CARIBOU – TARGHEE NATIONAL FOREST
WILDLAND FIRE USE GUIDE BOOK SOUTH

UNITED STATES DEPARTMENT OF AGRICULTURE
INTERMOUNTAIN REGION
2005

Caribou Targhee Wildland Fire Use Guidebook South

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I INTRODUCTION

1.1 Abstract

The Caribou-Targhee Wildland Fire Use Guidebook South is intended to serve as guide to successfully navigate the authority and responsibility required to manage natural ignitions in the geographical areas described herein. The guidebook is a compilation of established National, Regional and Forest direction regarding Wildland Fire Use. This is not a decision document, rather an implementation guide for direction established in the 2003 Caribou Revised Forest Plan. The Guidebook is intended as a "living document" and will be summarily updated as policy changes and/or additional subsections are evaluated. While only three subsections (Fire Management Areas) have been evaluated under the current plan, it is anticipated that the remaining 2 subsections will be evaluated, and the guidebook amended to include these areas.

1.2 Revisions

The Caribou-Targhee Wildland Fire Use Guidebook South was designed and intended as a modular document to be updated as additional subsections are evaluated for fire use suitability. These revisions/additions are to be approved by the Forest Supervisor and documented in the table below. Include a brief discussion describing the revision, author, and date approved. Revisions pertaining to policy will not require Forest Supervisor signature but will be recorded in the revision description. One copy of the guidebook will be issued to each District, one to Dispatch and one to the Forest Fire Management Officer. Notice of revision will be sent to the holders of these copies who are then responsible for updating District copies. An electronic version of the guidebook will be maintained on the Caribou-Targhee Forest Website and will be considered the master document. Efforts will be made to keep this copy current as policy changes/and or additional subsections are added.

Table 1.2-1: Revisions/Additions

Revision Description/Author	Forest Supervisor Signature	Date Approved
Addition of the Webster and Preuss Subsections to Guidebook. Analysis completed and documentation compiled by Jared Mattson (Soda Springs and Montpelier Zone Assistant Fire Management Officer).		

1.3 Authority

5140.1 – Authority **-** Both the National Forest Management Act of October 22, 1976 (16 U.S.C. 1600 et seq.), and the Clean Air Act, as amended (42 U.S.C. 7401 et seq.), are applicable to the use of fire on National Forest System lands. These acts are summarized in FSM 5101.1.
The Federal Wildland Fire Management Policy adopted December 18, 1995, by the Secretaries of Agriculture and the Interior directs agency heads and other officials to implement the principles, policies, and recommendations in the Final Report of the Federal Wildland Fire Management Policy and Program Review (FSM 5101.4). Additional direction is in the Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide (FSM 5140.32, 5108) or the Wildland Fire Use Implementation Procedures Reference Guide (Appendix B). See Series 5000 manual direction at: http://fsweb.wo.fs.fed.us/directives/html/fsm5000.html

5140.41 - Regional Forester: The Regional Forester has the authority and responsibility for:

1. Approving direction for fire use embodied in forest plans.
2. Managing the Regional fire use program and coordinating the Regional fire use program with the National program.
3. Ensuring that Forests conduct prescribed fires and wildland fire use projects in compliance with National and Regional fire management policies and standards.
4. Under severe burning conditions, deciding whether or not to approve new fire use or continuation of existing fire use (FSM 5140.31, para. 9).
5. Ensuring the development and application of Regional standards for consistent preparation of the Wildland Fire Implementation Plan (WFIP).
6. Ensuring the development and use of smoke management criteria to guide decisions on fire use projects (FSM 5144).
7. Ensuring the timely preparation and transmittal of annual accomplishment reports to the national fire use database (FSM 5147).

5140.42 - Forest Supervisor: The Forest Supervisor has the authority and responsibility for:

1. Integrating the role and use of fire and establishing fire management direction to meet resource objectives in the applicable forest plans.
2. Approving the Wildland Fire Implementation Plan (WFIP). This authority may be delegated to a District Ranger, but only if the District Ranger has the requisite fire management knowledge, experience, and staff available.
3. Reporting to the Regional Forester existing or potentially severe burning conditions on the unit. Where the Regional Forester decides that the Supervisor may continue to make decisions on fire use on the unit under severe burning conditions, the Supervisor, depending on the complexity of the situation, may delegate fire use approval authority to a District Ranger, but only if the District

Ranger has the requisite fire management knowledge, experience, and staff available.
4. Providing specific direction on fire use through annual approval of the Fire Management Plan consistent with the approved forest plan.
5. Ensuring that the WFIP, and the personnel implementing them, including contractors, meet Service-wide and Regional requirements (FSM 5142, 5143, 5145, and 5148).
6. Ensuring adequate tracking and monitoring of all prescribed or wildland fire use at the Forest level (FSM 5142.21, para. 12 and FSM 5147).

1.4 Fire Use Objectives and Acceptable Outcomes

Fire Management objectives provide a general framework within which specific land management objectives are achieved for a management area. General Forest Service fire use objectives outlined in FSM 5140.2 and FSM 2324.21 include:

- To use fire from either management ignitions or natural ignitions in a safe, carefully planned, and cost-effective manner to benefit, protect, maintain, and enhance National Forest System resources.
- Reduce future fire suppression costs.
- Restore natural ecological processes and achieve management objectives adopted in approved forest land and resource management plans (forest plans).
- Permit lightning fires to play, as nearly as possible, their natural ecological role within wilderness.
- Reduce, to an acceptable level, the risks and consequences of wildfire within wilderness or escaping from wilderness.

The Caribou National Forest Plan (revised 2003) acknowledges the natural role of fire in its fire dependant ecosystem. Specifically, forest wide goals and objectives pertaining to fire and Wildland Fire Use include:

Goals

- Forest resources are managed in accordance with the National Fire Plan, Ten-Year Comprehensive Strategy and Implementation Plan, and Cohesive Strategy to improve fire prevention and suppression, assist rural communities, reduce hazardous fuels, and restore fire-adapted ecosystems.
- Fire is allowed to play its natural role where appropriate and desirable to reduce the risk of uncharacteristic wildland fires.
- Fire and other management activities restore or maintain desirable vegetative communities and ecosystem processes. Fire management prescriptions are written to take advantage of natural lightning starts and to restore historical fire regimes.
- Fire and other management activities are used to treat natural and activity fuels with priority on reducing risk from uncharacteristically large or intense wildland fires and protecting communities in the wildland-urban interface.

Objectives

- Develop and implement at least one wildland fire use plan each year at the Subsection scale. Priority should be given to the ecological subsections where this activity is emphasized.

The Caribou-Targhee Fire Use Guidebook South should also strive to achieve the following secondary objectives in order to permit lightning-caused fires to play their natural ecological role and reduce the risks and consequences of wildfire within the subsection.

- Safety- No injuries to personnel and/or members of the public. Strive to minimize damage to administrative sites and private property, while providing for firefighter and public safety first.
- Air Quality- Assess Air Quality impacts in communities surrounding the included FMA's. Smoke from wildland fire use is not human-caused, so it is permissible to impact the air quality in wilderness.
- Education- Provide and increase opportunities for the public to observe and interpret fire's natural role in the ecosystem.
- Economic- Minimize the cost of fire management programs.

Acceptable outcomes from achieving these objectives are:

- Maintenance and/or enhancement of vegetative mosaics and biological diversity that result from fire.
- Continuing plant and animal relationships that evolve with fire.
- Conservation of genetic traits that certain vegetative species developed in response to fire.
- Living and dead fuels approach a "natural" state of continuity, arrangement, depth, and loading.
- Public awareness that a fire is a natural and essential component of many ecosystems.
- Forest visitors safely witness the natural role of fire.
- Fire effects on historical values are mitigated.
- Non-National Forest System lands are protected from fire.
- Where appropriate, minimum-impact suppression tactics are successfully utilized on holding actions involving Wildland Fire Use and suppression actions on wildfires.
- Appropriate management response and resources expended are commensurate with the location, values threatened and unfavorable impacts that may result from wildland fire.

II AREA DESCRIPTION

This Chapter provides a description of the resources within the Subsections, summarizes applicable Forest Plan goals, standards and guidelines, and lists other management guidelines.

2.1 Subsection Description

2.1.1 Caribou Subsection

The Caribou, Black and Bald, and Little Elk Mountain ranges fall in this subsection. Elevations range from 5,600 to 9,800 feet (1,707 to 2,987 meters). Slopes range from 5 to 60%. The major vegetation types include coniferous forest, grasslands, and shrublands. This map unit is separated from similar subsections by geology and climate.

Mean annual precipitation ranges from 28 inches (71 cm) on the lowest elevations to 40 inches (102 cm) on the highest elevations. Most precipitation occurs in the spring and winter with 60% of the precipitation falling as snow. The mean annual air temperature is 29 to 38 degrees F (-1.7° to 3.3° C).

Valley bottoms usually have live streams running through them. The landscape is slightly to moderately dissected. The natural disturbance processes are fire, flooding in drainageways, insects and disease in conifer stands, windthrow and gravitational transfer. Human-caused disturbances include mining for gold using historic hydraulic techniques, roads, dredging, logging, and grazing.

Landscape Settings: Mountain Ranges and Valleys

The mountain ranges make up the high elevation sites with slopes ranging from 20 to 40 percent. These landscapes include ridges, mountain slopes and canyons that are formed in sedimentary, intrusive and metamorphic parent materials. The valleys are located on low to mid elevation sites with slope ranging from 5 to 30 percent.

Landtype Associations

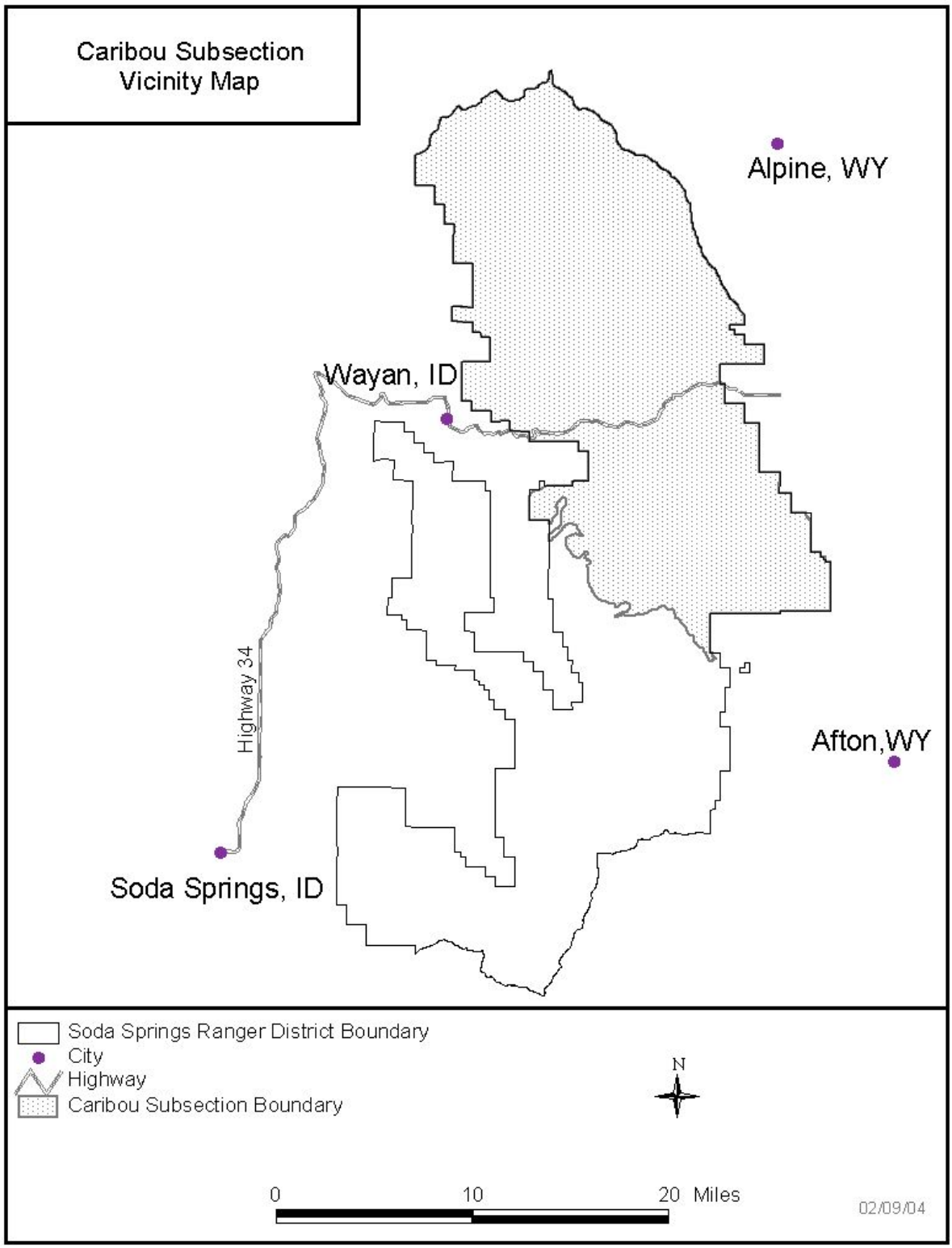
- Caribou Basins, Toeslopes and Fans/Mountain Big Sagebrush-Lodgepole pine-Aspen
- Smith Canyons and Stable Foothills/Alpine fir-Sagebrush-Mountain Mahogany
- Caribou Mountain Glaciated Cirques and Headwalls/Alpine fir and Sagebrush
- Tincup Unstable Foothills and Basins/Alpine fir and Sagebrush
- McCoy Unstable Mountains and Canyons/Douglas fir-alpine fir- Sagebrush
- Tincup Unstable Low Mountains and Broken Slopes/Douglas fir-Aspen-Sagebrush
- Elk Mountain Sideslopes and Ridgelands/Alpine fir-Lodgepole pine and Sagebrush

Management Emphasis

Through prescription area application, the following will be emphasized within this subsection. This does not preclude other activities but with limited resources, management would be focused in these areas.

- Restoration and regeneration of the aspen ecosystem, focusing on areas succeeding to conifers
- Wildland fire use, particularly in the higher elevations where other treatment methods would not be effective
- Retention of primitive and semi-primitive recreation opportunities
- Wildlife security areas and primitive backcountry hunting experiences
- Linkage habitat between the Caribou and the Targhee NF and Greater Yellowstone Ecosystem
- Historical value of past mining activities
- Restoration and protection of Yellowstone cutthroat trout strongholds

Figure 2.1-1: Caribou Vicinity Map



2.1.2 Webster Subsection Description

The subsection divides the Salt and the Blackfoot River Basins. Elevation ranges from 6,100 to 9,957 feet, slopes range from 15 to 65 percent. Vegetation types include coniferous forest and shrublands. This map unit is separated from similar subsections based upon the presence of Phosphoria deposits, mountainous areas vegetated with conifers and sagebrush, and due to climatic factors. Mean annual precipitation ranges from 24 inches at the lowest elevations to 40 inches at the highest elevations. Most precipitation occurs in the winter and spring seasons with 54 percent of the precipitation falling as snow. The mean annual air temperature is 29 to 38 degrees Fahrenheit.

Streams and rivers flow perennially in most valleys and canyons. The landscape is slightly to moderately dissected from major storm events causing fluvial action that created the dissected landscape. The natural disturbance processes are fire, insects, disease, and windthrow. Human caused disturbances include mining, logging, road building, recreation activities and grazing.

Landscape Settings: Mountain Ridges and Valleys

The mountain ranges are located on low to high (7,000 to 9,000 feet) elevation sites with slopes ranging from 10 to 65 percent. The valleys have slopes ranging from 1 to 10 percent.

