management Guidance

Wildland fire management guidance for the resources associated with the fire management unit is derived from the Shoshone National Forest Land and Resource Management Plan (Forest Plan). Applicable wildland fire management Forest Plan direction, goals, desired conditions, standards, guidelines, and management area prescriptions are detailed in Section 3.1.1. The specific Forest Plan direction that is used to formulate wildland fire benefit and resource protection objectives; initial attack/response actions; and appropriate management response strategies and tactical options that apply to the resources, values and attributes that occur in the fire management unit (FMU) are referenced throughout this section.

Other sources of wildland fire management direction and resource protection measures that originate in other laws, policy, handbooks and guides are also used to provide direction and guidance for wildland fire management activities for this FMU. Many of these sources are located in the Shoshone Fire management electronic reference file.

Fire Management Unit Resources and Values

Air Quality

The Fitzpatrick Wilderness is a federally designated Class I Airshed in the FMU. The Popo Agie Wilderness is designated as a Class II Airshed. The Wind River Reservation which located to the northeast of the FMU is also a Class II Airshed

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
air quality	Comply with State and Federal air quality standards (Forest Plan 1986, page III-97).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
air quality	Implement smoke management actions in accordance with Wyoming Air Quality Standards and Regulations (Regulations) chapter 10, section 4, Smoke Management Requirements.

Vegetation

Forested vegetation varies widely across the FMU due to variations in elevation, aspect, climatic factors, and past disturbances. The uppermost elevation zone is characterized by alpine tundra and the absence of trees. The next lower elevation zone is the subalpine zone, dominated in most places by Engelmann spruce, subalpine fir, and whitebark pine. Below the subalpine zone lies the montane zone, characterized by Douglas-fir. Other species that occur in the subalpine and montane zones include lodgepole pine, limber pine, and aspen.

Grass, sometimes mixed with sagebrush, regularly occurs in forest openings. In areas where environmental factors do not support tree reproduction, grasslands and shrublands persist. In the foothill zone below the montane zone, grass and shrubs dominate. In the montane and subalpine zones, grass and shrubs persist in areas where site conditions limit moisture, such as well-drained landforms, southern or western exposures, thin or poorly developed soils, and high windswept sites. In the severe environment of the alpine zone, grass and shrubs dominate. In portions of the subalpine and montane zones, lodgepole pine and aspen are common early seral species following fire disturbance. Fire also affects the acres that are dominated by grasses and shrubs.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
vegetation	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. Prescribed fire plays a role in areas where managing unplanned ignitions for resource benefits is not appropriate because of high values (FPA 2008-1 p. 3). Improve the health and vigor of vegetation types outside wilderness and selected types in wilderness where necessary (Forest Plan 1986, page III-6). Integrate vegetation management with resource management in functional areas – range, recreation, water and wildlife (Forest Plan 1986, page III-7).
aspen	Clearcut, burn or treat aspen mechanically to in order to promote suckering and revegetation of aspen patches (Forest Plan 1986, page III-155)

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
vegetation	Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Wildlife habitats – terrestrial and aquatic

Critical Winter Range: Critical wildlife winter range areas are identified on the Washakie FMU Map 2. Currently, there are no issues with condition of the winter range area that would prevent a fire to be managed for resources benefits or require protection.

Grizzly Bear: This species is a Forest Service Region 2 threatened species. Grizzlies have variable habitat, and eat everything from carcasses to moths to whitebark pine seeds to garbage. The most important elements needed to stabilize grizzly bear populations are minimizing bear/human conflicts and protecting key food sources, such as whitebark pine and moth sites. Most of the FMU is occupied habitat outside of the Primary Conservation Area.

Yellowstone Cutthroat Trout: Yellowstone cutthroat trout is a subspecies of cutthroat trout that was historically found in the Yellowstone River drainage and reaches of the Snake River drainage. Stream segments containing Yellowstone cutthroat trout are identified on Washakie FMU Map 2.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
wildlife	Integrate vegetation management with resource management in functional areas – range, recreation, water and wildlife (Forest Plan 1986, page III-7) Maintain fuel conditions that permit fire suppression and prescribed fire to maintain habitat needed for selected species or species population levels (Forest Plan 1986, page III-152).

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
grizzly bear – food storage	Minimize grizzly bear/human conflicts using food storage, information and education, and other management tools (FPA 2006-001).
grizzly bear habitat – food sources	Maintain the productivity, to the extent possible, of the four key grizzly bear food sources as identified in the Conservation Strategy (FPA 2006-001).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
grizzly bear	Implement bear safety and food storage mitigation measures as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.
Yellowstone Cutthroat Trout	Implement protection measures for riparian areas, lakes and streams as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Special areas

Research Natural Areas: The Proposed Roraring Research Natural Area in located in the South central portion of the FMU. This research natural area is also located within the Popo Agie Wilderness. Research Natural Areas are part of a national network of ecological areas designated in perpetuity for research, education, and to maintain biological diversity on National Forest System lands.

See Washakie FMU Map 3 for the location of special areas.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
special management areas	Allow natural succession to proceed without human intervention in designated wilderness, wilderness study areas, and special management areas (Forest Plan 1986, page III-6). Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. (Forest Plan Amendment 2008-1 p. 3).

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
research natural areas	Fires within research natural areas (established and proposed) should be suppressed when they threaten the values for which the research natural area was established or threaten other values outside the research natural area. For unwanted wildland fires that threaten to burn into research natural areas, the appropriate management response should consist of strategies and tactics that keep fires from burning into research natural areas (FPA 2008-1 p. 6).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
Research Natural Areas	Use minimum impact suppression techniques when suppressing fires within research natural areas area (FPA 2008-1 p. 6).

Water quality

All the 6th level hydrologic unit watersheds in the FMU are rated as being in good condition or better (Washakie FMU Map 4). The City of Lander obtains its public water supply from the Middle Fork Popo Agie River watershed. Within this larger watershed is the tributary drainage of Sawmill Creek. Wildfire in this tributary drainage is a concern to the city because of potential water treatment issues. Current vegetation and fuel conditions within the Sawmill Creek drainage are such that management of a wildland fire for resource benefits is not likely to occur until conditions improve. Unplanned wildland fires that start within the drainage, or threaten to burn into the drainage from adjacent lands, would receive an appropriate management response designed to limit the amount of acres burned. This would include rapid and aggressive initial attack as well as extended attack strategies and tactics that contain and control fires as quickly as possible. At this time there are no water quality concerns with application of fire on the landscape as a means to accomplish resource benefits in the remainder of the FMU.

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
water	Improve or maintain water quality to meet state water quality standards (Forest plan 1986, page III-70).
public water supply	For unwanted fires that start in the Sawmill Creek sub-watershed, use aggressive initial attack actions that keep fires as small as possible. For unwanted wildland fires that threaten to burn into the sub-watershed, the appropriate management response should include of strategies and tactics that keep fires from burning into the watershed. Use the most effective suppression strategies and tactics that have the least impact possible on water quality.

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
water quality & public water supply	Implement protection measures for riparian areas, lakes and streams as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines. Implement practices regarding fire management activities as described in the Forest Service Handbook 2509.25, Watershed Conservation Practices.

Cultural Resources

The general location of known cultural resource sites and not yet surveyed areas that have a high probability of containing sites are located on the Cultural Resources Map for the FMU (Washakie FMU Map 5). The map with the general locations is part of the SHF fire management electronic reference file and is also available for use by fire managers and agency administrators. More specific information regarding site locations will be provided by the heritage program manager when needed.

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
cultural	Wildland fire management activities should protect cultural resources when feasible with priority given to sites listed on the National Register of Historic Places, sites recommended for selection to the Register and to known unevaluated sites (FPA 2008-1 p. 6).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
cultural	Follow procedures for wildland fire management activities as outlined in Appendix G of the Programmatic Agreement with the State Historic Preservation Officer for Compliance with the National Historic Preservation Act on Forest and Grasslands of Wyoming. Implement protection measures for cultural resources as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Wilderness

There are two wildernesses in the FMU (Washakie FMU Map 1). The Fitzpatrick comprises the north portion of the FMU and extends into the Wind River FMU to the north. The Popo Agie Wilderness comprises much of the west half of the Washakie FMU.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
wilderness	Permit fires to play, as nearly as possible, their natural ecological role within wilderness area (FPA 2008-1 p. 9). Allow natural succession to proceed without human intervention in designated wilderness, wilderness study areas, and special management areas (Forest Plan 1986, page III-6).