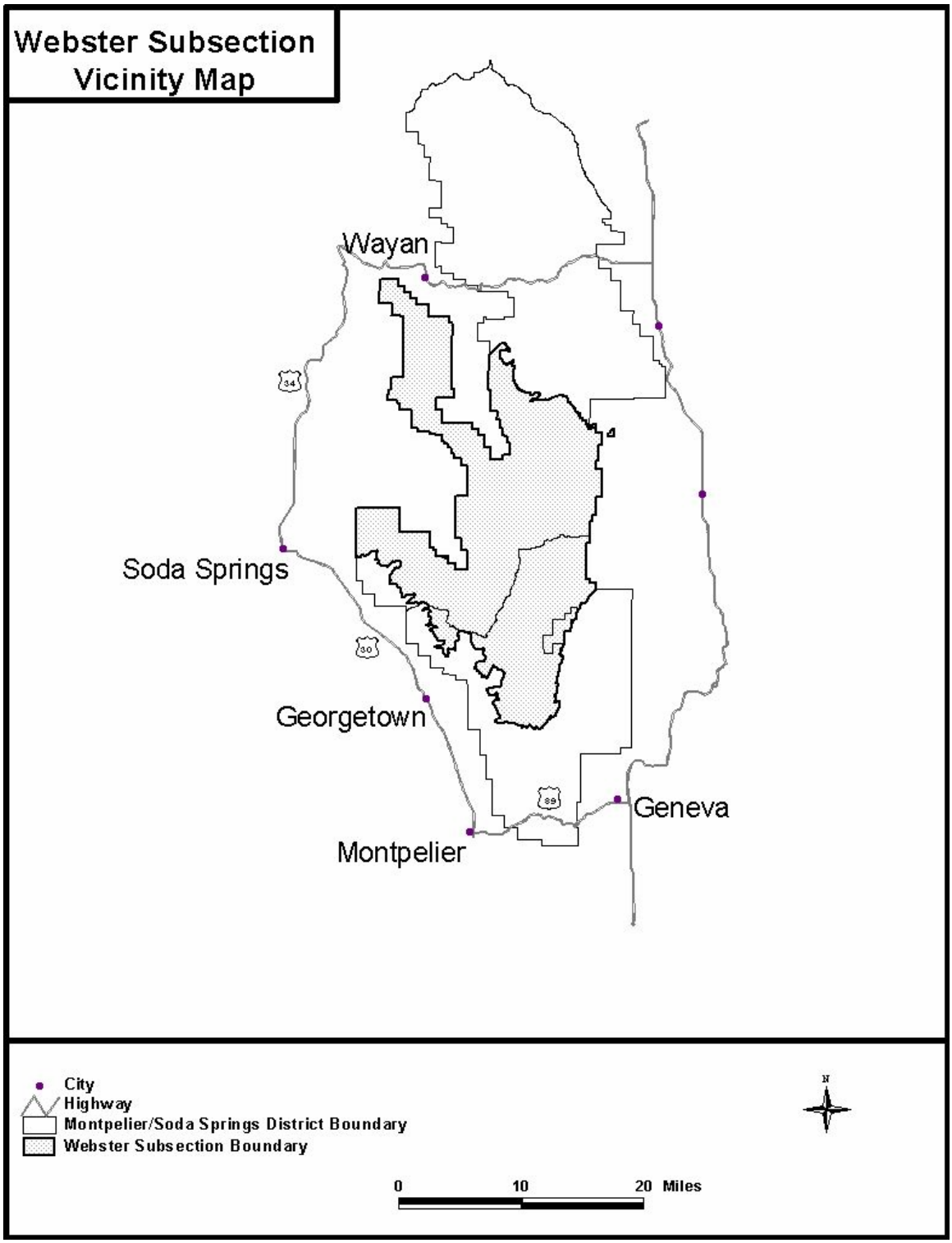
Landtype Associations

- Webster Ridgelands and Escarpments/Sagebrush-Alpine Rangeland
- Webster Bottomlands, Toeslopes and Foothills/Sagebrush-Douglas fir-Riparian-Subalpine fir
- Webster Mountainsides, Canyons and Basins/Alpine fir-Douglas fir Mtn. Mahogany-Sagebrush

Management Emphasis

- Restoration of deteriorated rangelands, particularly tall forb communities
- Management of phosphate reserves and forested vegetation
- Restoration and protection of Yellowstone cutthroat trout strongholds

Figure 2.1-2: Webster Vicinity Map



2.1.3 Preuss Subsection

The Preuss Ridges and Hills Subsection consists of ridges, rolling hills and short narrow valleys. Elevations range from 6,000 to 8,400 feet (1,828 to 2,560 meters). Slopes range from 15 to 60 percent. The major vegetation types include coniferous forests and shrublands. This map unit is separated from similar subsections based upon unstable mountain slopes and geologic materials that separate the surrounding valley subsections. Climatic and vegetative patterns are also differentiating criteria.

Mean annual precipitation ranges from 22 inches (56 cms) at the lowest elevations to 30 inches (76 cms) at the highest elevations. Most precipitation occurs in the spring and winter seasons falling as snow. The mean annual air temperature is 29 to 38 degrees F (-1.6 to 3.3 degrees C).

Valley bottoms and canyons typically have live streams or rivers running through them. The landscape is slightly to moderately dissected. Wetlands occur in the Elk Valley Marsh area associated with wetland vegetation and depositional materials. This subsection has other wet areas. The natural disturbance processes are fire, insects and disease, flooding, windthrow, and gravitational transfer. Human-caused disturbances include roads, logging, grazing and recreational activities.

Landscape Settings: Ridges and Mountains

The ridges are located on mid- to high-elevation sites with slopes ranging from 15 to 60 percent. The rolling hills and valleys are on low to mid elevation sites with slopes ranging from 15 to 40 percent.

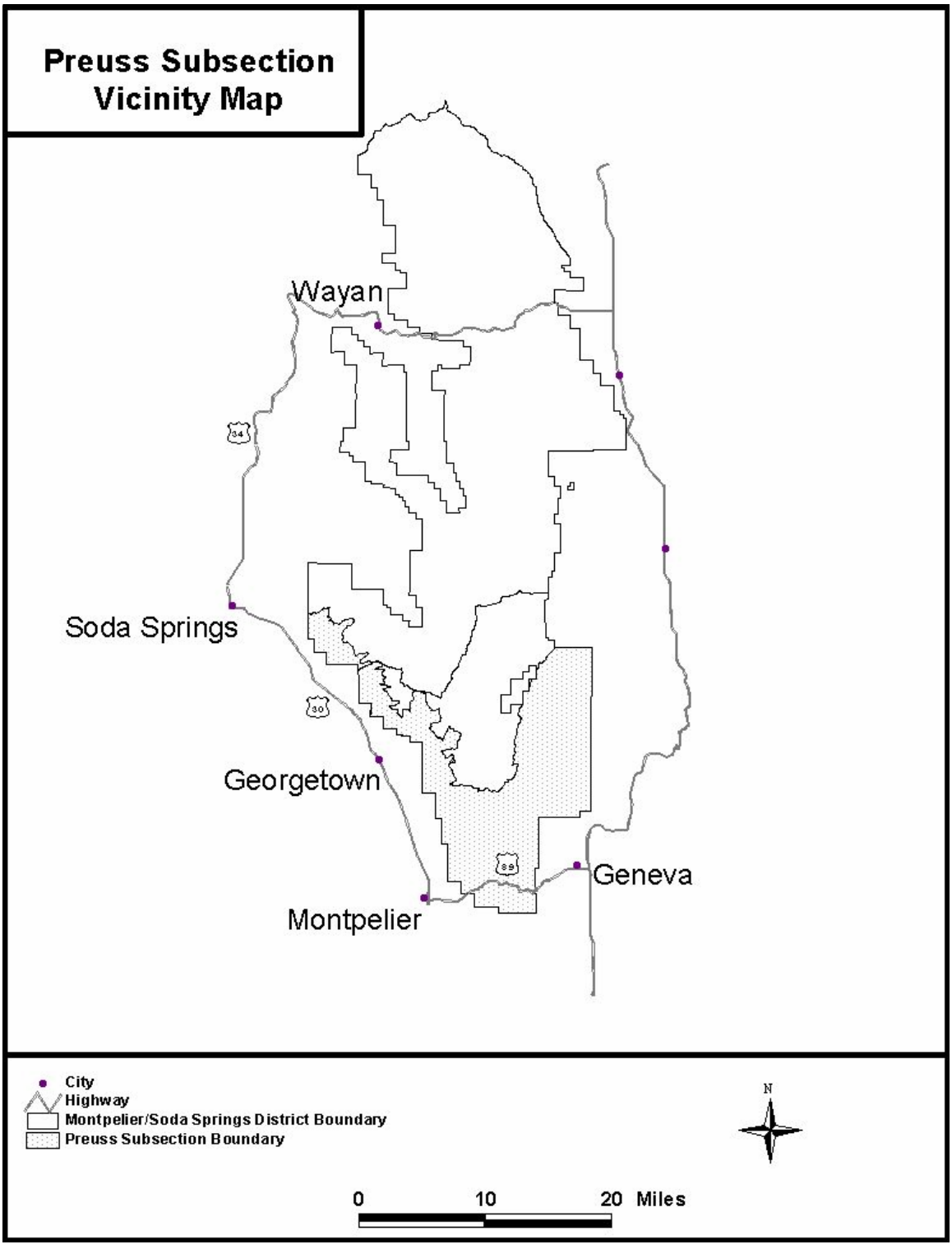
Landtype Associations

- Whiskey Basins and Toeslopes/Sagebrush
- Elk Valley Bottomlands, Sideslopes and Upland Basins/Riparian and Sagebrush
- Preuss Stable Mountain Sideslopes/Aspen-Douglas fir-alpine fir
- Aspen Range Canyons and Foothills/Douglas fir-alpine fir-Mountain Mahogany-Sagebrush
- Preuss Unstable Canyons, Mountain Sideslopes and Foothills/Douglas fir-Aspen-Sagebrush

Management Emphasis

- Retention of large security areas for wildlife
- Linkage habitat between the Caribou and the Bridger-Teton NF
- Restoration and protection of Bonneville cutthroat trout habitat, particularly on the east side of the subsection
- Restoration of deteriorated rangelands
- Management of phosphate reserves and forested vegetation

Figure 2.1-3: Preuss Vicinity Map



2.2 Management Prescriptions

Management prescriptions, a set of management practices, are applied to a specific area of land to attain multiple-use and other goals and objectives. The purpose of management prescriptions is to provide a basis for consistently displaying management direction on Forest Service administered lands. Management prescriptions in the Forest Plan are intended to provide a general sense of the management direction or treatment of the land where each prescription is applied. They identify the emphasis and focus of multiple-use management activities in a specific area; however, ***emphasis,*** as used in this context, is defined as a focus or a highlight and does not necessarily mean exclusive use.

Management prescriptions provide a more focused view of specific land areas and how they will be managed. The specific direction stated in a management prescription determines what uses are allowed and to what extent the uses are permitted.

The prescriptions are organized in categories and presented in a sequence allowing progressively more active management. Management prescriptions are not designed to stand-alone. They are one part of the management direction package for the Forest that also includes *Forest-wide* goals, objectives, standards, and guidelines. Where a management prescription allows an activity, such as recreation or livestock grazing, the standards and guidelines in the prescription or in the Forest-wide direction provide specific parameters within which the activity must be managed. In land areas where prescriptions are applied, direction in this section would override forest-wide direction. Management prescriptions follow a number sequence, where lower numbers reflect less intensive management or use, and larger numbers reflect more human use or development. The Prescription Area Categories are explained at the beginning of each Category Section.

Placing a management prescription number or title on an area does not make a decision about how any future site-specific conflict will be resolved. The responsible local Forest Service official has the discretion to determine how such conflicts may be resolved, through informal administration or more formal environmental analysis. When doing environmental analysis for future site-specific decisions, consideration must be given to the entire management direction package for a particular land area, including the goals, objectives, prescriptions, standards, guidelines, and desired conditions to be achieved in the area.

If an emergency event occurs on the Forest, deviation from these standards and guidelines may occur in order to protect human life, property values and structures, and forest resources. Activities in response to emergency events include such things as law enforcement, search and rescue, floods and fire fighting.

Caribou Subsection Management Prescriptions

There are twelve management prescription areas designated in the Caribou Subsection. For additional information on the goals, objectives, standards, and guidelines for each management prescription area refer to Revised Forest Plan (RFP) 4-16 to 4-82.

Table 2.2-1: Caribou Subsection Management Prescription

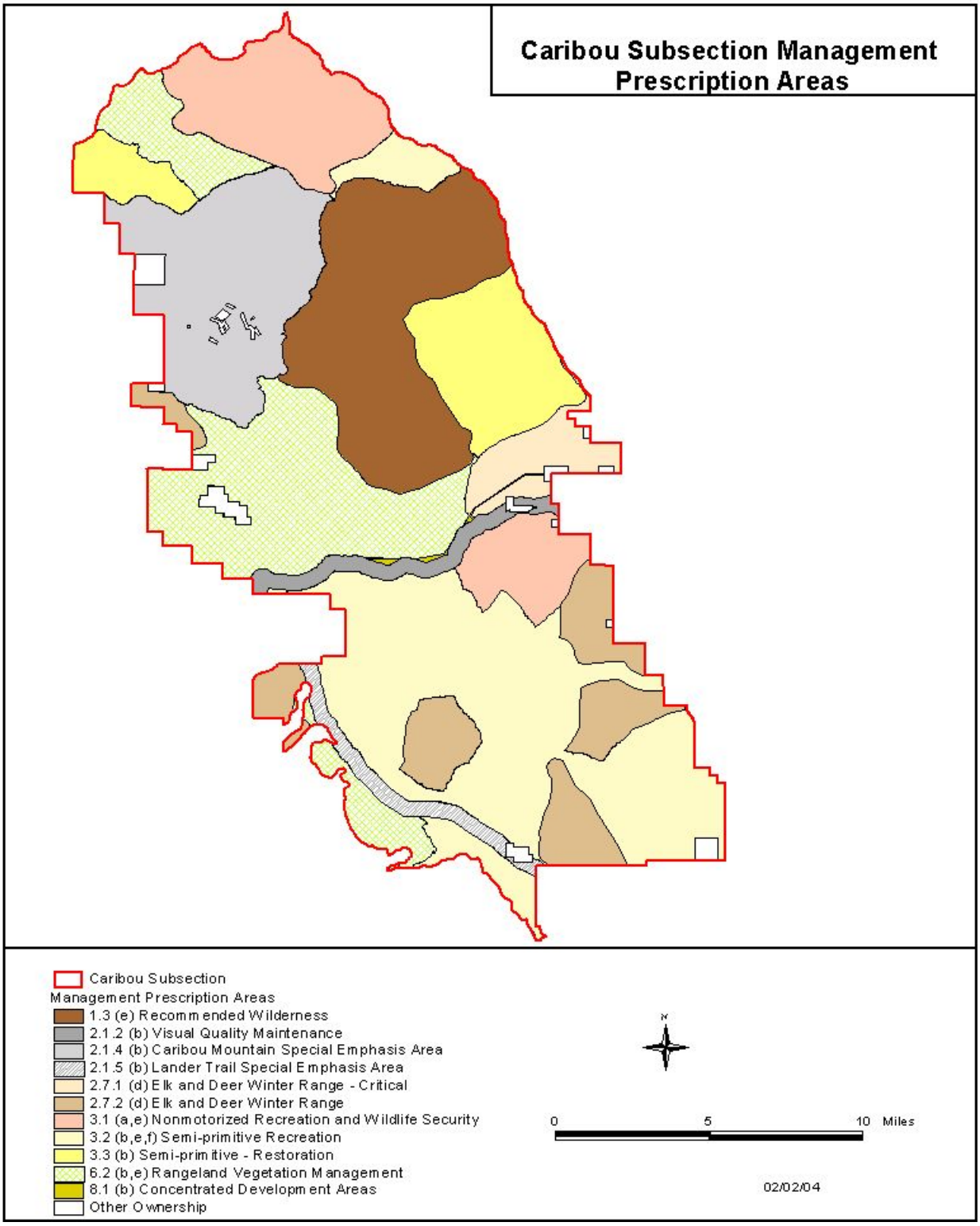
Name Prescription	Prescriptions	Acres	Wildland Fire Use	Prescribed Fire
Recommended Wilderness	1.3 (e)	29,187	Yes[1]	Yes
Visual Quality Maintenance	2.1.2 (b)	3,537	Yes	Yes
Caribou Mountain Special Emphasis	2.1.4 (b)	22,867	Yes	Yes
Lander Trail Special Emphasis Area	2.1.5 (b)	3,149	Yes	Yes
Elk and Deer Winter Range Critical	2.7.1 (d)	5,620	Yes	Yes
Elk and Deer Winter Range	2.7.2 (d)	16,801	Yes	Yes
Aquatic Influence Zone	2.8.3	NA	Yes	Yes
Nonmotorized Recreation and Wildlife Security	3.1 (a/e)	21,079	Yes	Yes
Semi-Primitive Recreation	3.2 (b/e/f)	47,703	Yes	Yes
Semi-Primitive Restoration[3]	3.3 (b)	16,585	Yes	Yes
Rangeland Vegetation Management	6.2 (b/e)	33,342	Yes	Yes
Concentrated Development Area	8.1 (b)	247	No[2]	Yes
Private Land	Private	2,339	NA	NA
State	State	617	NA	NA
Total Acres		**203,073**		

[1] A **yes** designation in either the Wildland Fire Use column or Prescribed Fire Column indicates that particular management activity is permitted within the given management prescription.

[2] A **no** designation in either the Wildland Fire Use column or Prescribed Fire Column indicates that particular management activity is not permitted within the given management prescription.

[3] Allowing Wildland Fire Use is a priority for the Semi-Primitive Restoration prescription.

Figure 2.2-1: Caribou Prescription Areas.



Webster Subsection Management Prescriptions

There are fourteen management prescription areas designated in the Webster Subsection. For additional information on the goals, objectives, standards, and guidelines for each management prescription area refer to Revised Forest Plan (RFP) 4-16 to 4-82.

Table 2.2-2: Webster Subsection Management Prescriptions

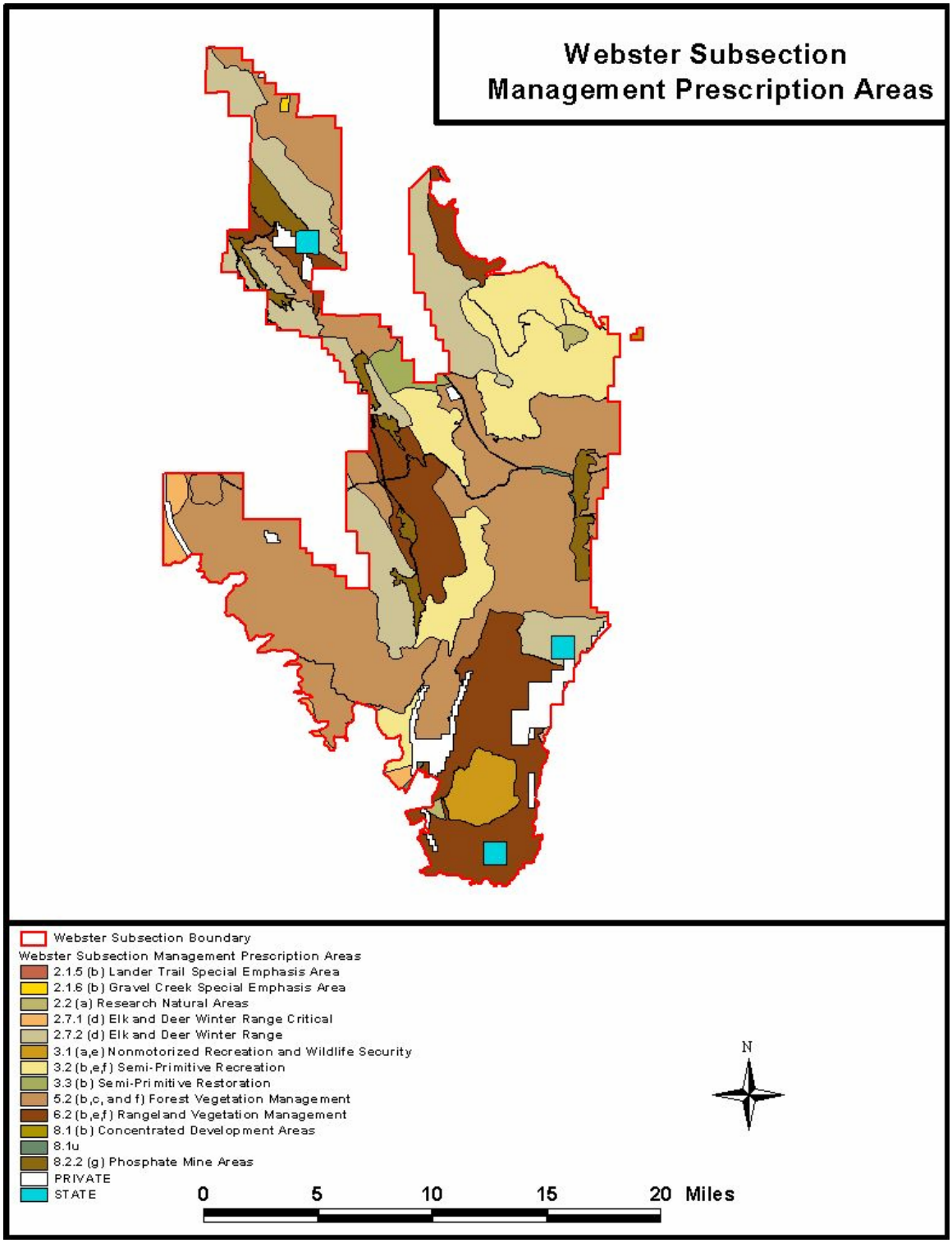
Name Prescription	Prescriptions	Acres	Wildland Fire Use	Prescribed Fire
Lander Trail Special Emphasis Area	2.1.5	73	Yes	Yes
Gravel Creek Special Emphasis Area	2.1.6	157	Yes	Yes
Research Natural Areas	2.2 (a)	850	Yes[1]	Yes
Visual Quality Maintenance	2.1.2 (b)	1597	Yes	Yes
Wild and Scenic – Eligible Recreation River	2.5 (b)	778	Yes	Yes
Elk and Deer Winter Range Critical	2.7.1 (d)	2,429	Yes	Yes
Elk and Deer Winter Range	2.7.2 (d)	33,306	Yes	Yes
Nonmotorized Recreation and Wildlife Security	3.1 (a/e)	4,975	Yes	Yes
Semi-Primitive Recreation	3.2 (b/e/f)	31,756	Yes	Yes
Semi-Primitive Restoration[3]	3.3 (b)	2,134	Yes	Yes
Rangeland Vegetation Management	6.2 (b/e)	36,378	Yes	Yes
Concentrated Development Area	8.1 (b)	128	No[2]	Yes
Forest Vegetation Management	5.2 (b,c,f)	83,497	No[2]	Yes
Phosphate Mine Areas	8.2.2 (g)	7,878	No[2]	Yes
Private Land	Private	7,494	NA	NA
State	State	1,912	NA	NA
Total Acres		**213,918**		

[1] A **yes** designation in either the Wildland Fire Use column or Prescribed Fire Column indicates that particular management activity is permitted within the given management prescription.

[2] A **no** designation in either the Wildland Fire Use column or Prescribed Fire Column indicates that particular management activity is not permitted within the given management prescription.

[3] Allowing Wildland Fire Use is a priority for the Semi-Primitive Restoration prescription.

Figure 2.2-2: Webster Prescription Areas



Preuss Subsection Management Prescriptions

There are twelve management prescription areas designated in the Preuss Subsection. For additional information on the goals, objectives, standards, and guidelines for each management prescription area refer to Revised Forest Plan (RFP) 4-16 to 4-82.

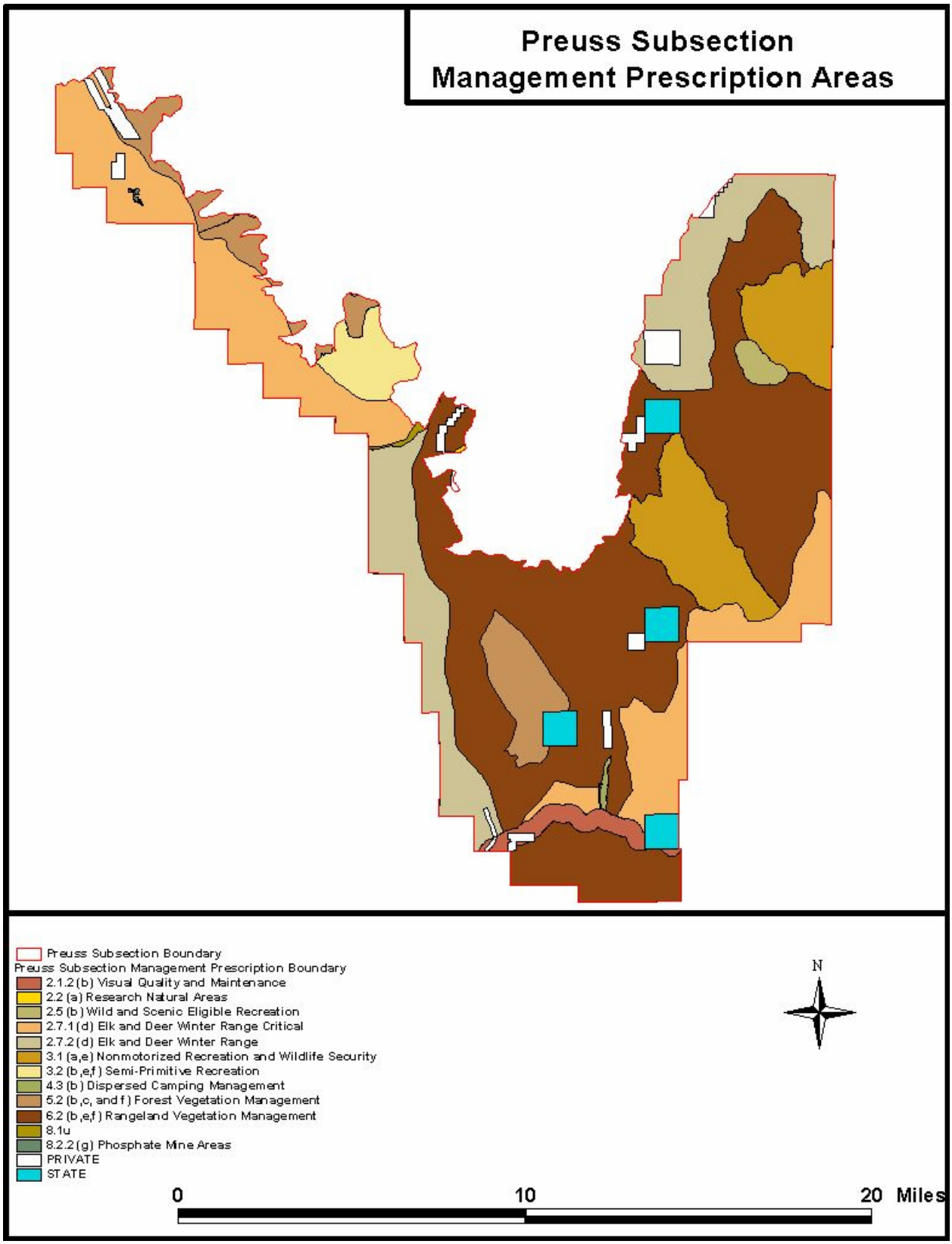
Table 2.2-3: Preuss Subsection Management Prescriptions

Name Prescription	Prescriptions	Acres	Wildland Fire Use	Prescribed Fire
Research Natural Areas	2.2 (a)	29	Yes[1]	Yes
Visual Quality Maintenance	2.1.2 (b)	1597	Yes	Yes
Wild and Scenic – Eligible Recreation River	2.5 (b)	778	Yes	Yes
Elk and Deer Winter Range Critical	2.7.1 (d)	21,192	Yes	Yes
Elk and Deer Winter Range	2.7.2 (d)	16,052	Yes	Yes
Dispersed Camping Management	4.3 (b)	163	Yes	Yes
Nonmotorized Recreation and Wildlife Security	3.1 (a/e)	11,244	Yes	Yes
Semi-Primitive Recreation	3.2 (b/e/f)	2,800	Yes	Yes
Rangeland Vegetation Management	6.2 (b/e)	47,423	Yes	Yes
Concentrated Development Area	8.1 (b)	149	No[2]	Yes
Forest Vegetation Management	5.2 (b,c,f)	6,892	No[2]	Yes
Phosphate Mine Areas	8.2.2 (g)	35	No[2]	Yes
Private Land	Private	2,588	NA	NA
State	State	2,520	NA	NA
Total Acres		**113,464**		

[1] A **yes** designation in either the Wildland Fire Use column or Prescribed Fire Column indicates that particular management activity is permitted within the given management prescription.

[2] A **no** designation in either the Wildland Fire Use column or Prescribed Fire Column indicates that particular management activity is not permitted within the given management prescription.

Figure 2.2-3: Preuss Prescription Areas



2.3 Air Quality

Air quality within the local area is excellent with very limited local emission sources and consistent wind dispersion. Existing sources of emissions in the local area include mining equipment, vehicles, farm equipment, road dust, and residential wood burning. Emissions are very limited with no local visible sources of impairment. Wind dispersion throughout the entire area is robust, with no local visible inversions or localized concentrations of emissions. For additional information on current air quality, please refer to the state of Idaho, Department of Environmental Quality website (http://www2.state.id.us/deq/).

Caribou Subsection

The Caribou Subsection is within Montana/Idaho airshed number 20. The nearest non-attainment area is Pocatello, Idaho for PM_{10} (~52 miles to the west). The Subsection is approximately 36 miles southwest of Grand Teton National Park and 63 miles west of Bridger Wilderness area. Local sensitive receptors near the Subsection are the communities of Wayan Idaho, Alpine, Thayne, and Afton Wyoming.

A portion of the Caribou Subsection is in the State of Wyoming. The monitoring unit for Wyoming portions of the subsections will be the Wyoming Department of Environmental Quality, Division of Air Quality (WDEQ/AQD). *Currently, permits are not required for WFU*. Air quality standards for Wyoming are PM 2.5 and will be monitored by WDEQ/AQD.

Webster Subsection

The Webster Subsection is within Montana/Idaho airshed number 20. The nearest non-attainment area is Pocatello, Idaho for PM_{10} (~42 miles to the west). The Subsection is approximately 50 miles southwest of Grand Teton National Park and 64 miles west of Bridger Wilderness area. Local sensitive receptors near the Subsection are the communities of Wayan, and Soda Springs, Alpine, Thayne, and Afton Wyoming.

Preuss Subsection

The Preuss Subsection is within Montana/Idaho airshed number 20. The nearest non-attainment area is Pocatello, Idaho for PM_{10} (~52 miles to the west). The Subsection is approximately 69 miles southwest of Grand Teton National Park and 67 miles west of Bridger Wilderness area. Local sensitive receptors near the Subsection are the communities of Soda Springs, Montpelier, Bennington, and Afton Wyoming.

2.3.2 Guidelines

The Federal Wildland and Prescribed Fire Management Policy requires federal land managers to decide 8 hours after the confirmed fire detection and Strategic Fire Size-up has been completed whether to manage the fire for resource benefit or suppress the fire (USDI and USDA, 2005). This decision is based on many factors including the potential for unacceptable smoke impacts.

Montana and Idaho federal land managers, and the two state DEQs developed a four-level air quality restriction system to assist fire managers in the decision-making process (refer to Table 2.3-1). The federal land manager's sponsor a meteorologist who determines the threshold level on a daily basis based on fire activity, weather forecasts, and air quality data. A recommendation to suppress any new fires may be made at level three ("Warning") or four ("Alert").

Table 2.3-1: Suggested Air Quality Restriction Levels for Wildland Fire Use.

Level	24-Hour $PM_{2.5}$ (ug/m3)[1]	Description
I	0-15	Current air quality is "**GOOD.**" No restrictions to wildland fire use based on air quality information.
II	15-40	Air quality "**WATCH**": Current air quality is MODERATE. No restrictions to wildland fire use based on air quality information, but a closer watch on conditions by the Smoke Monitoring Unit of the Montana/Idaho Airshed Group. If conditions worsen, burners may be restricted by geographic region or airshed in Montana and/or Idaho.
III	40-65	Air quality "**WARNING**": Current air quality is UNHEALTHY FOR SENSITIVE GROUPS and conditions are worsening or expected to persist. Depending on season and conditions, future Wildland Fire Use may be restricted due to air quality concerns. Burners should consider reducing smoke impacts by limiting future Wildland Fire Use through their two-hour go/no-go decisions. Formal restrictions may occur at Air Quality Restriction Level IV.
IV	>65	Air quality "**ALERT**": Current air quality is UNHEALTHY, and conditions are worsening or expected to persist. Future Wildland Fire Use ignitions will likely be restricted due to air quality concerns. An "Air Quality Coordinating Committee" composed of the Smoke Monitoring Unit, MT and ID-DEQ, R-1 and R-4 FS, and others (BLM, NPS, etc.) will interface with existing fire coordination centers and infrastructure on daily air quality restrictions and direction. Final decisions on air quality restrictions are always retained with the state air regulatory agencies. At this level, the process has to address the two-hour go/no-go decision timeframe required for WFU.

[1] When the main source of particulate matter is from fire, $PM_{2.5}$ may be estimated from PM_{10} by assuming the $PM_{2.5}$ is 80% of the PM_{10}. The air quality levels correspond to the EPA's Air Quality Index for 24-hour $PM_{2.5}$. Shorter-term air quality levels, such as one-hour and eight-hour average concentrations and visibility observations, will also be used to determine the air quality levels and restrictions.

2.4 Fisheries

The Caribou Subsection, the Webster Subsection and the Preuss Subsection all contain numerous waters that provide habitat for fish, amphibians, and other aquatic life.

Fish species present in these subsections include Bonneville cutthroat trout(*Oncorhynchus clarki utah),*Yellowstone cutthroat trout (*Oncorhynchus clarki bouvieri*), Rainbow trout (*Oncorhynchus mykiss*), brook trout (*Salvelinus fontinalis*), brown trout (*Salmo trutta*), mottled sculpin (*Cottus bairdi*), Piute sculpin (*C. beldingi*), speckled dace (*Rhinichthys osculus*), longnose dace (*R. cataractae*), redside shiner (*Richardsonius balteatus*), mountain sucker (*Catostomus platyrhynchus*), Utah sucker (*C. ardens*), mountain whitefish (*Prosopium williamsoni*), and leatherside chub (*Gila copei*).

Of particular interest is the Yellowstone and Bonneville cutthroat trout, a species classified in Region 4 as Sensitive. Isolated populations of this species may be at extreme risk of permanent loss from high intensity/severity fires. Such fires may elevate stream temperatures to lethal levels and, when followed by heavy precipitation, may result in the introduction of sediment and ash to streams in toxic quantities. Large complexes of metapopulations of Yellowstone and Bonneville cutthroat trout (those populations connected to others and exchanging individuals through migration) are at low risk of permanent loss except from high intensity/severity fires that cover a large geographic area.