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
wilderness	Implement minimum impact suppression and logistic techniques as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Goods and Services

Timber: Lands suitable for timber production are present within the FMU and are primarily located within the resource dependent zone. Lands suitable for timber production are identified on the Values at Risk Map for the FMU (Washakie FMU Map 6) Lands suitable for timber production are considered high value assets and under most circumstances would not be allowed to burn unless it was determined there would be beneficial effects or no effects. Development of strategies to manage a fire for resource benefits would consist of an assessment of what areas would benefit from fire and what areas should be protected from fire or subject to limited fire intensity.

There may be a few instances where lands suitable for timber production may be allowed to burn and commercial timber products destroyed or damaged while managing a fire as for resource benefits or as an unwanted wildland fire. For example, situations where it is infeasible to protect an isolated stand, or where the value of the timber does not warrant the cost or commitment of resources and a substantial resource benefit may be achieved.

Washakie FMU Active and Planned Timber Sales

Sale Name	Location	Status	Purchaser
Fiddlers Lake	T31N, R101W, Sec. 26	Active	Western Wood Products
Washakie Aspen Unit 10	T32 and 31N, R100W	Active	Russ Linneman
Washakie Aspen Unit 11	T32 and 31N, R100W	Active	Russ Linneman
Washakie Aspen Unit 14	T32 and 31N, R100W	Active	Dean Knight
Washakie Aspen Unit 15	T32 and 31N, R100W	Active	Russ Linneman
Washakie Aspen Unit 16	T32 and 31N, R100W	Active	Mountain States Supply
Washakie Aspen Unit 17	T32 and 31N, R100W	Active	Western Wood Products
Washakie Aspen Unit 18	T32 and 31N, R100W	Active	Mountain States Supply
Raymond Salvage	T31N R99W	Active	Duane Raymond

Grazing: There several grazing allotments within the FMU and they are identified on the Values at Risk Map (Washakie FMU Map 6). Forest-wide Forest Plan direction and desired conditions regarding vegetation is generally consistent with range management objectives. Whether a fire is being managed for resource benefits or protection objectives, coordination with range management specialist and permittees occur.

Special Uses: Permitted outfitter and guide operations occur throughout the FMU. Camp locations are identified on the Values at Risk Map (Washakie FMU Map 6). Whether a fire is being managed for resource benefits or protection objectives, coordination with special uses managers and outfitters occur.

Minerals: There are no mining, drilling or exploration operations occurring in the FMU.

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
timber and grazing	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. Prescribed fire plays a role in areas where managing unplanned ignitions for resource benefits is not appropriate because of high values. Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
goods and services	Wildland fire plays a role within and outside of wilderness where appropriate and desirable, but active suppression of fire occurs where necessary to protect life, investments, and valuable resources. Valuable resources include the wildland urban interface, utility corridors and communication sites. Other valuable resources include public water supply, recreation facilities, administrative sites, range allotments, special management areas, fish and wildlife habitats, and lands suitable for timber production (Forest Plan Amendment 2008-01, page2).

Developments, Facilities and Infrastructure

Developments, facilities and infrastructures occur within and adjacent to the FMU and are displayed on the Values at Risk Map (Washakie FMU Map 6). Most of the sites are located within the Resource Dependent Management Zone. There are some facilities and developments in the Fire Use Management Zone.

Washakie FMU Recreation Sites (developed)

Name	Geographic Location
Bears Ears TH	T33N, R102W, Sec 8
Dickenson Park	T33N, R102W, Sec 17
Smith Lake TH	T33N, R102W, Sec 17
Sinks Canyon	T32N, R101W, Sec 19
Bruce Picnic Area	T32N, R101W, Sec 24

Middle Fork TH	T32N, R101W, Sec 23
Worthen Meadows	T32N, R101W, Sec 32
Roaring Fork TH	T32N, R101W, Sec 31
Youth Camp	T32N, R101W, Sec 33
Fiddlers Lake CG	T31N, R101W, Sec 27
Fiddlers Lake TH	T31N, R101W, Sec 27
Little Popo Agie CG	T30N, R 101W, Sec 1
Louis Lake Picnic Area	T30N, R101W, Sec 1
Louis Lake CG	T30N, R101W, Sec 12
South Pass/Loop Rd Parking Area	T29N, R100W, Sec 4

Washakie FMU Backcountry Administrative Sites

Name	Geographic Location
none	

Washakie FMU Utilities and Communication Sites

Name	Geographic Location
Blue Ridge Repeater (SZ Port)	T31N, R100W, Sec. 23
Cyclone Repeater	T33N, R102W, Sec. 36
South Pass Repeater	T30N, R99W, Sec. 18
Microwave Station	T30N, R101W, Sec. 25

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
developments, facilities and infrastructure	Wildland fire plays a role within and outside of wilderness where appropriate and desirable, but active suppression of fire occurs where necessary to protect life, investments, and valuable resources. Valuable resources include the wildland urban interface, utility corridors and communication sites. Other valuable resources include public water supply, recreation facilities, administrative sites, range allotments, special management areas, fish and wildlife habitats, and lands suitable for timber production (Forest Plan Amendment 2008-01, page2). Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Wildland Urban Interface

Structures occurring within and adjacent to the FMU are primarily located within the Resource Dependent Management Zone (Washakie FMU Map 1).

Local fire departments and agencies are responsible for structure protection; management of wildland fires burning on the Shoshone National Forest is the responsibility of the Forest Service. Keeping fires from reaching structures and private property adjacent to the Forest as well as permitted lodges and residences located on the Forest is consistent with current federal policy and Forest Plan direction. In addition, cooperative agreements and operating plans are in place that permits Forest Service firefighters to assist local jurisdictions with structure protection on private property, but for not entering structures to suppress fires.

The approach for developing the appropriate management response for wildland fire burning on the Forest that threatens individual structures or the wildland urban interface is the same for fire being managed for resource benefit or suppression objectives. Aggressive or intense management actions would occur in locations that have the highest probability of success in preventing damage or loss while ensuring the safety of the public and firefighters. These actions could occur near structures in close cooperation with the local jurisdiction or at some distance from structures where circumstances are favorable for stopping the advance of a fire toward structures.

Washakie FMU Communities and Subdivisions

Community Name	Geographic Location
Atlantic City Area	T29N, R99W
Little Beaver Creek	T30N, 99W
North Rock Creek Resevoir	T30N, R100W
Pass Creek Properties	T30N, R100W
Red Canyon Retreat	T31N, R99W
Spring Gulch Cabins	T31N, R99W
Stambaugh Cabins	
Upper Slate Creek	T30N, R100W
Willow Creek Cabins	T29 & 30N, R100W
South Pass City Area	T29N, R99W
Lander and Loop Road	
Homestead Park	T32N, R101W
Island sites	T32N, R101W
Loop Road Cabins	T31N, R100W
University of Missouri Geological Camp	T31N, R100W
Sinks Canyon	T32N, R101W
Lander Mtn. Road Area	T32N, R101W

Washakie FMU Permitted recreation residences

Community Name	Geographic Location
Louis Lake Sub Division	T30N, R101W, Sec.12
Middle Fork Sub Division	T32N, R101W, Sec. 24
Youth Camp (Organization Camp)	T32N, R101W. Sec. 34
Dickenson Park	T33N, R102W, Sec. 8

Washakie FMU Permitted lodges

Lodge Name	Geographic Location
Louis Lake Lodge	T30N, R101W, Sec.12

Washakie FMU Administrative sites

Site Name	Geographic Location
Louis Lake Guard Station	T30N, R101W, Sec 12
Middle Fork Work Station	T32N, R101W, Sec 24

Resource Protection Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
wildland urban interface	Wildland fire plays a role within and outside of wilderness where appropriate and desirable, but active suppression of fire occurs where necessary to protect life, investments, and valuable resources. Valuable resources include the wildland urban interface, utility corridors and communication sites. Other valuable resources include public water supply, recreation facilities, administrative sites, range allotments, special management areas, fish and wildlife habitats, and lands suitable for timber production (Forest Plan Amendment 2008-01, page2). Fire management strategies are designed to achieve land management protection or benefit objectives, are cost effective, and meet safety objectives for firefighting and the public(Forest Plan Amendment 2008-01, page 3).