Based on the presence of isolated populations, or a low number of connected populations, of Yellowstone cutthroat trout some areas of high risk of permanent population loss from fires if high in intensity/severity exist will be identified by the zone fisheries biologist who will then recommend the appropriate response action to be taken.

Based on the presence of large metapopulation complexes of Yellowstone and Bonneville cutthroat trout, some areas are at low risk of permanent population loss from fires. Although short-term negative impacts would result from fires in these areas, those effects would be outweighed by the long-term habitat improvements and population increases fires would produce by restoring natural processes.

Yellowstone and Bonneville cutthroat trout populations are at risk of loss or depression due to potential introduction of nonnative fish species and diseases when water is transferred between drainages during fire suppression efforts. Of greatest concern is the introduction of brook trout and whirling disease into areas where they do not presently occur. Special precautions will need to be implemented when dealing with the areas that contain brook trout and whirling disease to ensure that these threats are not introduced into uninfected areas.

Amphibians present or likely to occur in the Caribou, Webster, and Preuss Subsections include the Great Basin spadefoot toad (*Spea intermontanus*), western (boreal) toad (*Bufo boreas*), boreal chorus frog (*Pseudacris triseriata maculata*), northern leopard frog (*Rana pipiens*), and tiger salamander (*Ambystoma tigrinum*). Of particular interest is the boreal toad, which appears to be declining in much of its historic range. Fires could eliminate rare populations of this species.

2.4.1 Guidelines

Restoration and protection of Yellowstone and Bonneville cutthroat trout strongholds is a management emphasis for the Caribou Subsection, the Webster Subsection and the Preuss Subsection in the Revised Forest Plan (RFP). The following are recommendations for the fisheries resource:

- Fire management should occur in a manner that is not likely to result in permanent loss of any Yellowstone cutthroat trout population or boreal toad population.

- A fisheries biologist should be contacted when an incident occurs in drainages where Yellowstone Cutthroat exist.
- Fire use and management should occur in a manner that will maintain or achieve desired future conditions of all Aquatic Influence Zones (AIZs), prevent water temperatures excessive for fish, and prevent the introduction of potentially lethal quantities of ash and sediment into streams. In cases where this recommendation cannot be fully met, post-fire mitigation should be performed to the extent needed for long-term fish habitat and fish population restoration.

- Water for fire suppression efforts should not be transferred from areas with brook trout to areas without brook trout, or between waters within areas with brook trout, unless it is screened to prevent incidental fish movement. There is no acceptable mitigation for movement of brook trout to new waters.

- Water for fire suppression efforts should not be transferred from areas with whirling disease to areas without whirling disease unless it is effectively treated with chlorine to kill the parasite. There is no acceptable mitigation for movement of whirling disease into new areas.

- To protect fish and amphibians, fire retardant should not be dumped over live water. This includes perennial streams, flowing intermittent streams, springs, seeps, bogs, and other wet areas. Fire retardants may be toxic to aquatic organisms. An effort should be made to apply retardant outside AIZs to the extent possible, rather than inside AIZs. If an application of retardant into a stream occurs and results in a fish kill, post-fire mitigation should be performed for long-term restoration of the fish population.

2.4.2 RFP Direction

The overarching goal of the RFP is to restore native ecosystems to a healthy, resilient state using a combination of active management activities and natural processes. Management direction is improved to maintain or restore riparian vegetation, channel stability and function, and other aquatic resources. New standards and guidelines are established for riparian and aquatic areas, which provide for the protection of these resources and dependent species. Restoration of ecological systems is a key component of maintaining the viability of native and desired nonnative species. One management emphasis is restoration of Yellowstone cutthroat trout (*Oncorhynchus clarki lewisi*) (YCT) stronghold populations (i.e. populations in streams where that species is predominant).

Riparian-dependent species like YCT and amphibians receive primary emphasis within AIZs surrounding streams, ponds, lakes, reservoirs, and wetlands (wet meadows, springs, seeps, bogs, etc.). Aquatic Influence Zone management direction overrides direction from other management areas overlapping. Default AIZ widths are listed in the RFP 4-45 to 4-46.

Fire size can be constrained by Forest Plan Guideline #1 under the Watershed and Riparian Resources section of Biological Elements (RFP pg 3-16). This guideline requires that no more than 30% of a Hydrologic Unit Code 6 (HUC-6) or Project Work Inventory (PWI) watershed be in a hydrologically disturbed condition at any one time. Hydrologically disturbed condition is defined as change in natural canopy cover such as canopy removal or change in surface soil characteristics.

2.5 Grazing Allotments

Caribou Subsection

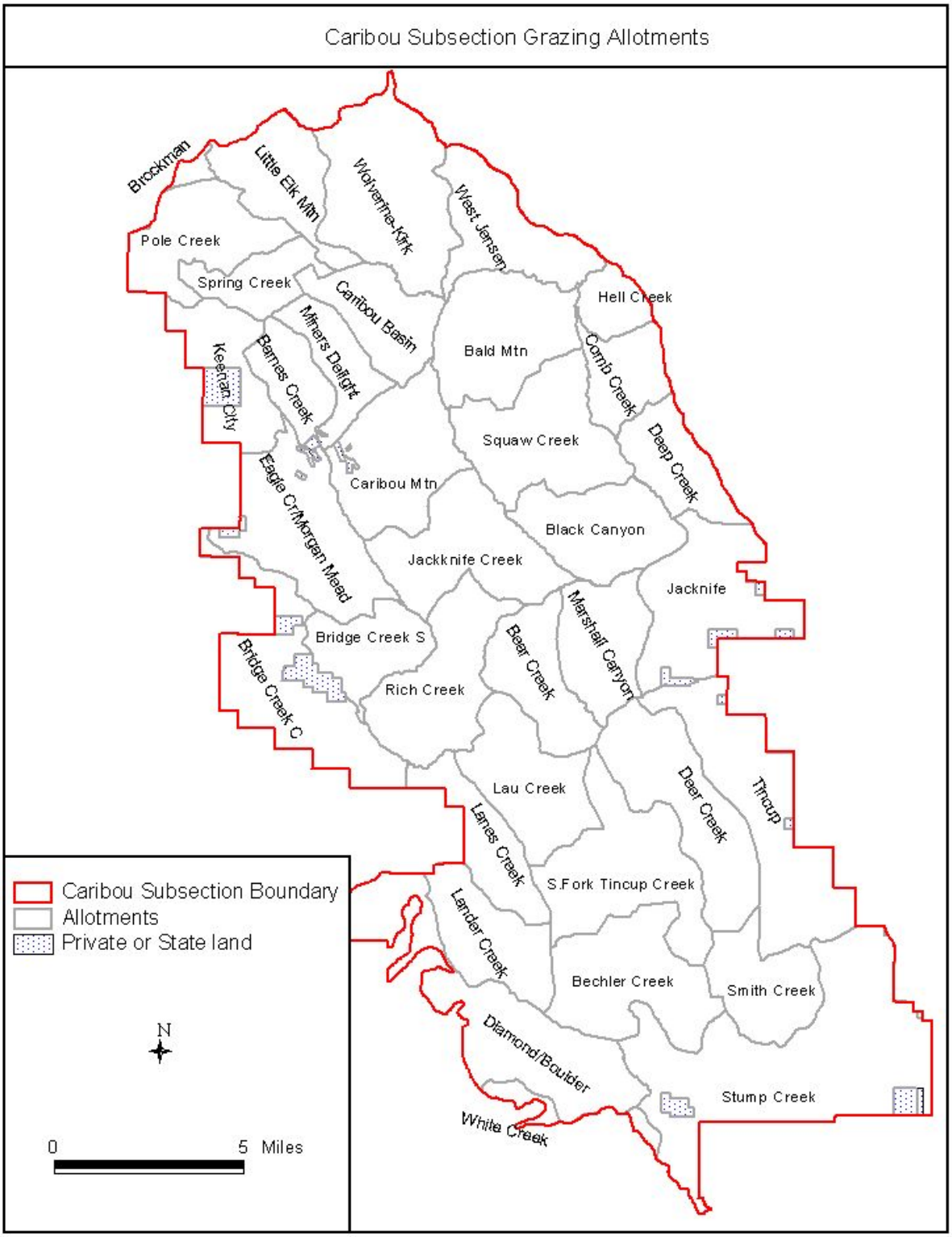
There are currently thirty-six active allotments entirely or partially within the Caribou subsection. Information regarding individual grazing allotments is summarized and displayed in Table 2.5-1 and Figure 2.5-1

Table 2.5-1: Grazing Allotments

Allotment Name	Permittee Name	Acres	Allotment Type	Season of Use
Barnes Creek	Ball Brother Sheep Co.	2,747	Sheep	7/1-9/15
Bridge Creek Sheep	Ball Brother Sheep Co.	3,678	Sheep	9/15-9/30
Eagle Creek/Morgan Meadow	Ball Brother Sheep Co.	7,608	Sheep	7/1-9/15
Keenan City	Ball Brother Sheep Co.	3,993	Sheep	7/1-9/15
Miners Delight	Ball Brother Sheep Co.	2,973	Sheep	7/1-9/15
Spring Creek	Ball Brother Sheep Co.	2,717	Sheep	7/1-9/15
West Jensen	Ball Brother Sheep Co.	5,281	Sheep	6/21-9/15
White Creek	Ball Brother Sheep Co.	987	Sheep	7/1-9/15
Battle Creek Cattle	Phillip and Judy Geddes	7,289	Cattle	6/11-9/30
	Ken O' Brien			
	Russell Sibbett			
Bald Mountain	Charles Dansie	6,706	Sheep	7/1-9/15
Caribou Basin	H. Porter Christensen & Son Partnership	4,199	Cattle	6/11-9/30
	Bernard Lindstrom			
	Varden Lindstrom			
Bechler Creek	Etcheverry Sheep Co.	7,249	Sheep	7/1-8/30
Deer Creek	Etcheverry Sheep Co.	7,292	Sheep	7/1-9/15
Smith Creek	Etcheverry Sheep Co.	4,383	Sheep	7/-8/30
South Fork Tincup Creek	Etcheverry Sheep Co.	8,096	Sheep	7/1-9/15
Jacknife	Fred D. Brog	7,217	Cattle	6/6-10/10
	Bryce Erikson			
	Hal R. Heiner			
	LaDell Heiner			
	Eldon Luthi Estate			
	Reed Luthi Family			
	Max Sanderson			
	Rex Spackman			
	J.P. Robison			
Boulder/Diamond Creek	Mays Land & Livestock Inc.	9,511	Sheep	7/1-9/10
Deep Creek	Mays Land & Livestock Inc.	3,692	Sheep	7/1-9/10
Lander Creek	David D. Morris	4,645	Sheep	7/1-9/15
Lanes Creek	David D. Morris	3,671	Sheep	7/1-9/15
Black Canyon	Rose Oxarango	5,404	Sheep	6/25-9/10
Comb Creek	Rose Oxarango	3,084	Sheep	6/26-8/31

Allotment Name	Permittee Name	Acres	Allotment Type	Season of Use
Hell Creek	Rose Oxarango	1,791	Sheep	6/26-8/31
Squaw Creek	Rose Oxarango	7,177	Sheep	6/26-8/31
Wolverine-Kirk	Rose Oxarango	8,983	Sheep	6/25-9/10
Little Elk Mountain	Karen Phillips	4,560	Sheep	7/1-8/31
Bear Creek	Rich Livestock Co.	4,401	Sheep	7/1-9/20
Caribou Mountain	Rich Livestock Co.	6,637	Sheep	7/1-9/20
Jackknife Creek	Rich Livestock Co.	6,842	Sheep	7/1-9/20
Lau Creek	Rich Livestock Co.	5,770	Sheep	7/1-9/20
Marshall Canyon	Rich Livestock Co.	4,610	Sheep	7/1-9/20
Rich Creek	Rich Livestock Co.	6,496	Sheep	7/1-9/20
Tincup	Ralph Haderlie	8,886	Cattle	6/6-10/10
	Jasperson Ranch			
	Chad and Farrel Jenkins			
	Kendall Jenkins			
	Larry Jenkins			
	Robert K. Jenkins			
	Mark S. Larsen			
	Rex B. Weber			
	Star Valley Cattlemen's Ass.			
Stump Creek	Rick & Toni Earling	15,977	Cattle	6/6-9/30
	Clyde Bagley			
	Kenneth Hokanson			
	Lynn R. Johnson			
	Wendell O'Keefe			
	Clyde Lancaster			
	Neil Schoenenberger			
	Stumpp Ranch Corp.			
	Hartman Ranch LLC			
	Ken Wixom			
	Hampton Ford Properties			
Pole Creek		5,130	Sheep	7/1-8/31
Brockman Sheep & Goat		429	Sheep	7/1-9/20

Figure 2.5-1: Caribou Grazing Allotments.



Webster Subsection

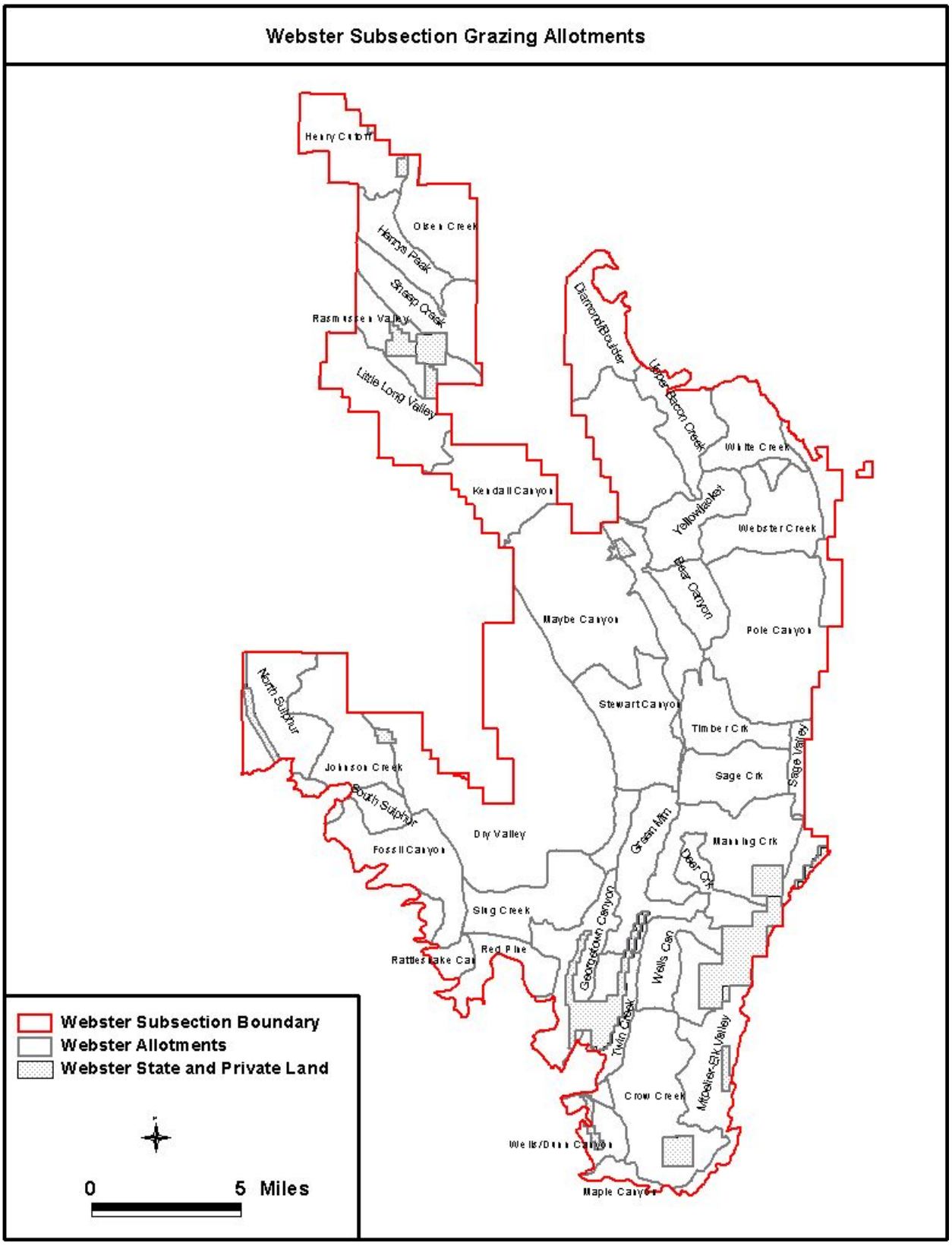
There are currently thirty-four active allotments entirely or partially within the Webster subsection. Information regarding individual grazing allotments is summarized in Table 2.5-2: and displayed in Figure 2.5-2: Webster Grazing Allotments.

Table 2.5-2: Webster Grazing Allotments

Allotment Name	Permittee Name	Acres	Allotment Type	Season of Use
Henry Cutoff	Mays Land & Livestock, Inc.	4,586	Sheep	10 days spring/fall
Olsen Creek	Jouglard Sheep Co./Alicia Dredge	4,607	Sheep	7/1-9/5
Henrys Peak	Jouglard Sheep Co./Alicia Dredge	2,939	Sheep	7/1-9/5
Sheep Creek	Jouglard Sheep Co./Alicia Dredge	4,305	Sheep	7/1-9/5
Rassmussen Valley	Minaberri Family Trust	2,127	Sheep	No Use
Rassmussen Valley	Barthlome Family Trust	2,127	Cattle	6/11-9/30
	Sagwich Land and Livestock			
Kendall Canyon	Minaberri Family Trust	5,254	Sheep	6/25-9/15
Diamond Boulder	Mays Land & Livestock, Inc.	14,721	Sheep	7/1-7/9
Upper Bacon	Ball Brother Sheep Co.	4,421	Sheep	7/1-9/15
White Creek	Ball Brother Sheep Co.	4,261	Sheep	7/1-9/15
Yellow Jacket	Minaberri Family Trust	3,987	Sheep	7/1-8/30
Webster Creek	Vacant			
Bear Canyon	Minaberri Family Trust	2,789	Sheep	7/1-8/30
Maybe	Jouglard Sheep Co./Alicia Dredge	11,856	Sheep	6/21-9/15
Pole Canyon	Dennis Hunzeker & Sons	12,060	Sheep	7/1-9/12
Stewart	Jouglard Sheep Co./Alicia Dredge	6,476	Sheep	7/6-9/10
Timber Creek	Minaberri Family Trust	3,832	Sheep	7/1-8/30
Sage Creek	Minaberri Family Trust	4,164	Sheep	7/1-8/30
Sage Valley	Fred or Diane Nate	1,108	Cattle	6/1-9/30
Dry Valley	Keith Bitton	23,716	Cattle	6/6-9/20
	Thomas L. Blotter			
	Joan Hulme			
	Matt & Mary Jensen			
	J.R. Ream Ranch			
	John R. Stucki			
North Sulpher	Jouglard Sheep Co./ Alicia Dredge	1,516	Sheep	6/16-9/5
Johnson Creek	Jouglard Sheep Co./Alicia Dredge	5,461	Sheep	6/16-9/5
South Sulpher	Robert & Rochelle Oxarango Lamb & Wool	4,149	Sheep	6/16-8/31
Fossil Canyon	Rose Oxarango	9,152	Sheep	6/16-9/15
Slug Creek	Jouglard Sheep Co./Alicia Dredge	5,175	Sheep	6/16-9/20
Rattlesnake Canyon	Jerry L. Beus	5,209	Sheep	6/16/-9/15
Red Pine	Jerry L. Beus	7,062	Sheep	6/16/-9/15
Green Mountain	Jouglard Sheep Co./Alicia Dredge	6,034	Sheep	7/6-9/10
Manning Creek	Peart Ranch	7,039	Sheep	7/1-9/15
Deer Creek	Peart Ranch	2,144	Sheep	7/5-9/20

Allotment Name	Permittee Name	Acres	Allotment Type	Season of Use
Montpelier Elk Valley	Carl or Pat Jorgensen	76,186	Cattle	6/16-9/25
	Jean C. or Lynn C.			
	Paul or Glenda Keetch			
	Arlo Miller			
	Fred or Diane Nate			
	Paul or Michelle Nelson			
	O. Scott or Janet Nelson			
	Roberts Land & Livestock			
	Marvin D. or Valerie Robertson			
	C. Darrell Smedley			
	Daryl Sparks			
	Monte G. Weston			
	Lanny K. or Sheryl Weston			
	Caribou-Cattleman's Association			
Wells Canyon	Vacant			
Maple Canyon	Kent Crane	3,871	Cattle	6/16-9/15
Diamond Creek	Lynn Rasmussen	3,374	Cattle	6/11-10/10
Salt Lick Creek	Gleno Draney & Sons	1,126	Cattle	6/6-9/1
	Gregg Draney			

Figure 2.5-2: Webster Grazing Allotments



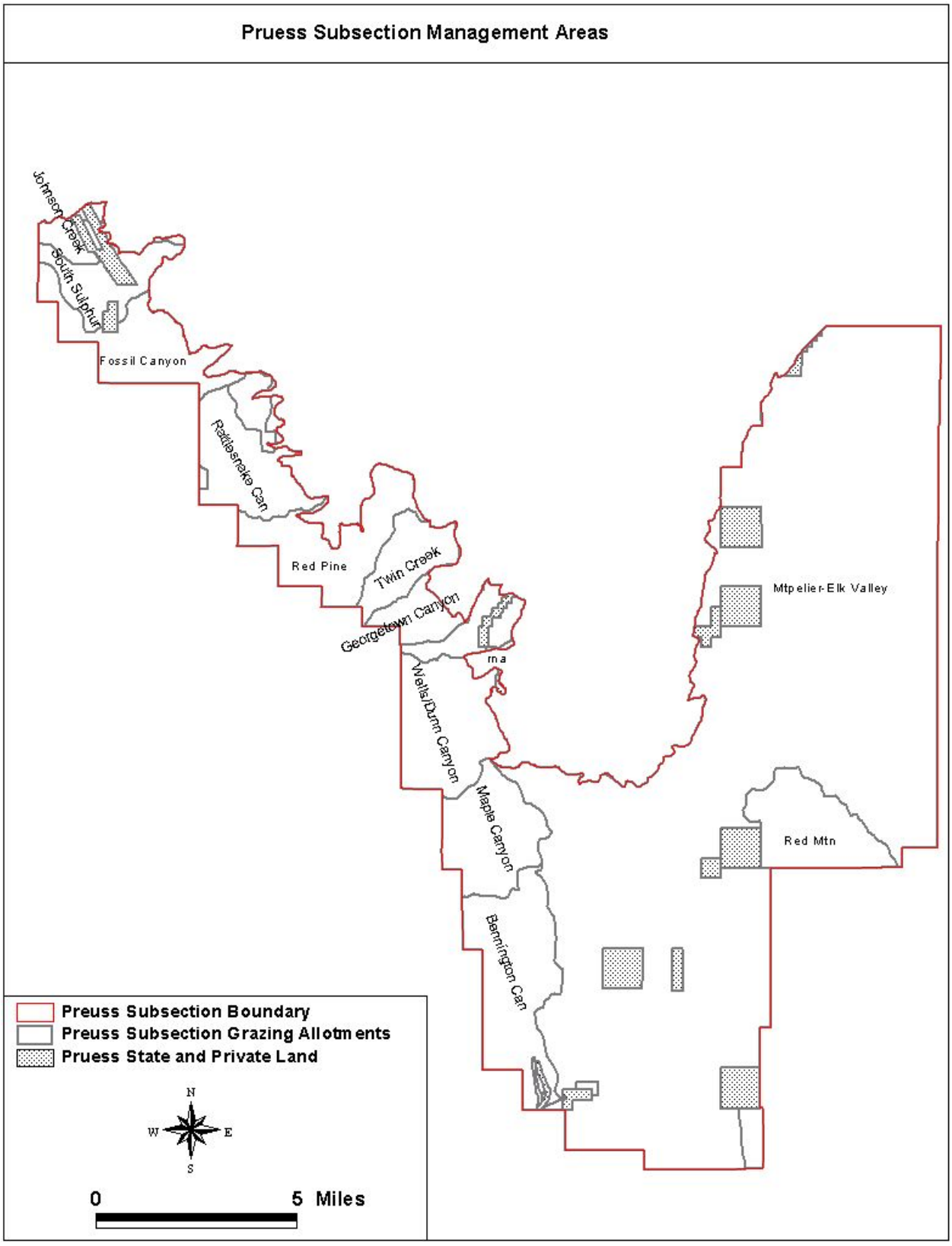
Preuss Subsection

There are currently eleven active allotments entirely or partially within the Preuss subsection. Information regarding individual grazing allotments is summarized in Table 2.5-3 and displayed in Figure 2.5-3.

Table 2.5-3: Preuss Grazing Allotments

Allotment Name	Permittee Name	Acres	Allotment Type	Season of Use
Johnson Creek	Jouglard Sheep Co./Alicia Dredge	5,461	Sheep	7/6-9/10
South Sulpher	Robert & Rochelle Oxarango Lamb & Wool	4,149	Sheep	6/16-8/31
Fossil Canyon	Rose Oxarango	9,152	Sheep	6/16-9/15
Rattlesnake Canyon	Jerry L. Beus	5,209	Sheep	6/16/-9/15
Red Pine	Jerry L. Beus	7,062	Sheep	6/16/-9/15
Dunns Canyon	Dennis Hunzeker & Sons	6,257	Sheep	6/16-8/31
Wells Canyon	Vacant		Sheep	No Use
Maple Canyon	Maple Canyon Grazing Ass.	3,871	Cattle	6/16-9/15
Bennington Canyon	Dennis Hunzeker & Sons	5,698	Sheep	7/1-9/12
Montpelier Elk Valley	Carl or Pat Jorgensen	76,186	Cattle	6/16-9/25
	Jean C. or Lynn C.			
	Paul or Glenda Keetch			
	Arlo Miller			
	Fred or Diane Nate			
	Paul or Michelle Nelson			
	O. Scott or Janet Nelson			
	Roberts Land & Livestock			
	Marvin D. or Valerie Robertson			
	C. Darrell Smedley			
	Daryl Sparks			
	Monte G. Weston			
	Lanny K. or Sheryl Weston			
	Caribou-Cattleman's Association			
Red Mountain	Leon Jauregi	3,758	Sheep	5/21-9/15

Figure 2.5-3: Preuss Grazing Allotments



2.5.2 Guidelines

- Range Permitees must be notified when Stage I has been initiated for a Wildland Fire Use Incident. The development of the Maximum Manageable Area for Fire Use projects during Stage III would consider the impacts to permittees/livestock.

2.5.3 RFP Direction

Grazing Management Forest Plan standards [S] and guidelines [G] (CNF RFP S&Gs) are found on pages {3-42 to 43}. The following is the standard that needs to be considered in fire use planning.

- Livestock grazing shall be restricted following prescribed or natural fire and/or rangeland planting or seeding before seed set of the second growing season, or until the objectives of the treatment are achieved.

2.6 Heritage Resources

Heritage resources, like other resources, must be managed in such a way that the resource is not degraded. Where possible and considering firefighter safety, cultural resources should be avoided and/or protected from wildfire and tactical holding actions. If suppression efforts may create significant ground disturbance in the vicinity of known or suspected heritage resources, the Forest Archaeologist should be notified.

The following guidelines apply only to wildland fire use treatments. Post-fire rehabilitation treatments involving ground disturbing activities will require separate consultation and may, depending on previous survey coverage, require archaeological inventory.

2.6.1 Guidelines

- Consult Fire Management Plan, archaeological database and Forest Archaeological Site Atlas located at the appropriate District Office. In the event of a Fire Use event, the FUMA will consult the Fire Use Guidebook, archaeological database, and Forest Archaeological Site Atlas for a listing of heritage resource sites that could occur within or adjacent to the allowable burn area. Site lists will be updated as necessary. Current efforts are underway to update site atlases located at each District office. Upon completion of this endeavor, the district atlases will be available for use in preparation of the Wildland Fire Implementation Plan.

- Contacting Archaeologist: If known heritage resource sites are located within or adjacent to the allowable burn area, contact the Forest Archaeologist to help determine protection strategy.

- Wildland Fire Implementation Plans will identify heritage resource sites within and adjacent to the allowable burn areas. Potential tactics that could be used to protect sites include: burnout and backing fires to produce safe black line around a site, use of trails and natural

features to herd or shift the fire away from sites, water and/or bucket drops, scratch lines, and possible wet line and foam applications.

- Wildland fire personnel: Assure that burn personnel are briefed on the strategy and specific techniques to be used to protect heritage resources.

- Escaped Fire: Should the fire leave prescription and warrant suppression, an appropriate management response will be initiated. Contact the Forest Archaeologist to help develop a response strategy when heritage resources are threatened.

Follow-up Studies: The Caribou-Targhee National Forest is currently lacking information regarding the effects of fire and firefighting procedures on heritage resources within its jurisdiction. The activities proposed in the guidebook offer an opportunity to study such effects for better management of the resource in the future. It is therefore recommended that follow up studies involving current archaeological survey and testing techniques, along with quantitative analysis of the results, be included in post-fire treatments.

2.7 Hydrology

2.7.1 Guidelines

The streams in Table 2.7-1 have been classified as 303(d) or under a TMDL(Total Maximum Daily Load), which means they are not meeting their beneficial uses as identified by IDEQ. The Forest follows the "zero tolerance" set in law on addition of a pollutant (cause) from management activities. A WFU event within 300' of potentially fish-bearing sections of streams in the below table, or 150' of perennial, but non fish-bearing sections and tributaries, or 50 feet of intermittent tributaries has the potential to add a pollutant. To be an intermittent stream, there must be a visible, defined channel. Fires within these widths should involve consultation with a hydrologist. An official list of 303(d) streams is updated about every two years.

Table 2.7-1: Draft List of 303(d) and TMDL Streams (as of June, 2003)

Stream	Trunk Stream	Subsection	Cause
Cabin Cr	Jacknife Cr	Caribou	S
Chicken Cr	Tincup Cr	Caribou	U
Luthi Cyn	Tincup Cr	Caribou	U
Stump Cr	Salt R (in Wyo)	Caribou	U
White Cyn	Stump Cr	Caribou	S
Dry Creek	Thomas Fork	Preuss	S, N
Snowslide Canyon	Montpelier Cr	Preuss	S
Blackfoot River	Snake River	Webster	S,N
Slug Cr	Blackfoot River	Webster	S
Angus Cr	Blackfoot River	Webster	S
Dry Valley Cr	Blackfoot River	Webster	S
Diamond Cr	Blackfoot River	Webster	S
Lanes Cr	Blackfoot River	Webster	S
Sheep Cr	Lanes Creek	Webster	S
Maybe Cr	Dry Valley Cr	Webster	U
Boulder Cr	Stump Creek	Webster	U

CB = Cold Water Biota; SS = Salmonid Spawning; B = Bacteria; N = Nutrients;
S = Sediment; U = Unknown or as yet undetermined.

As of 2003, draft 303d streams are available as a map database on the web from the link: http://inside3.uidaho.edu/WebMapping/IDEQ/SelectHUC.asp?Basin=Upper%20Snake

The only beneficial uses that are not being met to date in the Caribou, Webster, and Preuss Subsection are Cold Water Aquatic Life (CB) and Salmonid Spawning (SS). The three problems of most common concern to a WFU event are: 1) Too high water temperature caused by burning of shading vegetation and/or too wide a channel; 2) More sediment; 3) Excess nutrients such as an ash flush. If burn percentage and/or intensity are too high, loss of beneficial uses may result. Idaho has a water quality anti-degradation policy. The objective of this policy is to ensure that

beneficial uses and the level of water quality necessary for them is maintained and protected (IDAPA 16.01.02.051.01).

WFU in stream corridors with heavy fuel loading, where fire may burn to closer to the channel than the widths listed above may require special attention. Fires within this corridor where it is combined with heavy fuel loading areas may require appropriate management response to protect against the potential for severe impacts including suppression and post event monitoring if the fire intensity/severity becomes too intense and/or burn percentage too great. Mitigation might include any measures to better insure that fire intensity/severity is low and burn percentage is within limits that assure that the fire will meet the desired future conditions (DFC's) of the AIZ. These might include restriction to higher fuel moistures, higher RH, lower temperatures, earlier in year, etc. In general, effective corridors to be considered for affects to riparian community are a maximum of 300 feet. This is a proven number generally recognized as sufficient to contain overland flow of water for most soil types to minimize sediment contribution to streams. This is intended only as a general "blind" guideline to assure protection without site-specific assessment. In general, a high burn percentage or moderate or high intensity fire will not create undo impacts where the burned length is small in comparison to the total stream length, as long as the riparian in the unburned portion below the burn area is functioning properly and able to prevent channel blowout from a thunderstorm event. Stream channels of cobble sized or larger (larger than a baseball) rocks are in general less sensitive to disturbance than those of gravel or smaller material. Areas of mostly fine-grained soils that have a high erosion hazard, where rills and gullies are common such as is described in the soils section, may require consideration of a wider affects corridor to prevent sediment delivery to streams. In general, fire intensity that does not kill a majority of the riparian canopy should not require mitigation, as this will not impact riparian values in the short term, and still provide benefits in the long term. Higher burn percentages may remove enough ground cover, and significantly increase the delivery of sediment to the streams. No generalized guidance on burn percentage is supported, however consideration should be given to individual watershed condition and isolated sensitive fish populations.