Invasive species

Invasive plants: There are over 20 high priority terrestrial invasive species on the Shoshone with many more invasive species with the potential to spread across large portions of the Forest. Wildfires of any cause can enhance conditions for spread if fires expose soil, reduce native vegetation, and facilitate the introduction or movement of invasive seed sources into an area. Locations of invasive plants are mapped (Washakie FMU Map 7) and are located in the SHF fire management electronic reference file.

Invasive aquatics: Aquatic nuisance species occur just inside or adjacent to the Forest (Washakie FMU Map 8) including whirling disease, New Zealand mudsnails, and didymo. Fire suppression equipment can travel long distances to the Forest, and with them, the potential to introduce other aquatic nuisance species or move them to another area

Whirling disease has been found adjacent to the FMU in the following locations:

- Little Popo Agie River - Upper PFA off forest
- Little Popo Agie River - above Pass Ck confluence on Forest
- Squaw Creek - 2001 - near West Elementary school off forest
- North Fork Popo Agie River - off Forest

New Zealand mudsnails and didymo have not been document in or near the FMU.

Resource Protection Measures for Fire Management Activities

Resource	Description of Protection Measures
vegetation	Implement protection measures for invasive plants as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines. Follow practices related to fire management activities described in Forest Service Manual 2080 Noxious Weed Management for Forest Service activities.
aquatic	Implement protection measures for riparian areas, streams and lakes as described in the Shoshone National Forest Wildland Fire Management Resource Protection Standards and Guidelines.

Fuels

The Washakie FMU Map 10 displays the fuel types and relative acres for each type associated with the FMU. GIS data layers are also available in the SHF fire management electronic reference file. Additional information regarding fuel conditions and topography that influence fire behavior and potential control problems are described in Section 3.7.4

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
fuels	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels (Forest Plan Amendment 2008-01, page 3). Reduce the accumulation of natural fuels (Forest Plan 1986, page III-8). Prescribed fire will be utilized as a vegetative and fuels management technique where it is the most cost-efficient and acceptable alternative to achieve management objectives (Forest Plan 1986, page III-96). Maintain fuel conditions that permit fire suppression and prescribed fire to maintain habitat needed for selected species or species population levels (Forest Plan 1986, page III-152).

Fire Regime Condition Class

Resource Benefit Objectives

Resource	Forest Plan Direction (Goal, Desired Condition, Standard, Guideline)
fire regime condition class	Both unplanned ignitions and prescribed fire are used as tools to achieve and maintain vegetation conditions and desired fuel levels. Fire operates within historical fire regimes appropriate to the vegetation type and management objectives. Prescribed fire plays a role in areas where managing unplanned ignitions for resource benefits is not appropriate because of high values (Forest Plan Amendment 2008-01, page 3).

FMU Initial Response Guidance and Assigned Resources

Washakie Fire Management Unit Initial Response/Attack Run Card

Full Suppression Response Zone					
Dispatch Resource	**Fire Danger – Eagle RAWS 480214**				
	Low	**Mod**	**High**	**VH**	**EXT**
Engine	1	1	1	1 - 2	1 - 2
Hand Crew (2 - 4 person)			1	0 -1	0 -1
Helicopter/Aerial Recon			0 -1	1	1
Duty Officer/AFMO/FMO Notification	1	1	1	1	1
Unplanned ignitions are considered to be unwanted fires and initial attack responses will consist of the safest and most effective and cost efficient actions to contain and control fires as quickly as possible.					

Resource Dependent Response Zone					
Dispatch Resource	**Fire Danger – Eagle RAWS 480214**				
	Low	**Mod**	**High**	**VH**	**EXT**
Engine (T3, T4, or T6)	1	1	1	1 - 2	1 - 2
Hand Crew (2 - 4 person)			1	0 -1	0 -1
Helicopter/Aerial Recon			0 -1	1	1
Duty Officer/AFMO/FMO Notification	X	X	X	X	X
Local Jurisdiction Notification (if structures are threatened)	X	X	X	X	X
Initial response to fires within the Resource Dependent Response Zone will require an assessment as to whether or not the fire is a candidate to be managed for resource benefits. The Duty Officer/AFMO/FMO begins this assessment immediately by evaluating the probable cause and location of the fire relative to resource values. Commensurate with the assessment, initial attack resources are dispatched to a fire under the assumption that the fire is to receive a suppression response unless directed otherwise. Human caused fires are classed as an unwanted fire and will receive a suppression response.					

Fire Use Response Zone					
Dispatch Resource	**Fire Danger – Eagle RAWS 480214**				
	Low	**Mod**	**High**	**VH**	**EXT**
Engine			1	1 - 2	1 - 2
Hand Crew (2 - 4 person)	1	1	1	0 -1	0 -1
Helicopter/Aerial Recon	0 -1	0 -1	0 -1	1	1
Duty Officer/AFMO/FMO Notification	X	X	X	X	X
Initial response to fires within the Fire Use Response Zone will require an assessment as to whether or not the fire is a candidate to be managed for resource benefits. The Duty Officer/AFMO/FMO begins this assessment immediately by evaluating the probable cause and location of the fire relative to resource values. Initial response resources are dispatched to a fire under the assumption that the fire is a potential candidate to be managed for resource benefits and would not begin suppression actions unless directed otherwise. Human caused fires are classed as an unwanted fire and will receive a suppression response.					

3.7.3. Washakie FMU Characteristics

3.7.3.1. Safety

Firefighter and public safety considerations

Firefighter and public safety is the priority in all fire management activities. Reduce firefighter and public injuries and loss of life, and damage to communities from unwanted wildland fires, by prioritizing firefighter and public safety above other concerns in fire management activities (Forest Plan Amendment 2008-01, page 4).

History on the Forest indicates that while the annual number of fire starts is not particularly high, the fire environment is complex as high intensity fires with rapid rates of spread are common during active burning years. The fire environment is further complicated by a Forest-wide insect epidemic; mature forest, steep terrain, and frequent wind events that are not always well forecasted. There have been three recorded fire fighter entrapments on the Forest. The most serious occurred in 1937 when ten firefighters lost their lives on the Blackwater Fire (North Fork FMU). The most recent entrapment occurred in 2006 on the Little Venus Fire (Greybull FMU) where ten firefighters survived an entrapment, fortunately with only minor injuries.

Environmental and Aviation Hazards

Aviation hazards are identified on the Forest Aviation Hazard Map (SHF fire management electronic reference file). High winds and terrain-influenced winds that affect aviation operations are common. Environmental hazards include steep, rocky and difficult terrain, and grizzly bears.

3.7.3.2. Physical

Terrain

The Shoshone National Forest is in the northern Rocky Mountains in northwest Wyoming. With Yellowstone National Park on its northwestern border, the Shoshone extends more than 180 miles from the Montana state line to South Pass near Lander, Wyoming. It is bordered by the Custer and Gallatin National Forests on the north and by Yellowstone National Park and the Bridger-Teton National Forest on the southwest. The Shoshone is set within the lee of the massive Absaroka, Beartooth, and Wind River Mountains.

The terrain varies widely from sagebrush flats to rugged mountains because the Shoshone is situated on the western edge of the Great Plains and the eastern side of the continental divide. Elevations on the Shoshone range from 4,600 feet at the mouth of the spectacular Clarks Fork Canyon to 13,804 feet on Gannett Peak, Wyoming's highest point. The higher mountains are snow-clad most of the year with immense areas of exposed rock interspersed with meadows and forests. The Shoshone provides a diverse landscape—from lush grasslands to alpine meadows, from crystal-clear lakes to glacial carved valleys, from rolling hills to sheer mountain walls.

Most of the Shoshone is within the upper Missouri River Basin, subdivided by the Wind/Big Horn, and Clarks Fork River basins. The southern tip of the Shoshone is in the Sweetwater drainage, which flows into the Platte River system. Principal rivers within the Shoshone boundary are the Clarks Fork of the Yellowstone River, North and South Forks of the Shoshone River, and the Greybull, Wind/Big Horn, and Popo Agie Rivers.

FMU Travel routes

Most of the road access is in the FMU is in the southeast and extreme southern part of the FMU. State Highway 28 passes through the southern tip of the FMU. The Loop Road is the primary Forest road that provides access in the southeast portion of the FMU. The Loop Road travels southwest from Lander and connects with State Highway 28 at the south tip of the FMU. There is a network of Forest roads associated with past timber management activities in the southeast portion of the FMU. The western portion of the FMU is the Popo Agie Wilderness. The extreme north part of the FMU is comprised of the Fitzpatrick Wilderness which is accessed through the Wind River Reservation.

3.7.3.3. Biological

See Fire Management Unit Resources and Values in Section 3.7.2 and maps in Section 3.7.5 for information regarding biological features.

3.7.3.4. Resources

See Fire Management Unit Resources and Values in Section 3.7.2 and maps in Section 3.7.5 for information regarding resources.

3.7.4. Washakie FMU Fire Environment

3.7.4.1. Fire History and Behavior

Historic Fire Occurrence and Behavior

Washakie FMU Map 9 displays the historic fire occurrence and cause for the FMU. Since 1970, the Forest has averaged 26 wildfires annually. Due to persistent drought and widespread insect epidemics in combination with changes in fire management philosophy, the trend in acreage burned since 1998 has been increasing. The annual average acres burned for the past 30 years is approximately 7,200 acres. The annual ten-year average is over 8,900 acres; the annual average for the last five years is approximately 16,400 acres burned.

Natural ignitions account for 51% of the fire starts (87% of the acres burned). Human-caused fires account for 49% of historical fire occurrence (13% of the acres burned); escaped campfires reflect 60% of these ignitions. Fire size classes A and B account for 90% of the fires. The annual fire occurrence for each FMU was generated from PC Historical Analysis (PCHA) using representative locations (RL) to determine wildland fire distribution. Large fires have occurred all months of the established season but typically are anticipated in August and September.

During the summer of 1988, the Clover and Mist Fires burned 194,430 acres in the Clarks Fork and North Fork FMUs. Fires of this size are considered low in frequency, one in a hundred year occurrence; the importance of the two events is recognized as normal in the natural fire ecology of the Shoshone National Forest. Considering the rare occurrence in conjunction with fires analyzed in the historical period, the annual acres burned are 2,334. Fire data (1909 - 1982) in the Forest Plan shows the fire occurrence about the same as today but with 873 acres burning annually. Before 1900, fire history studies indicate areas equal or larger to Clover/Mist burned on the Forest.

Fires in 2003 were record setting from most points of view. Total acreage burned was 26,094. Number of fires was 48. Number of starts in a day set a new record of 5 (August 10, 2003). Consecutive days with multiple starts set a record with 8.

The 2006 fire season was significant on the Forest. Low snow pack, below average spring precipitation, and a widespread insect epidemic resulted in conditions conducive to stand replacement type fires in low frequency fire regimes. Although the number of fires recorded were near average, the total acres burned exceeded 40,000. The two most significant fires were Little Venus which burned in the Greybull FMU and the Purdy Fire in the Wind River FMU. Large fire growth began in earnest in mid July and continued until early September.

The 2007 fire season continued to reflect the trend of large fire growth resulting from the build-up of fuels on the Forest and persistent drought conditions. Again the number of fires were near average, but the total acres burned were on the Forest were approximately 5,700 acres. The Citadel Fire (South Fork FMU) began in mid-June and burned approximately 2,000 acres and the Columbine Fire (North Fork FMU), which originated during August in Yellowstone National Park, burned approximately 3,700 acres on the Forest. Total acres burned for the Columbine Fire was approximately 18,000 acres.

The 2008 fire season was below average for number of starts with 23; however, the acres burned were approximately 68,200. The most significant fire of the season was the Gunbarrel Fire that burned in the North Fork FMU for months and consumed over 68,100 acres. There were several days of large fire growth and extreme fire behavior observed during this fire.

Fire Behavior and Fuels

The Washakie FMU Map 10 displays the fuel types and relative acres for each type associated with the FMU. GIS data layers are also available in the SHF fire management electronic reference file. Vegetation within the Forest is classified into five broad communities: alpine, coniferous forest, montane meadow-parkland, sage-grass, and riparian. Coniferous forest represents the largest vegetation type on the Forest. National Fire Danger Rating System fuel model G is most typical of the coniferous forest fuel bed. Low rate of spread accompanied with high heat intensity typifies this model but in drought years, high rates of spread have been observed from wind and plume dominated crown fires. In review of large fires on this Forest, the coniferous forest has been the primary carrier of fire and is the only fuel type represented in the suppression analysis.

Insect and disease infestations have become epidemic on most of the Forest, and fuel model characteristics are changing. The Forest is experimenting with fuel model modification using FARSITE to better match the changing condition.

Fire Regime Condition Class

Seventy-nine percent of the FMU is in a fire regime condition class 1. One vegetation condition is in some jeopardy based on the time since the last disturbance. This includes approximately 66,095 acres of fire regime III that is in condition class 2. This represents approximately 21 percent of the FMU. A summary of the number of acres by fire regime condition class are displayed in the table below and on Washakie FMU Map 11.

Washakie FMU Fire Regimes and Condition Classes

Fire regime	Condition class	Fire return interval	Burn severity	Acres	Percent
II	1	35 – 70 years	Stand replacement	0	0%
	2			0	0%
III	1	35 -100 years	Mixed	7,789	2%
	2			66,095	21%
IV	1	70 - 150 years	Stand replacement	148,611	47%
V	1	200 – 300 years	Stand replacement	93,853	29%
Barren	None	None	None	3,764	1%

3.7.4.2. Weather

The prevailing climate is categorized as “continental mountainous.” Moisture is brought into the Greater Yellowstone Area from storms tracking west to east. As the storms are forced up and over the continental divide, moisture is leached from the storm system at the upper elevations.

The average annual precipitation, ranging from 15 to 70 inches, varies with topography and elevation. Eighty percent of the precipitation in the upper elevations occurs in the winter and spring; thunderstorms in the summer provide 20%. In the lower elevations, seasonal distribution of precipitation shifts to a lower accumulation with the same seasonal percent distribution. Typical summer temperatures vary with elevation; highs ranging from 65 to 90 degrees and lows from 35 to 60 degrees are common with respect to elevation. The average summer relative humidity varies also with elevation and topography; relative humidity of single digits are not uncommon in the upper elevations while the lower drainages are measuring 30%. During the established fire season, a typical summer sees numerous thunderstorms and 23 cold front passages. Additional weather and fire behavior related information is located in the Shoshone National Forest fire management electronic reference file..

3.7.5. Washakie FMU Maps

The following maps identify key resources, features, and other attributes of the FMU that are intended for use when determining objectives and developing fire management objectives for an incident. Key maps for the FMU are included in this document when possible or can be found in the SHF fire management electronic reference file.