2.7.2 RFP Direction

WFU MMA may be constrained by Forest Plan Guideline #1 under Biological Elements (RFP 3-16) which requires that no more than 30 percent of a Hydrologic Unit Code 5 or 6 (HUC-5 or HUC-6) or Project Work Inventory (PWI) watershed be in a hydrologically disturbed condition. Hydrologically disturbed condition is defined as change in natural canopy cover such as canopy removal or change in surface soil condition such as compaction.

2.8 Noxious Weeds

Noxious weeds, although not a cover type, are noteworthy due to the continuing problem they represent. The Montpelier and Soda Springs Districts have an active noxious weed treatment program carried out by certified applicators. The Caribou, Webster, and Preuss Subsections are part of an Integrated Weed Management Area as described in the Caribou-Targhee Weed Management Strategy (2000) and also is included in the Highlands Cooperative Weed Management Area.
Several species of noxious weeds have been found within the Caribou, Webster, and Preuss subsections. These include: musk thistle, Canada thistle, leafy spurge, dyers woad, spotted knapweed, yellow toadflax, Dalmatian toadflax, Scotch thistle, black henbane, white top, and tall white top. Canada thistle and musk thistle are the most widely distributed of the noxious weeds present in the subsections.

2.8.1 Guidelines

Monitoring should be conducted for two years after burns to make certain the areas remain free of noxious weeds. Any noxious weed areas found would need to be aggressively treated and monitored until eradication of the weeds from the burn area is accomplished. Funds would be needed to assure that district personnel could direct their efforts of monitoring and treating noxious weeds into the burned area, while maintaining their on going weed control efforts.

2.8.2 RFP Direction

- Minimize the establishment and spread of noxious weeds and other invasive plant species through the application of Forest direction, Integrated Pest Management (IPM), and Best Management Practices (RFP 3-20).

- Noxious weeds shall be aggressively treated throughout the Forest, unless specifically prohibited, following the Caribou Noxious Weed Strategy. Using Integrated Weed Management methods of control and access shall be consistent with the goals of each prescription area.

- Monitor, as needed, disturbed areas, such as landings, skid trails, roads, mines, burned areas, etc, for noxious weeds or invasive species and treat where necessary (RFP 3-21).

2.9 Minerals

2.9.1 Caribou Mountain Gold Mining

Caribou Mountain, located in the Caribou Subsection from T4S R44E to T3S R44E, has a history of historic and current gold mining activities. Within this area, there are several active mining claims, patented mining claims and mill sites. Mining activity mainly occurs on Caribou Mountain in the summer months after the snow melts and access is possible. Mining claims often will have cabins or, small travel camp trailers that the miners occupy while mining, and a variety of mining equipment that may range from heavy machinery to small-scale mining equipment.

The main resource concerns for Caribou Mountain would mainly include any property located on a mining claim, buildings, and privately owned property. Refer to the minerals portion of the protection considerations section for a list of active and patented mining claims.

2.9.2 Phosphate Mining

Minerals development, both historic and active, on the Soda Springs and Montpelier Ranger Districts encompasses over 5000 acres of land disturbance. Phosphate minerals production began in Southeast Idaho in the early 1900's initially as underground mining operations evolving into open-pit operations in the late 1940s and continuing today.

Modern phosphate mining operations are conducted on Federal leases issued by the Department of Interior and administered by the Bureau of Land Management. Unlike most other mineral leases, phosphate leases are issued without a termination date established. Lessees pay to maintain their leases until they have been developed. It has been a practice throughout the industry to retain those leases well after ore reserves have been depleted. However, issues developed since the discovery of environmental contaminants were discovered in the late 1990's associated with phosphate waste rock and its disposal has led several companies to request that the BLM relinquish them from their lease contracts.

Historically, mine operations reclaimed overburden waste rock to stabilize the surface providing protection from wind and water erosion. Reclamation practice involved grading the angle of repose waste dumps to a 3 horizontal: 1 vertical (3h:1v) slope as this had proven to be a stable profile for the unconsolidated waste rock material. Early phosphate reclamationists buried topsoil resources beneath piles of waste because they were able to plant an agricultural seed mix of grass and alfalfa that would establish quickly, preventing erosion, and provide forage for grazing animals as a post mine land use.

In 2005, reclamation has become more complex to address post mine land uses that mimic those practices prior to mining. Additional complexity became inherent as mining companies struggled to address issues of contaminant bioaccumulation and plant diversity. Reclamation today involves mapping the available topsoil resource during the planning process, salvaging, stockpiling or immediately applying the soil, incorporation of woody debris to stabilize the reclamation and to provide microenvironments for developing plants, planting a diverse seed mix

and/or seedlings, salvage of native plant materials for propagation or transplant, fertilization based on the soil's calculated productivity, and seeding diverse native and non-native perennial and annual plants.

Historic mining operations on and adjacent to the Forest have reclamation encompassing all of the reclamation scenarios developed over the last 60 years.

2.10 Soils

Caribou Subsection

The geology of the Subsection is primarily sedimentary rocks of the Wayan Formation, Bear River Formation and the Gannett Group. These formations consist of red calcareous mudstone, various colored sandstones, limestones, shales and conglomerate. Areas around Caribou Mountain have intrusive igneous rocks such as andesite and dioritic dikes and sills. Soils that formed from this geology appear to have lower fertility than those that formed in the sedimentary landforms. Areas of exposed gray shale outcrops that are evident in Caribou Basin and on Little and Big Elk Mountains have high natural erosion rates with little ground cover. These formations tend to be unstable and landslides are often observed in the area. The landslides in this area are mostly recent in terms of geologic time.

Soils were mapped, described and interpreted for use and management in the Soil Survey of the Caribou National Forest (USDA FS 1990). For a display of the erosion potential, refer to Table 2.10-1 and Figure 2.10-1.

Table 2.10-1: Acres of erosion hazard for the Caribou Subsection.

Erosion Potential	Acres	% of Area
Erosion Potential hmm[1]	21,829	11%
Erosion Potential hhm[2]	32,184	16%
Erosion Potential hhh[3]	8,098	4%

[1] **hmm -** Only one of the three soil families in the map unit has a high erosion rating and the remaining two soil families have a moderate rating (< 50% area has a high erosion rating).

[2] **hhm** - Two of the three soil families in the map unit have a high erosion hazard rating and one soil family has a moderate rating (50% to 75% of the area in the map unit has a high erosion hazard).

[3] **hhh** - All three soil families in the map unit have high erosion hazard rating (>75% of the area has a high erosion rating

Webster Subsection

The area consists of ridges and valleys formed from late Paleozoic to Mesozoic age sedimentary rocks, such as limestone, siltstone, conglomerate, sandstone and chert. This map unit is separated from similar subsections based upon the presence of Phosphoria deposits, mountainous areas vegetated with conifers and sagebrush, and due to climatic factors.

These landscapes include mountainsides, canyons and ridges that are formed in sedimentary parent materials. Soils are shallow (less than 20 inches) on the ridges and upper canyon slopes to very deep (>60 inches) on the mountainsides and lower canyon walls. They are well drained with surface textures of loam and silt loam. Soils are classified as Argic Cryoborolls, Typic Cryochrepts and Mollic Cryoboralfs, often associated with subalpine fir, lodgepole pine and mountain big sagebrush potential natural vegetation.

The valleys have slopes ranging from 1 to 10 percent. These landscapes include valley bottoms and canyons that are formed from alluvial and residual parent materials. Soils are very deep (greater than 60 inches) and well to poorly drained. Surface textures are generally loam. Soils are classified as Cumulic Cryoborolls, Pachic Cryoborolls and Argic Pachic Cryoborolls, often associated with willow/sedge and wetland vegetation, aspen and sagebrush potential natural vegetation.

Soils were mapped, described and interpreted for use and management in the Soil Survey of the Caribou National Forest (USDA FS 1990). For a display of the erosion potential, refer to Table 2.10-2 and Figure 2.10-2.

Table 2.10-2: Acres of erosion hazard for the Webster Subsection.

Erosion Potential	Acres	% of Area
Erosion Potential hmm[1]	28,715	13%
Erosion Potential hhm[2]	15,312	7%

[1] **hmm -** Only one of the three soil families in the map unit has a high erosion rating and the remaining two soil families have a moderate rating (< 50% area has a high erosion rating).

[2] **hhm** - Two of the three soil families in the map unit have a high erosion hazard rating and one soil family has a moderate rating (50% to 75% of the area in the map unit has a high erosion hazard).

Preuss Subsection

The area consists of ridges, rolling hills and short narrow valleys that have been modified by fluvial, gravitational transfer and residual processes. The types of rocks are limestone, siltstone, conglomerate, sandstone, and dolomite from the Mesozoic Era. Elevations range from 6,000 to 8,400 feet (1,828 to 2,560 meters). This map unit is separated from similar subsections based upon unstable mountain slopes and geologic materials that separate the surrounding valley subsections.

The ridges are located on mid- to high-elevation sites with slopes ranging from 15 to 60 percent. These landscapes include mountain sideslopes and ridges that are formed in sedimentary parent materials. Soils are shallow (less than 20 inches) to deep (40 to 60 inches) and well drained. Surface textures are generally loam or silt loam. Soils are classified as Argic Cryoborolls, Typic Cryochrepts, Mollic Cryoboralfs associated with subalpine fir and sagebrush potential natural vegetation.

The rolling hills and valleys are on low to mid elevation sites with slopes ranging from 15 to 40 percent. These landscapes include valley marsh areas formed in alluvium. Soils are deep (40 to 60 inches) to very deep (greater than 60 inches) and well to poorly drained. Surface textures are generally loam or silt and peat or muck in the organic soils. Soils are classified as Argic Pachic Cryoborolls, Pachic Cryoborolls, Argic Cryoborolls and areas like Elk Valley Marsh have Histosols.

Soils were mapped, described and interpreted for use and management in the Soil Survey of the Caribou National Forest (USDA FS 1990). For a display of the erosion potential, refer to Table 2.10-3 and Figure 2.10-3

Table 2.10-3: Acres of erosion hazard for the Preuss Subsection.

Erosion Potential	Acres	% of Area
Erosion Potential hmm[1]	29,745	26%
Erosion Potential hhm[2]	19,886	18%
Erosion Potential hhh[3]	4,051	4%

[1] **hmm -** Only one of the three soil families in the map unit has a high erosion rating and the remaining two soil families have a moderate rating (< 50% area has a high erosion rating).

[2] **hhm** - Two of the three soil families in the map unit have a high erosion hazard rating and one soil family has a moderate rating (50% to 75% of the area in the map unit has a high erosion hazard).

[3] **hhh** - All three soil families in the map unit have high erosion hazard rating (>75% of the area has a high erosion rating.

2.10.2 RFP Direction

The Revised Forest Plan for the Caribou National Forest states the Desired Future Conditions of the soil as follows. For the Standards and Guidelines on how to achieve this goal, refer to 3-6 thru 3-7 (RFP 2003):

- Soil quality, productivity and hydrologic function are maintained and restored where needed. Long term soil productivity is sustained and meets future land needs.

- Soils have adequate protective cover, adequate levels of soil organic matter (litter) and coarse woody material. Physical, chemical and biological processes in most soils function to sustain the site.

- Microbiotic crusts and their importance to soil stability are recognized. Management practices are designed to retain these soil components.