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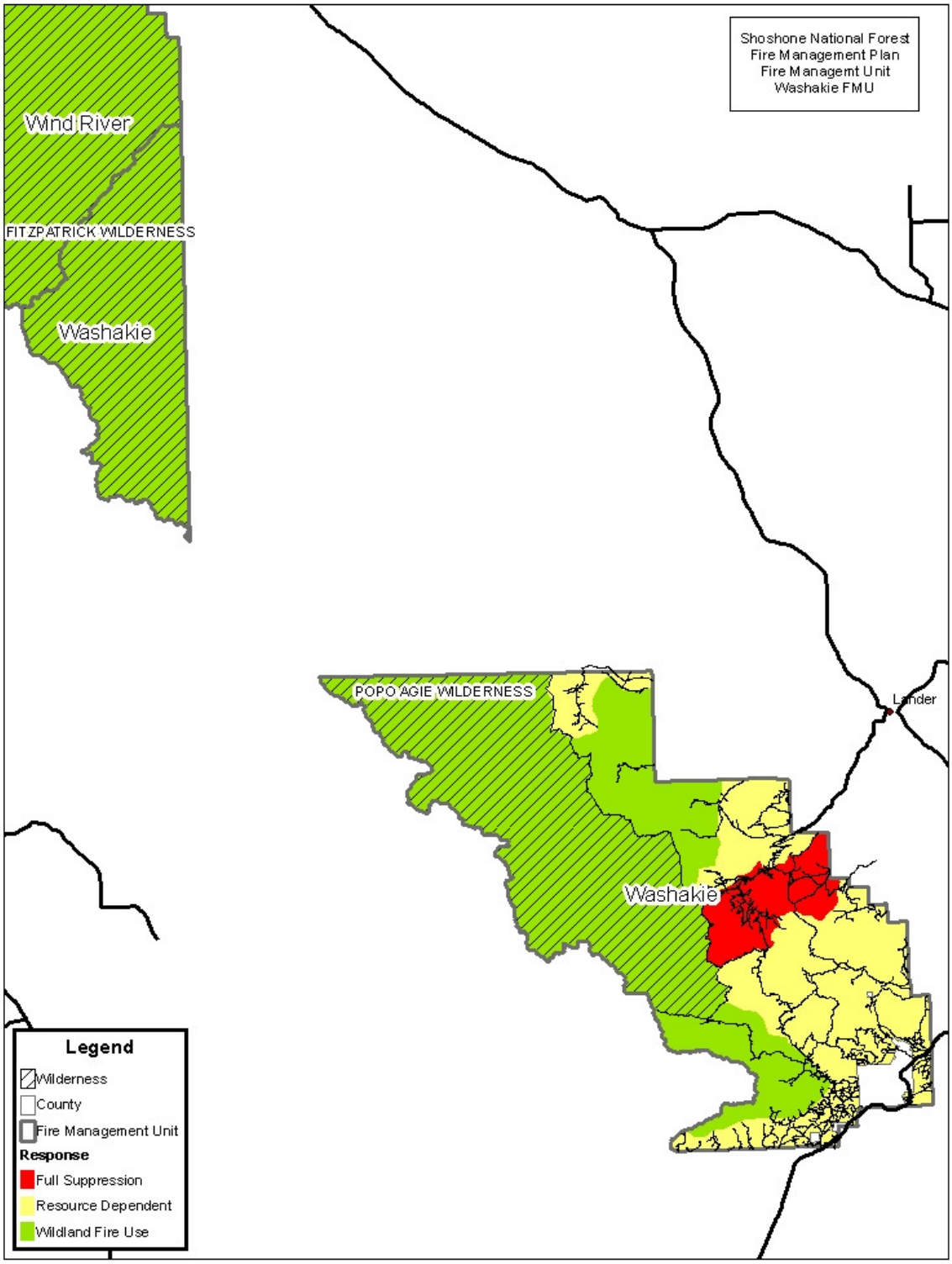
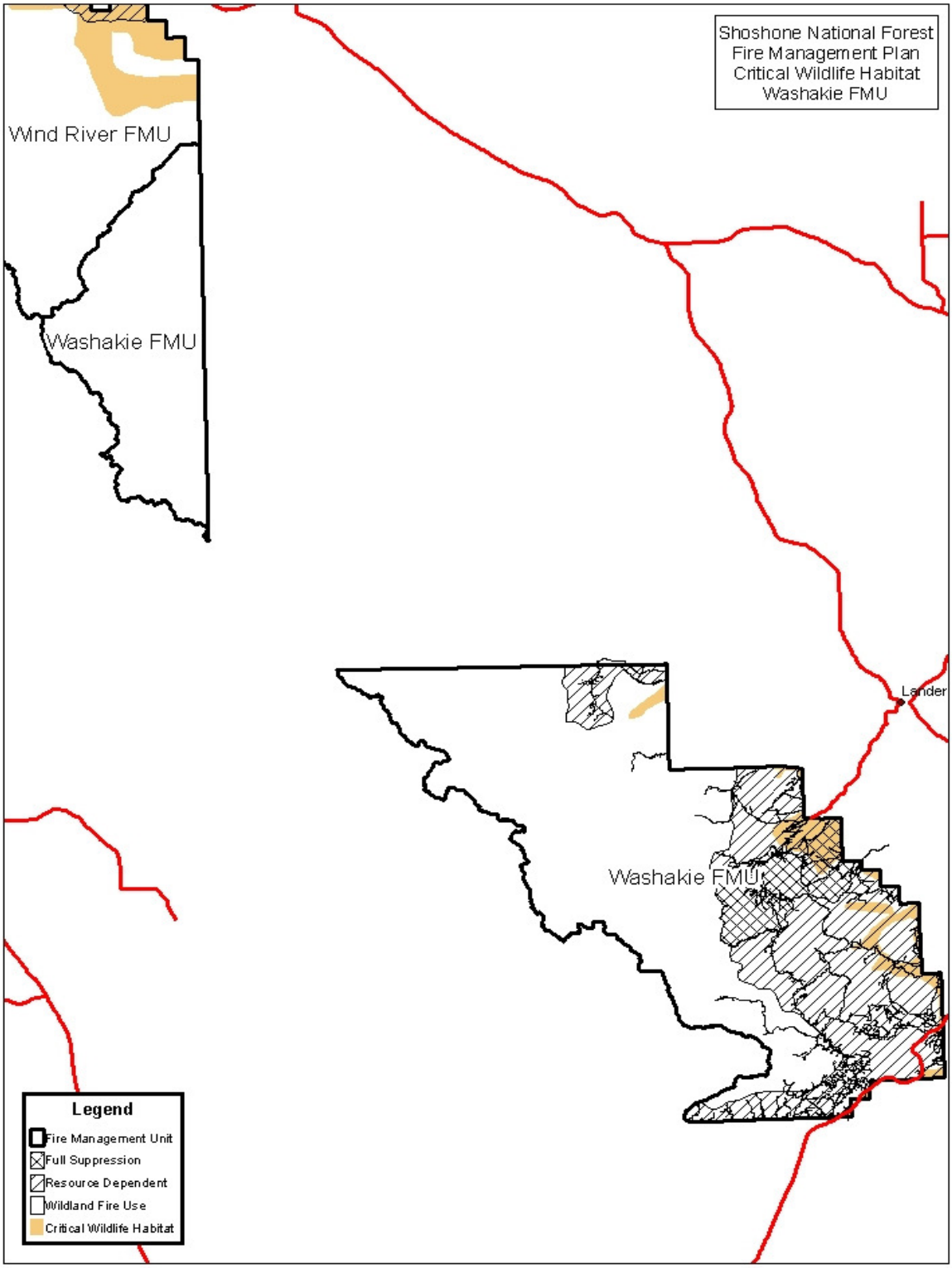
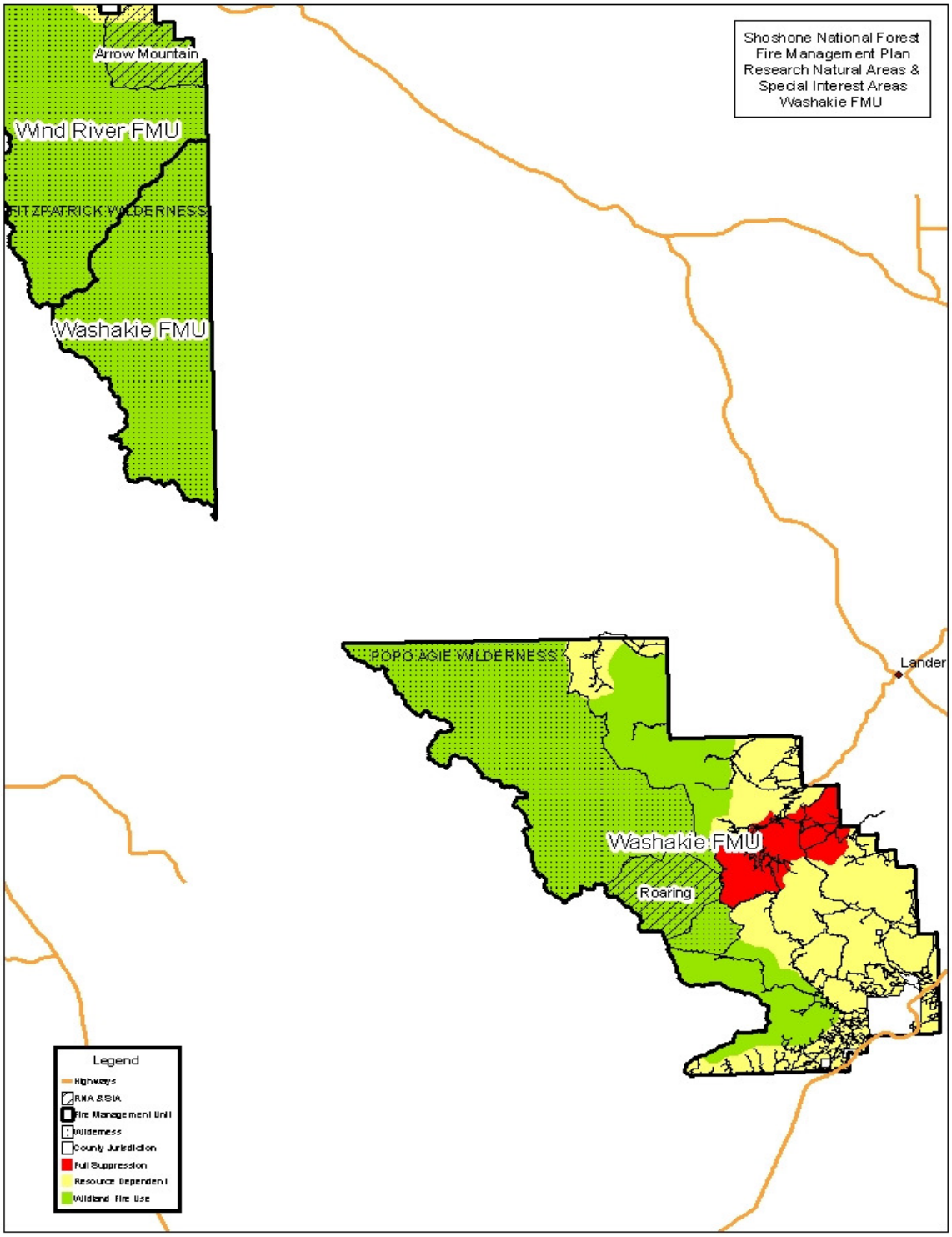
Washakie FMU Map 1 - Washakie FMU Boundaries and Response Zones



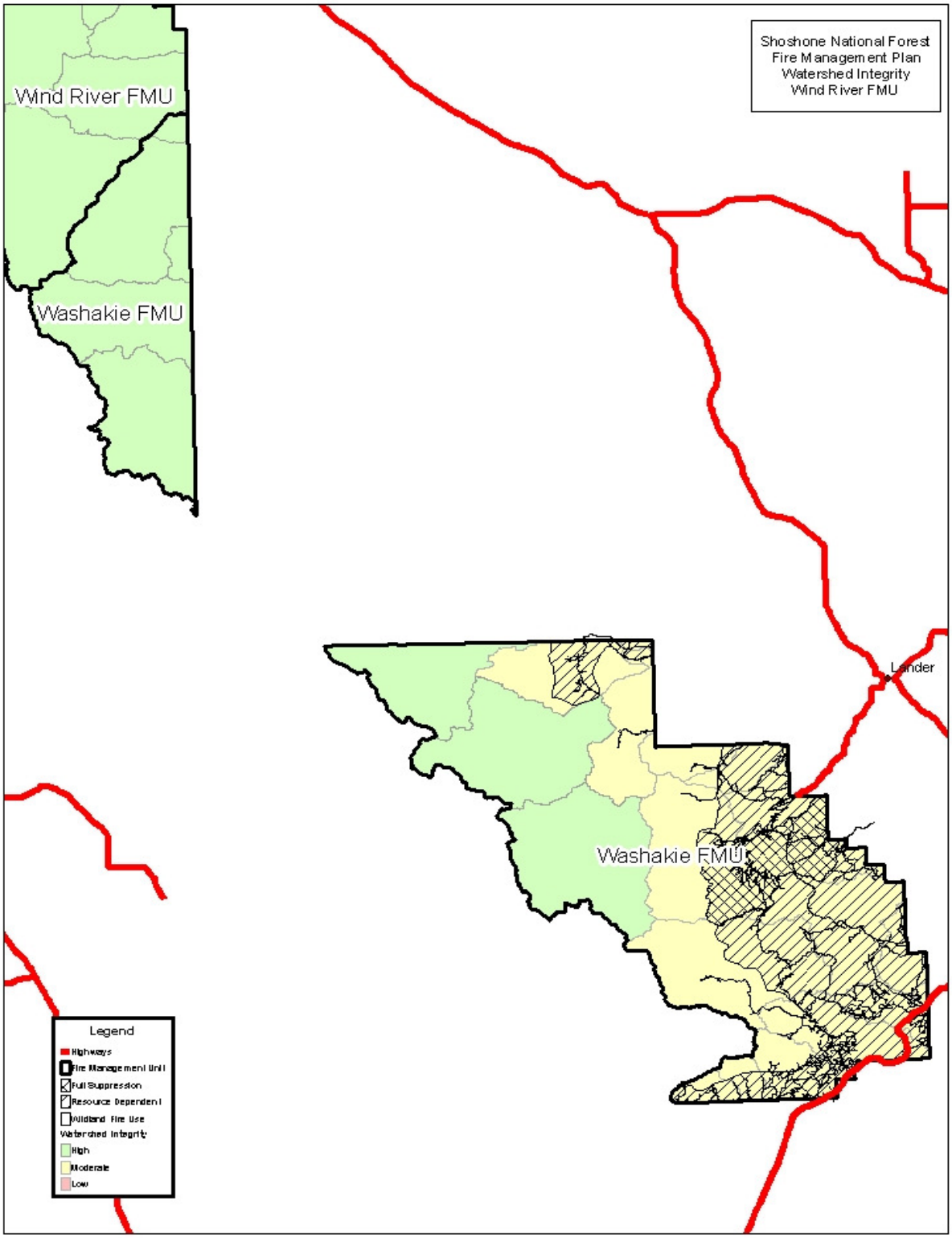
Washakie FMU Map 2 - Washakie FMU Wildlife Critical Winter Range and Yellowstone Cutthroat Trout Locations



Washakie FMU Map 3 - Washakie FMU Special Areas



Washakie FMU Map 4 - Washakie FMU Watershed Condition



Washakie FMU Map 5 - Washakie FMU Cultural Resources

A hard copy map of the approximate location of known cultural sites and not yet surveyed areas that have a high probability of containing sites have been distributed to the zone FMOs. Detailed site-specific information is held by the Forest heritage program manager and can be obtained when needed. The information is stored in a GIS database as well.