Figure 2.10-1: Erosion Potential

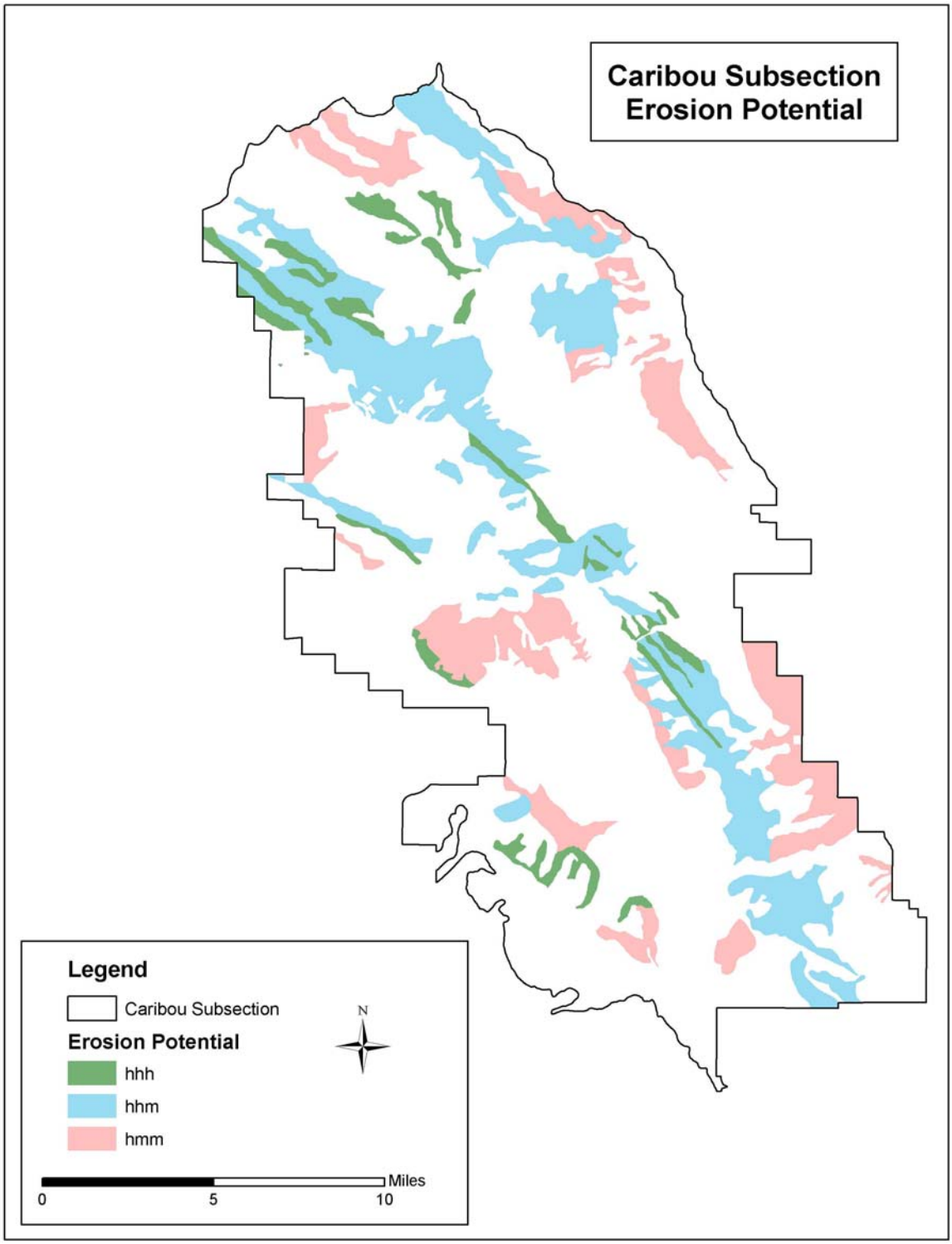


Figure 2.10-2: Erosion Potential

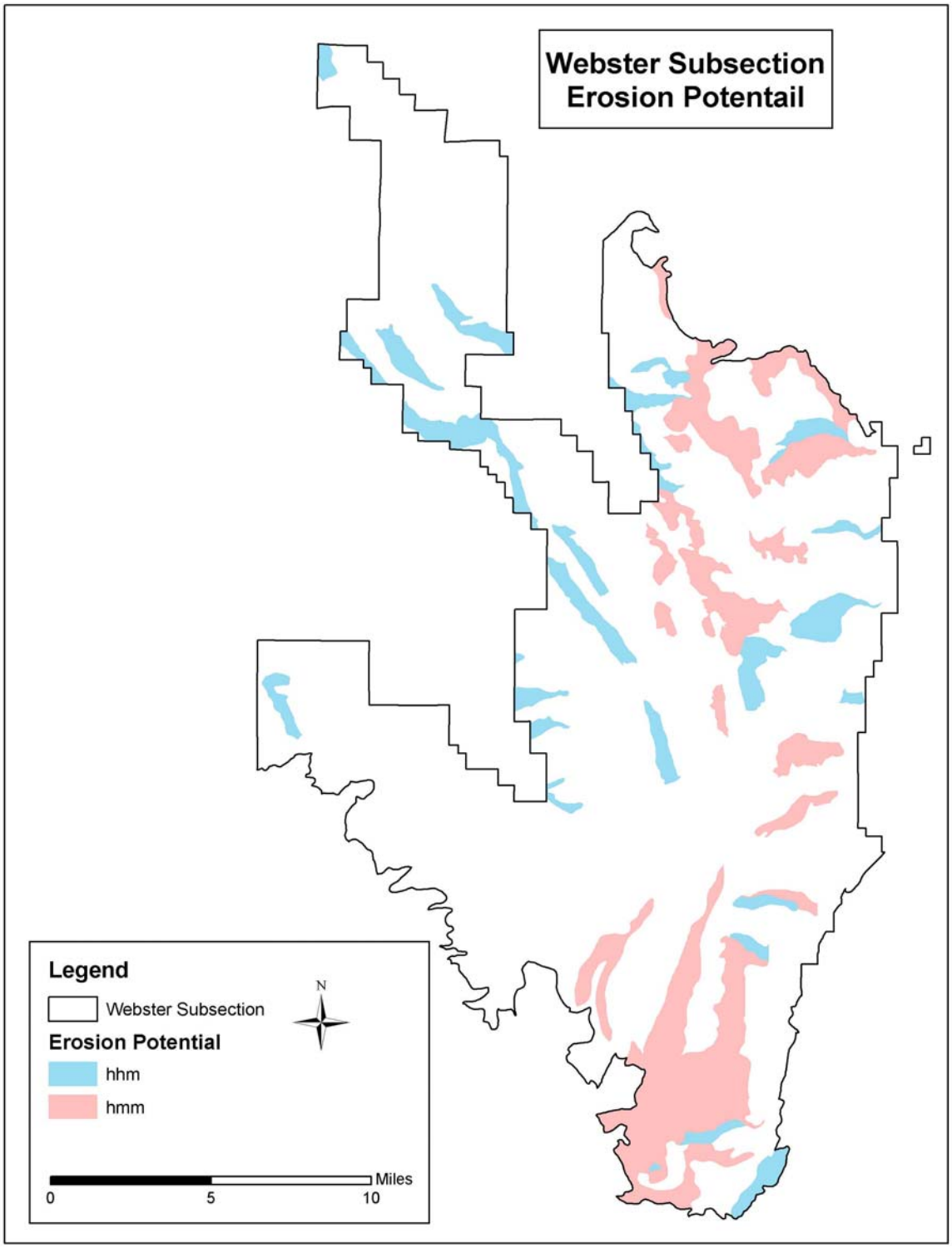
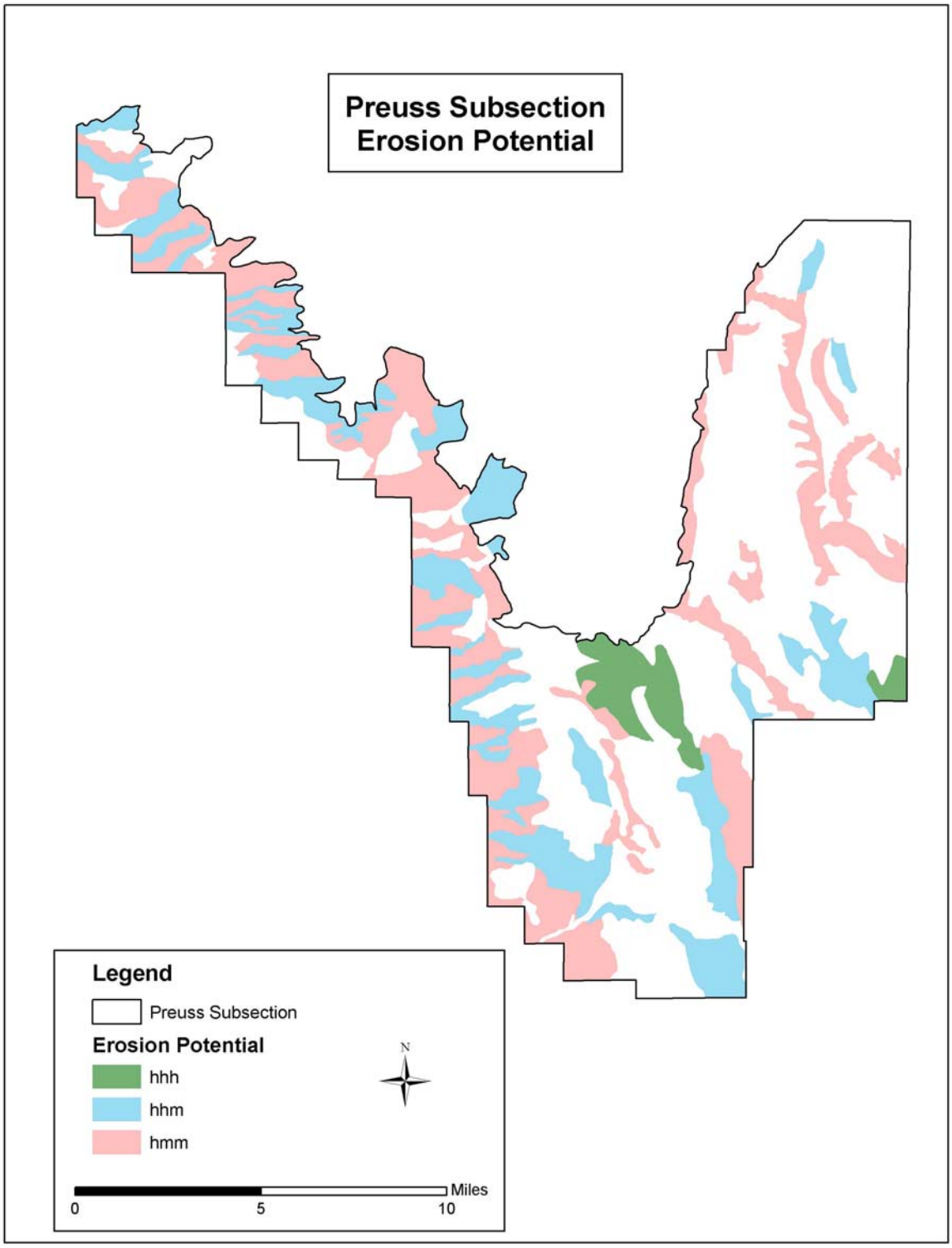


Figure 2.10-3: Erosion Potential



2.11 Vegetation

2.11.1 Forested Vegetation

Approximately 57% of the Caribou, Webster, and Preuss Subsections can be characterized as forested vegetation (FV). The Caribou-Targhee National Forest manages approximately 98% of the acres that are classified as forested vegetation, the other 2% is managed by BLM, State of Idaho or private. For this document forested vegetation within these subsections have been broken into five cover types; aspen, aspen/conifer, Douglas-fir, lodgepole and mixed conifer.

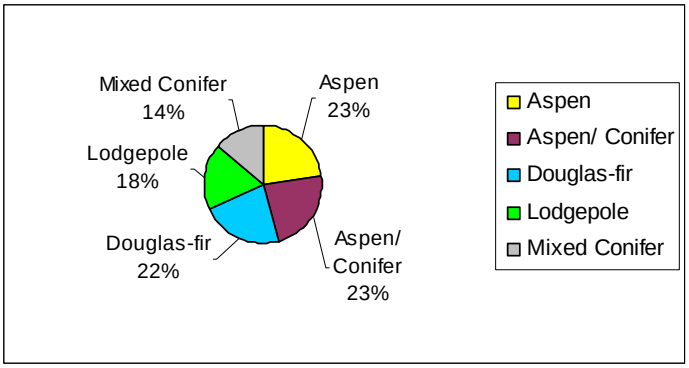


Figure 2.11-1: Percentage of Forested Cover Types

Table 2.11-1: Forest Cover Types

Cover Type (% of FV)	Jurisdiction	Description
Aspen (13%)	95% FS 5% Non FS	Aspen can vary form an early seral to persistent seral species. It can also occur as a climax species, occupying sites below the limit of conifers.
Aspen/Conifer (13%)	97% FS 3% Non FS	Aspen and a conifer species (Douglas-fir, lodgepole pine and sub-alpine fir) or a mix of species co-dominates the site. Douglas-fir or subalpine fir are the conifer climax species associated with this type, which is climax depends on the site conditions.
Douglas-fir (13%)	98% FS 2% Non FS	Rocky Mountain Douglas-fir is found throughout the Subsection. At the lower drier edge of its zone, it is confined to north slopes and shaded areas and is often the climax species for the site. At the higher levels, it can grow on any aspect including sunny rocky south and west exposures. On cooler moist sites it is an early seral species with subalpine fir and Engelmann spruce as climax species. Aspen is often an important early seral species in this type.
Lodgepole (10%)	99% FS 1% Non FS	Lodgepole pine is a pioneer species that requires a disturbance that exposes bare mineral soil to regenerate. In most stands in this type lodgepole is the seral species with subalpine fir being the climax species. However in other stands lodgepole can be considered as persistent seral due to the fire return interval. Aspen may be found as a minor component of the type.
Mixed Conifer (8%)	99% FS 1% Non FS	Stands that currently have a mix of conifer species or are currently dominated by subalpine fir have been included in this type. In this type subalpine fir is the dominant climax species with occasional Engelmann spruce. Aspen, lodgepole pine and Douglas-fir often occur in various ratios in the early seral stage.

2.11.2 Non-Forested Vegetation

Non-Forested Vegetation

Approximately 43% of the Caribou, Webster, and Preuss Subsections can be characterized as non-forested vegetation (NFV). The Caribou Targhee National Forest manages approximately 95% of the acres that are classified as non-forested vegetation, and the other 5% is managed by BLM, State of Idaho or private. For this document non-forested vegetation has been broken into five cover types sagebrush/grass, mountain shrub, mountain brush, riparian and other.

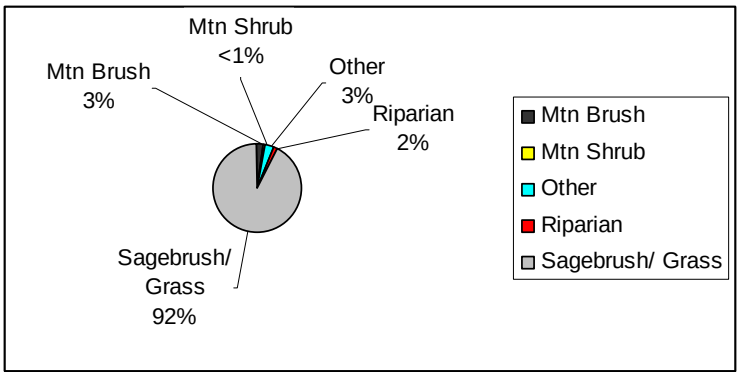


Figure 2.11-2: Percentage of Non-Forest Cover Types

Table 2.11-2: Non-Forest Cover Types

Cover Type (% of NFV)	Jurisdiction	Description
Sagebrush/Grass (39%)	97% FS 2% Non FS	Areas that are currently dominated by sagebrush have been included in this type. Sagebrush is found on more acres than other species within the analysis area (more than 33,000 acres or over 27%). This type is dominated by the presence of big sagebrush however many sagebrush taxa may be represented. This type may have a variety of other brush species represented but they will generally represent less than 10% of the canopy cover. This type generally has an associated herbaceous layer of perennial grasses and forbs in varying amounts. Grass and forb species composition is strongly influences by physical and chemical soil characteristics and by grazing pressure.
Mountain Shrub (<1%)	98% FS 2% Non FS	Areas included in this type are currently dominated by curlleaf mountain mahogany, rocky mountain juniper or bigtooth maple. This type covers a broad ecological spectrum from moderate to deep well drained soils to shallow rocky soils on ridge tops and southerly exposures. This type could be considered the transitional type. It represents what grows where it is to harsh for trees and not suited for sagebrush. Curlleaf mountain mahogany is the only mahogany found in the assessment area, it is a hardwood evergreen with tree like form. Rocky mountain juniper is the dominant juniper species found within the assessment area, it is a shrubby tree with scale-like evergreen leaves.
Mountain Brush (1%)	94% FS 6% Non FS	Areas that currently have one or more of the mountain brush species representing over 10 % of the canopy cover have been included in this type. The mountain brush type is found intermingled with sagebrush at mid elevations and conifer/aspen forests at higher elevations. Mountain brush species are: chokecherry, serviceberry, rose, mountain snowberry, elderberry and ceanothus. These species may occur alone and form rather distinct types or may have mixed composition. These species generally sprout after fire and normally occupy slightly moister areas than sagebrush. However, sagebrush and bitterbrush are also often represented. This type generally has an associated herbaceous layer of perennial grasses and forbs in varying amounts. Grass and forb species composition is strongly influences by physical and chemical soil characteristics and by grazing pressure.
Riparian (2%)	66% FS 34% Non FS	Areas that currently are dominated by riparian species or water have been included in this type. This type includes a wide range of riparian types from marsh type wetlands to patches of willow. Most of the riparian that is located on national forest land is associated with stream channels. The type off national forest is a mix of marsh, open water and stream channel riparian.
Other (1%)	94% FS 6% Non FS	The cover type is a combination of areas that are dominated by water or rock.