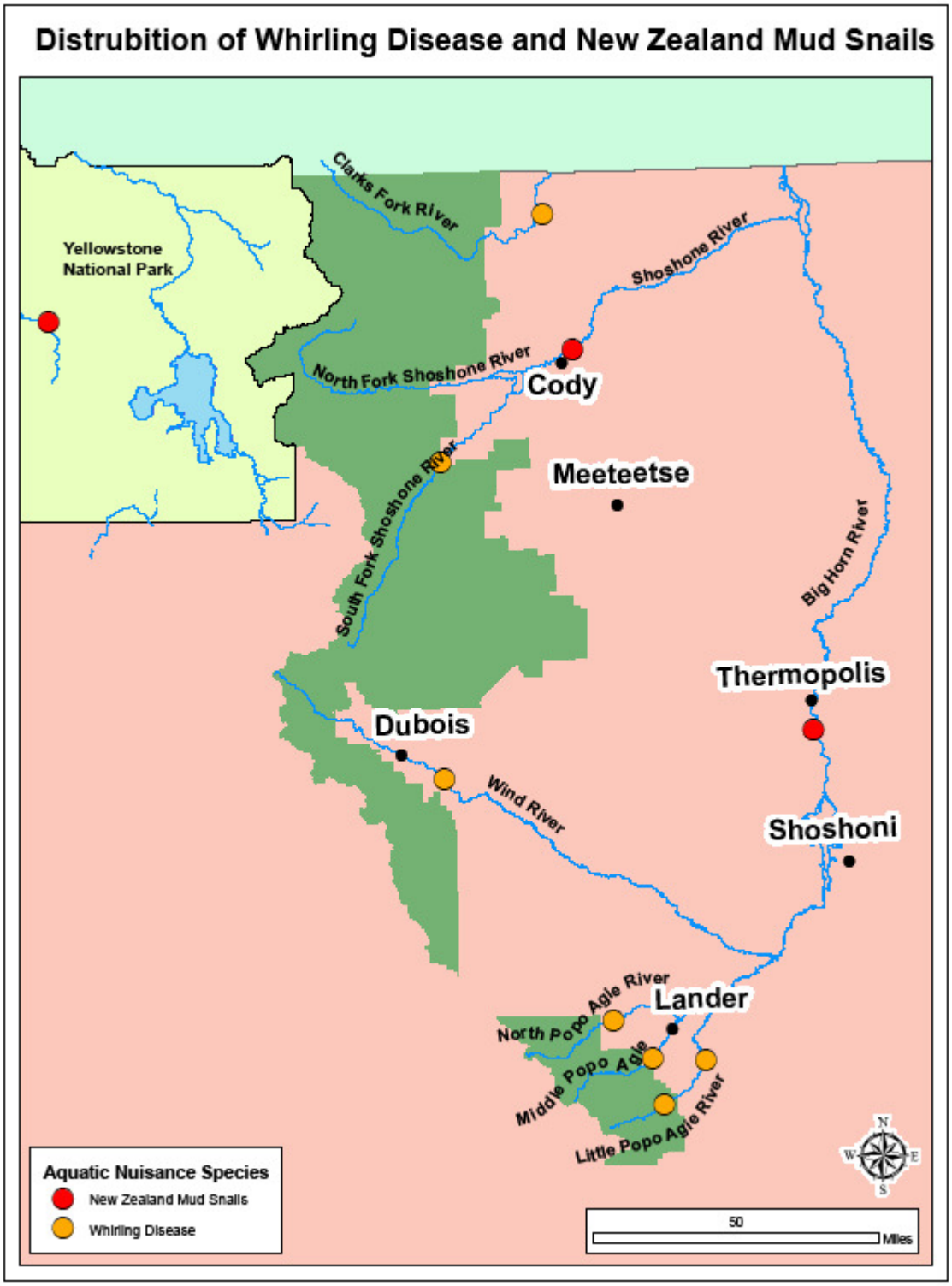
Washakie FMU Map 6 - Washakie FMU Values at Risk

A comprehensive map displaying the values in the FMU that may be at risk is available in hardcopy and can be printed from the SHF fire management electronic reference file. The associated data is also stored in a GIS data format that can be accessed from the Forest's GIS fire files at anytime when needed.

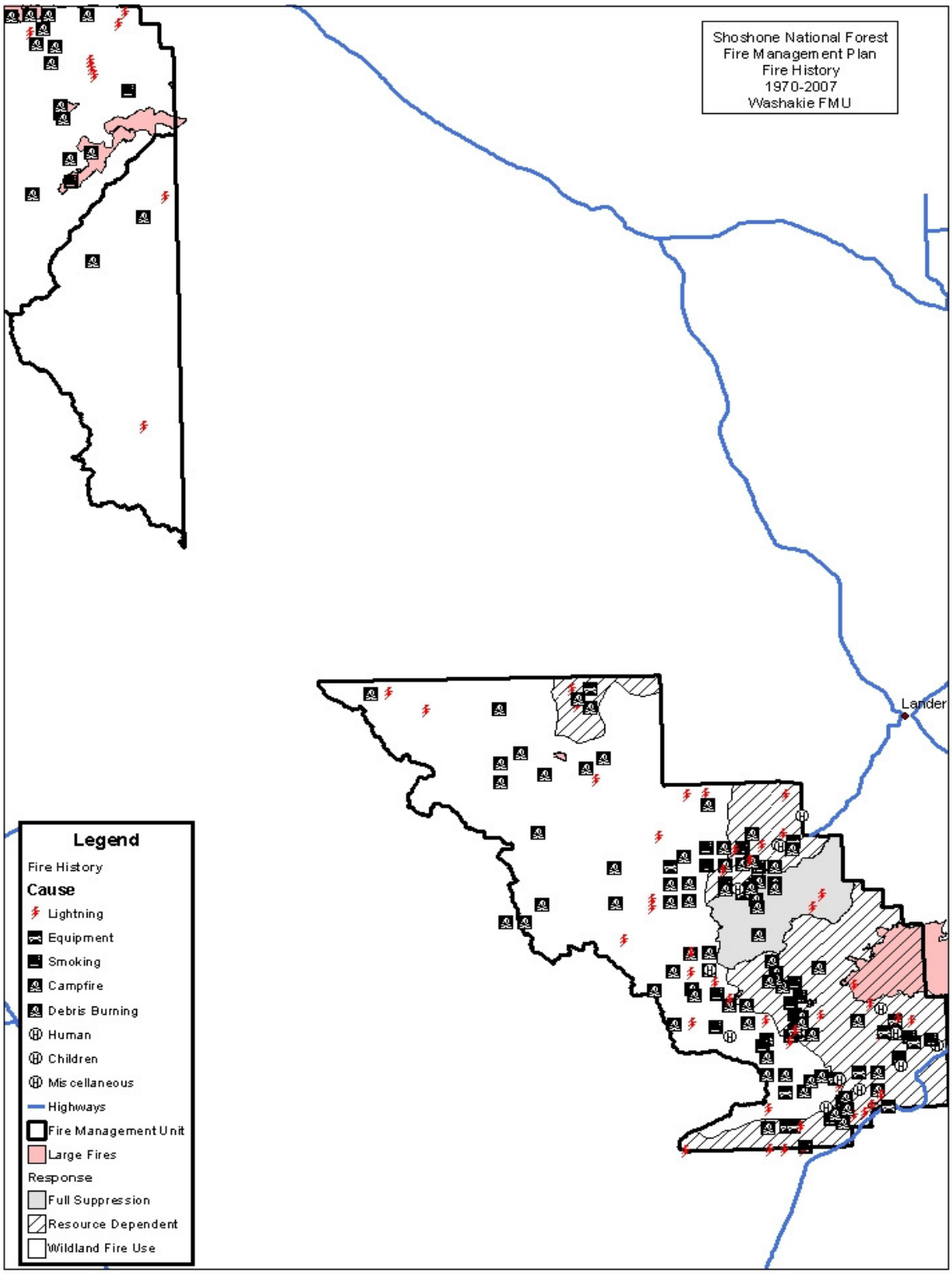
Washakie FMU Map 7 - Washakie FMU Invasive Plants

Invasive plant locations are mapped and available from the Forest's GIS corporate database.

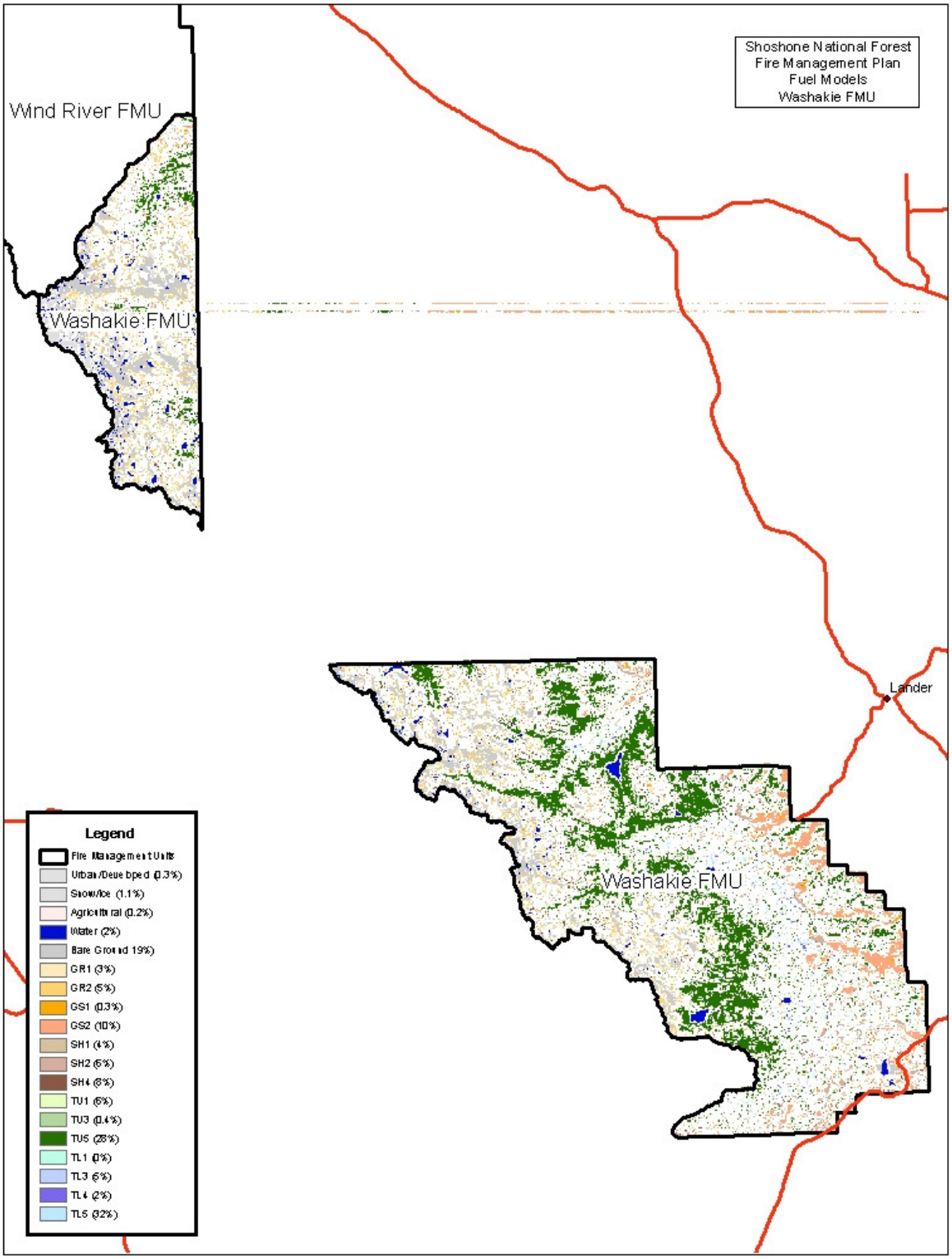
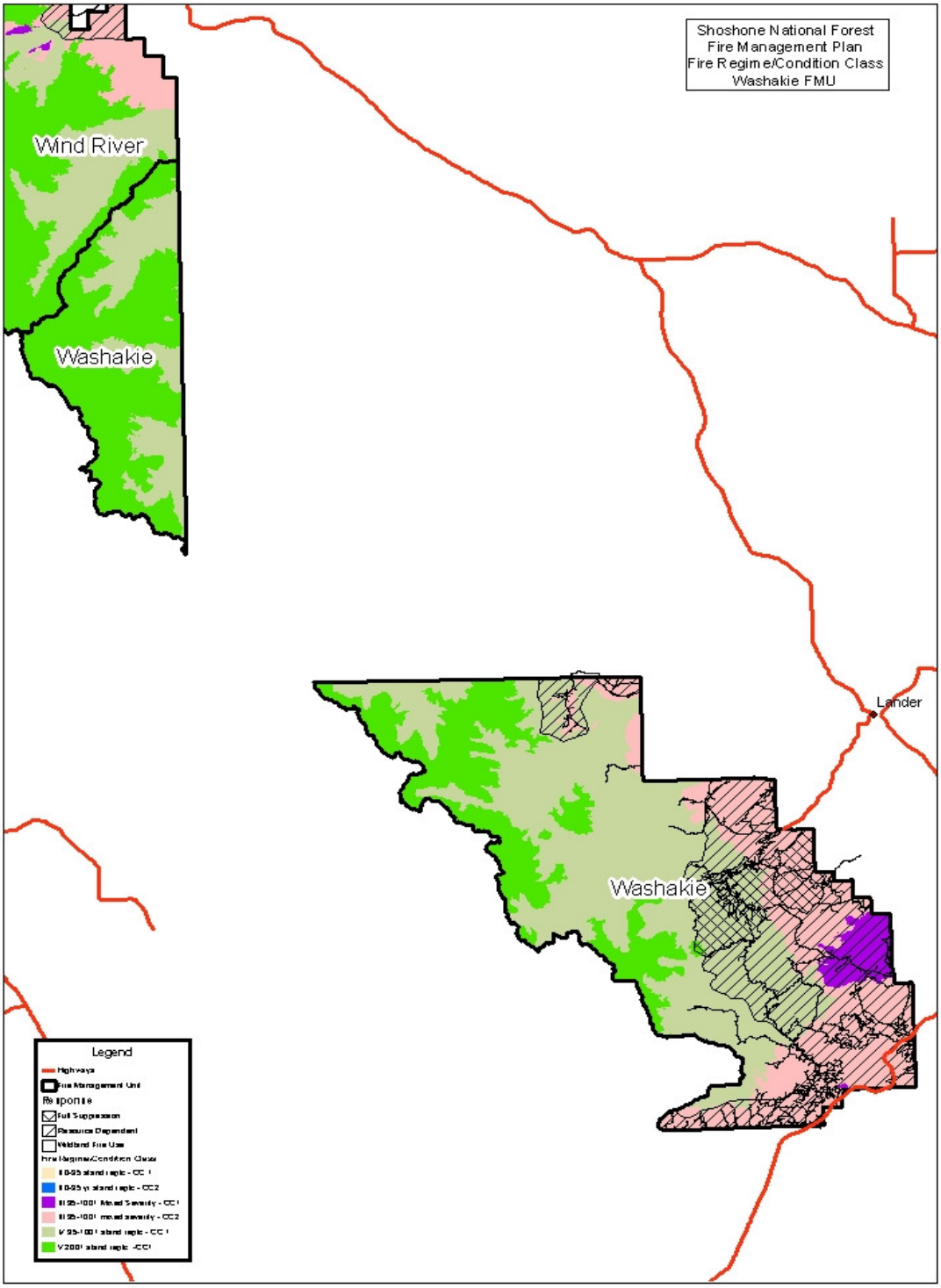
Washakie FMU Map 8 - Washakie FMU Invasive Aquatics



Washakie FMU Map 9 - Washakie FMU Historical Fire Occurrence



Washakie FMU Map 10 - Washakie FMU Fuel Type



Washakie FMU Map 11 - Washakie FMU Fire Regimes and Condition Classes