Figure 2.11-3: Cover Types for the Caribou Subsection

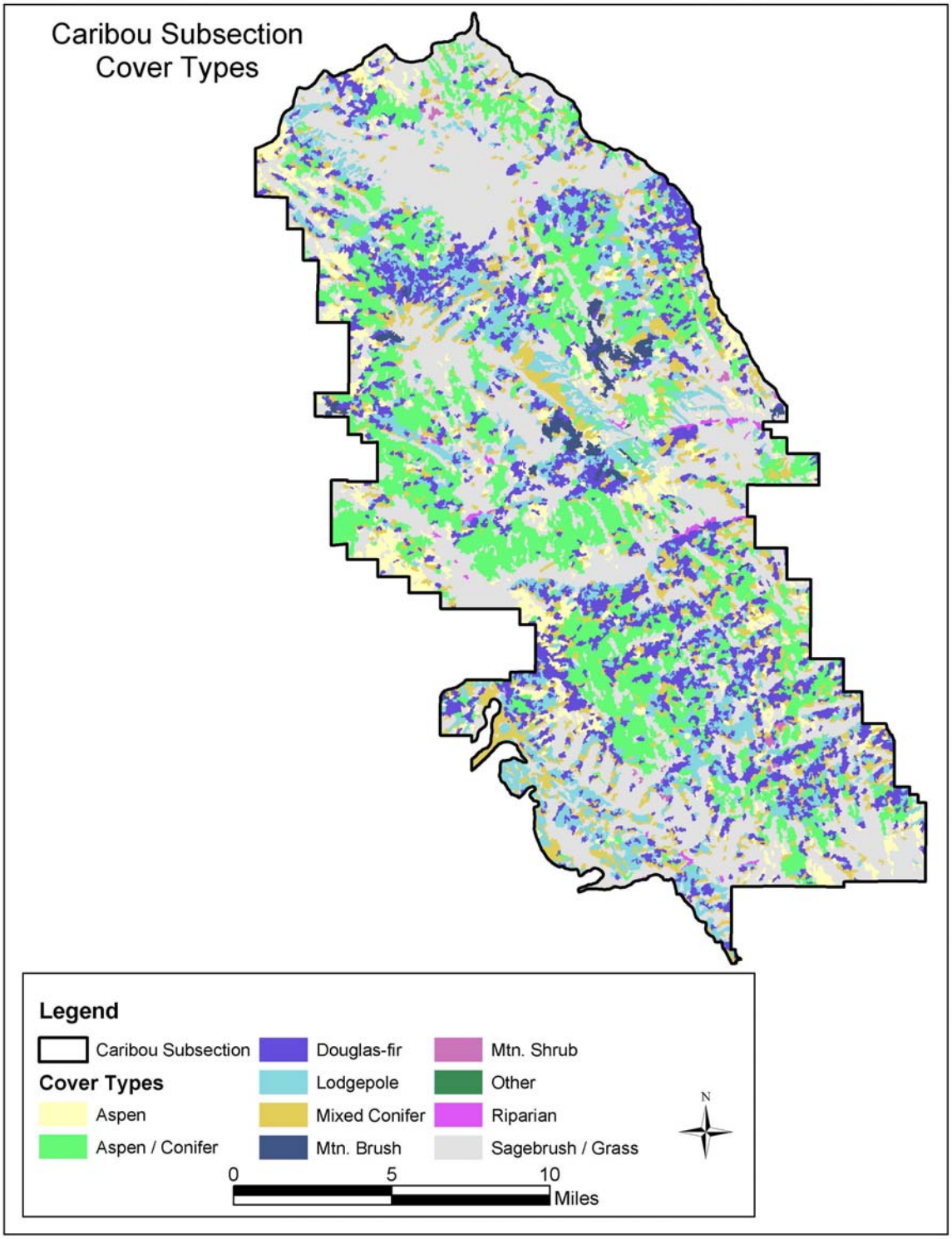


Figure 2.11-4: Cover Types for the Webster Subsection

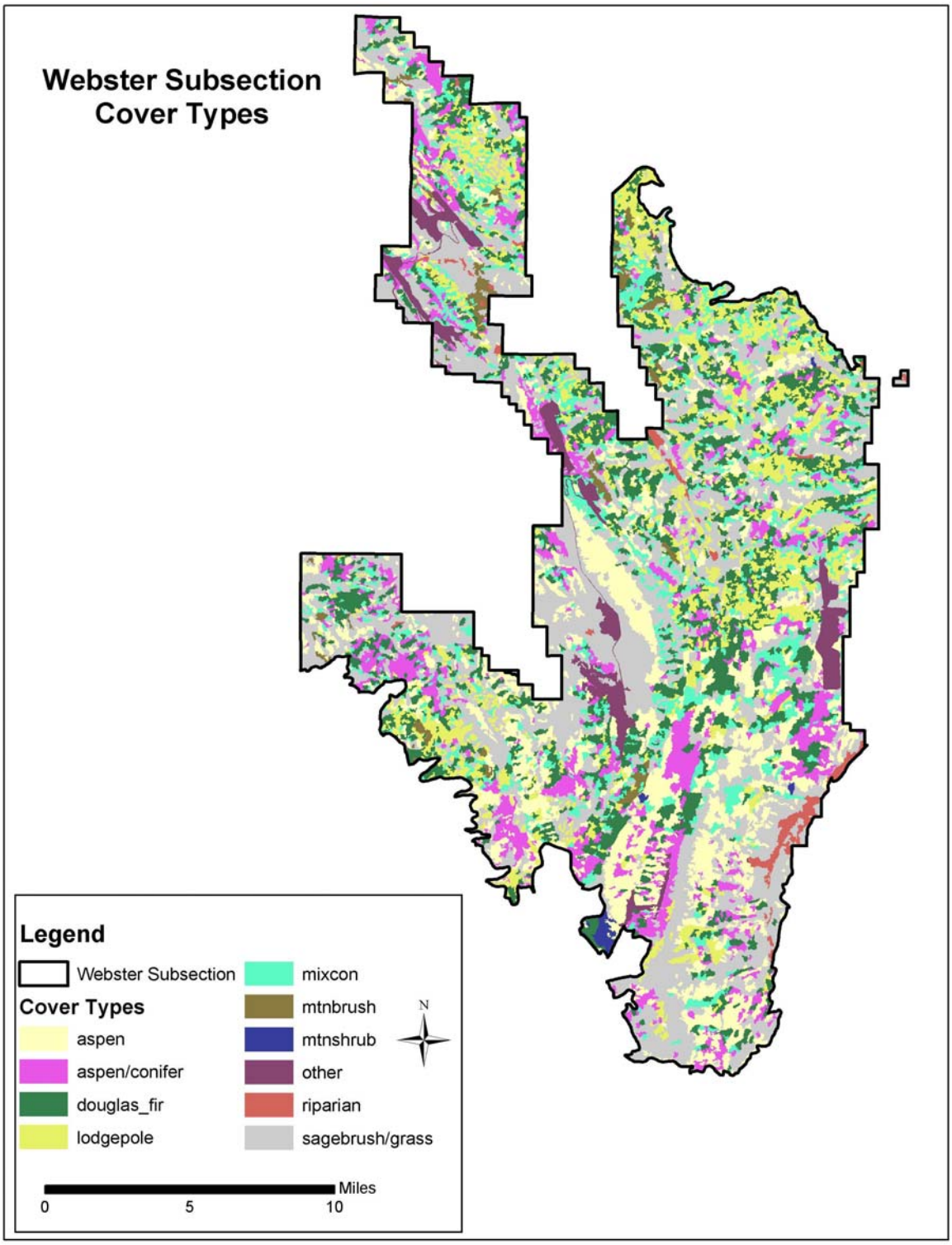
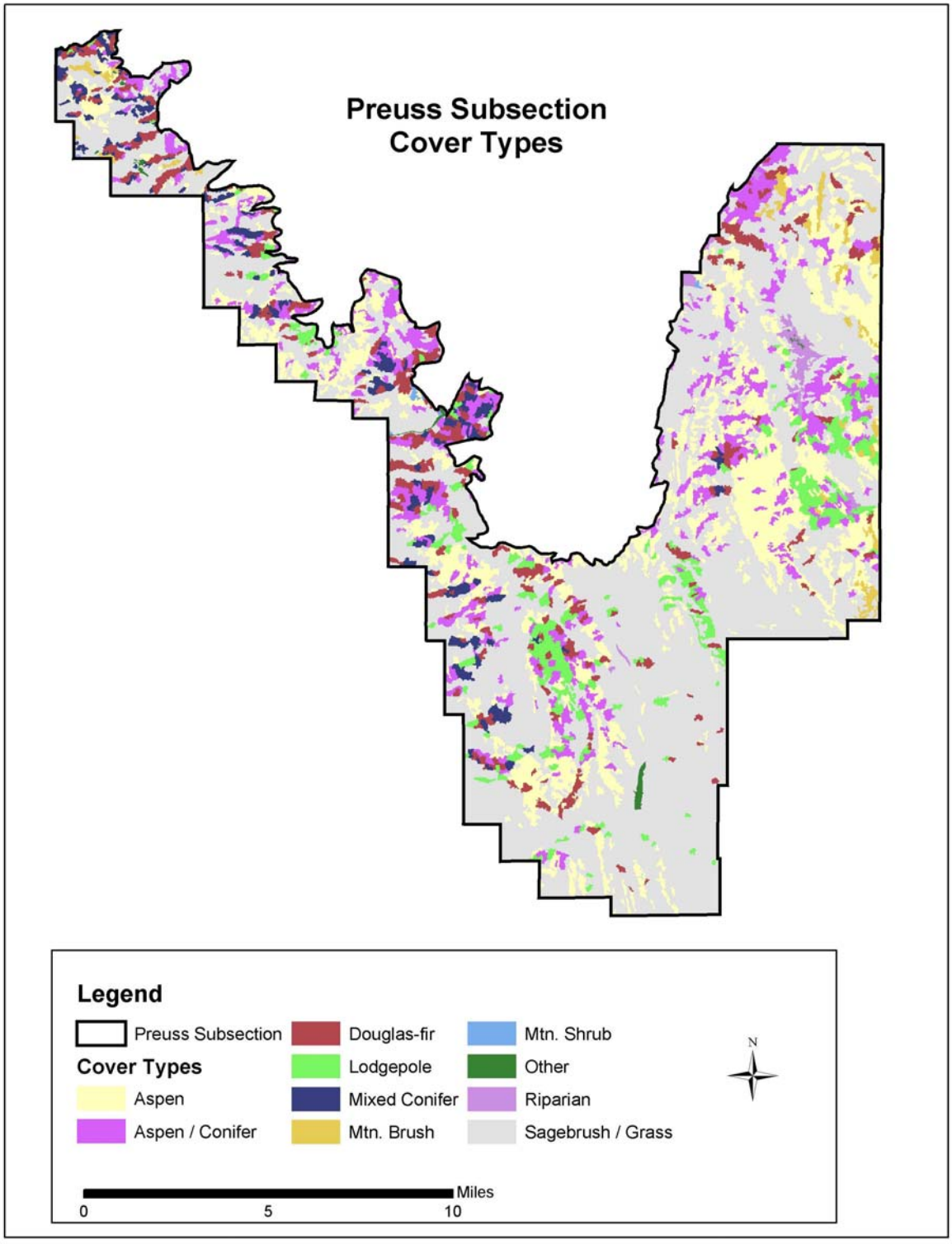


Figure 2.11-5: Cover Types for the Preuss Subsection



2.11.3 Disturbance Regime

Fire

Fire has been a frequent visitor in the Caribou Subsection, either as localized spot fires or as large, expansive conflagrations. Barrett (1994) documented several major fire years throughout the Caribou National Forest in 1745, 1781, 1844, and 1934. Barrett's report also provides a fairly good estimate of both fire regimes and frequencies that can be made for these Subsections. This is outlined in the table below.

Table 2.11-3: Fire Frequency and Regime

Vegetation Type	Landscape Scale Reference/Desired Condition		Current Condition	Trend
Aspen	Fire (G4)* Insects Disease	8–141 Ave 39 yrs Endemic Endemic	90 Years + Endemic Endemic	Average post settlement fire interval is more than twice that of pre-settlement. Insect and disease both have increased slightly, but remain at endemic levels.
Douglas-fir	Fire (G3/4)* Insects Disease	8 –154 Ave 78 yrs Endemic Endemic	102 Years + Endemic Endemic	Average post settlement fire interval is approaching the upper range of the historic fire interval. Insect and disease both have increased slightly, but remain at endemic levels
Lodgepole	Fire (G6/4)* Insects Disease	11 –191 Ave 77 yrs Endemic Endemic	104 Years + Endemic Endemic	Average post settlement fire interval has been exceeded by 30 years and is approaching the upper range of the historic fire interval. Insect and disease both have increased slightly, but remain at endemic levels
Mixed Conifer	Fire (G6/4) Insects Disease	11 –191 Ave 77 yrs Endemic Endemic	104 Years + Endemic Endemic	
Mountain Shrub	Fire*	50-100 years*	Approximately 80 yrs +	Average post settlement fire interval is approaching the upper range of the historic fire interval.
Mountain Brush	Fire	25-76 years	Approximately 40 yrs +	Average post settlement fire interval is approaching the upper range of the historic fire interval.
Sagebrush/ Grass	Fire	25-76 years	Approximately 60yrs +	Average post settlement fire interval is approaching the upper range of the historic fire interval.
Riparian		No Data	No Data	

*** See appendix A for Fire Group descriptions.**

Insect and disease

Insects and disease have also played a role in shaping vegetation composition and structure. Insects that have played a role include mountain pine beetle, Douglas-fir bark beetle, spruce budworm, and fir engraver. The effects of these insects can range from small pockets of mortality to large epidemics that cover large areas. The diseases that exist include mistletoe, various rusts and root diseases, and many forms of cankers. The effects of these diseases tend to be limited in scope, effecting growth more than causing mortality, but were likely important in shaping fire intensity and severity.

Caribou Subsection Past Disturbances

Since the 1970's, over 58 fires have been suppressed within the subsection, which equates to ~2 wildfires per year. Refer to Figure 2.11-8 for location of past disturbances.

Table 2.11-4: Fires by Size Class and Cause from 1970-2003. Total number of wildfires is 58 and 8,414 acres.

Size Class	# of Human Caused	Acres	# of Lightning Caused	Acres
A (<. 25 Acres)	5	0.5	20	2.5
B (.25-9.9 Acres)	8	18	17	25
C (10-99.9 Acres)	2	40	1	27
D (100-299.9 Acres)	2	283	2	217
E (300-999 Acres)	0	0	0	0
F (1000-4999 Acres)	0	0	0	
G (>5000 Acres)	0	0	1	7800
Total	**17**	**342**	**41**	**8,072**

Past timber harvest (the last 30 years) has contributed some structural diversity to the Subsection. Harvest activities have been concentrated in the lodgepole pine and mixed conifer types. The following table summarizes all known harvesting activities. These harvest areas were considered during the development of the interior, boundary, and suppression risk zones. Most of these harvest areas are within the suppression zone.

Table 2.11-5: Past Timber Harvest

	Acres	Harvest Year
Total Harvested Acres	**3,058**	**1964-1995**

Webster Subsection Past Disturbances

Since the 1970's, over 92 fires have been suppressed within the subsection, which equates to ~3 wildfires per year. A portion of two prescribed fires have occurred within the subsection for a total of 348 acres. Refer to Figure 2.11-9 for locations of past disturbances.

Table 2.11-6: Fires by Size Class and Cause from 1970-2003. Total number of wildfires is 92 and 2,315 acres.

Size Class	# of Human Caused	Acres	# of Lightning Caused	Acres
A (<. 25 Acres)	31	4	30	3
B (.25-9.9 Acres)	9	17	17	27
C (10-99.9 Acres)	2	53	1	10
D (100-299.9 Acres)	0	0	0	0
E (300-999 Acres)	1	515	0	0
F (1000-4999 Acres)	0	0	1	1,686
G (>5000 Acres)	0	0	0	0
Total	**43**	**589**	**49**	**1,726**

Figure 2.11-6

Past timber harvest (the last 30 years) has contributed some structural diversity to the Subsection. Harvest activities have been concentrated in the lodgepole pine and mixed conifer types. The following table summarizes all known harvesting activities. These harvest areas were considered during the development of the interior, boundary, and suppression risk zones. Most of these harvest areas are within the suppression zone.

Table 2.11-7: Past Timber Harvest

	Acres	Harvest Year
Total Harvested Acres	**9,045**	1964-2002

Preuss Subsection Past Disturbances

Since the 1970, over 62 fires have been suppressed within the subsection, which equates to ~2 wildfires per year. Refer to Figure 2.11-10 for locations of past disturbances.

Table 2.11-8: Fires by Size Class and Cause from 1970-2003. Total number of wildfires is 62 and 1,211 acres.

Size Class	Human Caused	Acres	Lightning Caused	Acres
A (<. 25 Acres)	26	3	17	2
B (.25-9.9 Acres)	9	15	3	7
C (10-99.9 Acres)	4	120	1	51
D (100-299.9 Acres)	1	264	0	0
E (300-999 Acres)	0	0	1	749
F (1000-4999 Acres)	0	0	0	0
G (>5000 Acres)	0	0	0	0
Total	**40**	**402**	**22**	**809**

Figure 2.11-7

Past timber harvest (the last 30 years) has contributed some structural diversity to the Subsection. Harvest activities have been concentrated in the lodgepole pine and mixed conifer types. The following table summarizes all known harvesting activities. These harvest areas were considered during the development of the interior, boundary, and suppression risk zones. Most of these harvest areas are within the suppression zone.

Table 2.11-9: Past Timber Harvest

	Acres	Harvest Year
Total Harvested Acres	**589**	**1965-2002**

Figure 2.11-8: Past Disturbances with the Caribou Subsection.

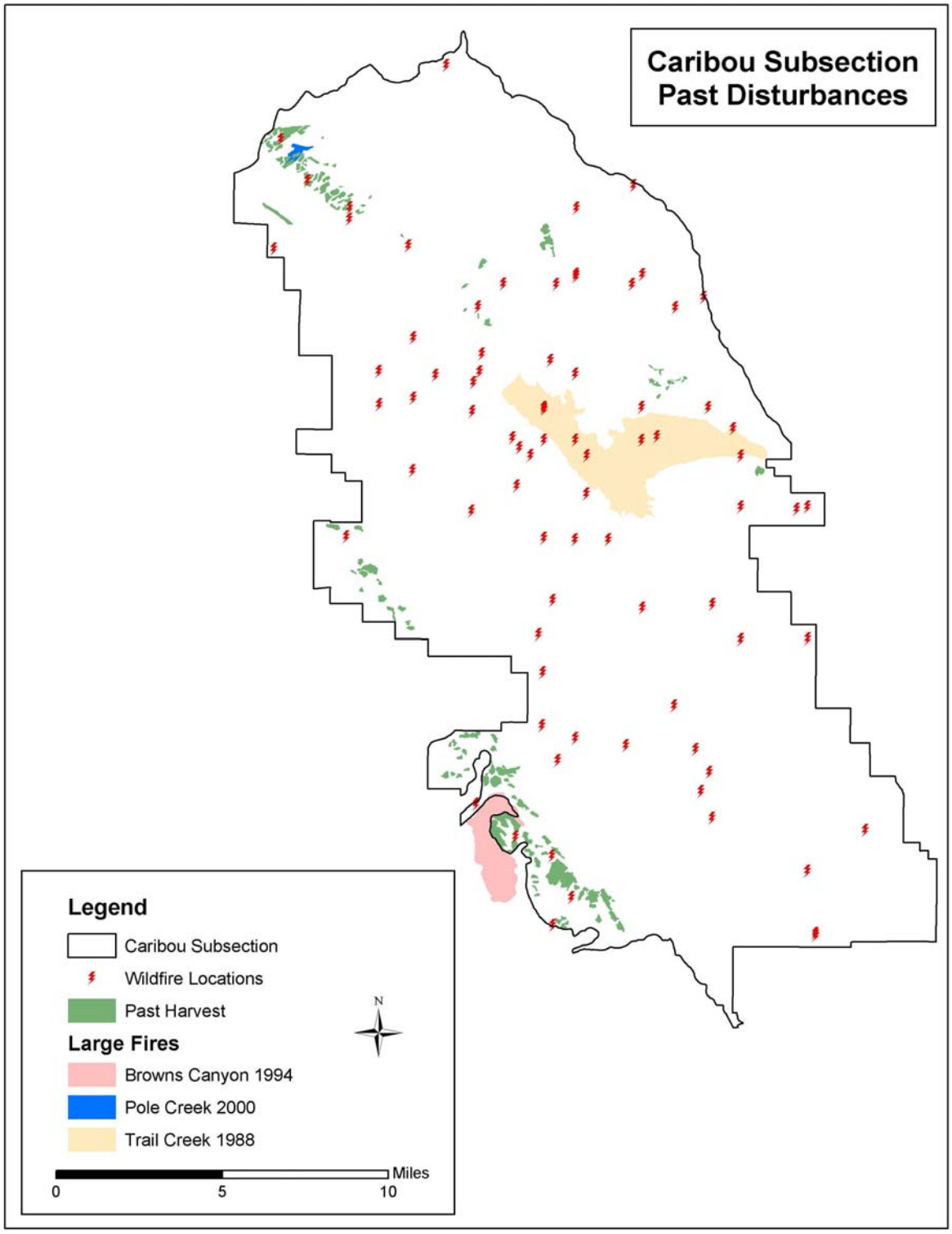


Figure 2.11-9: Past Disturbances within the Webster Subsection

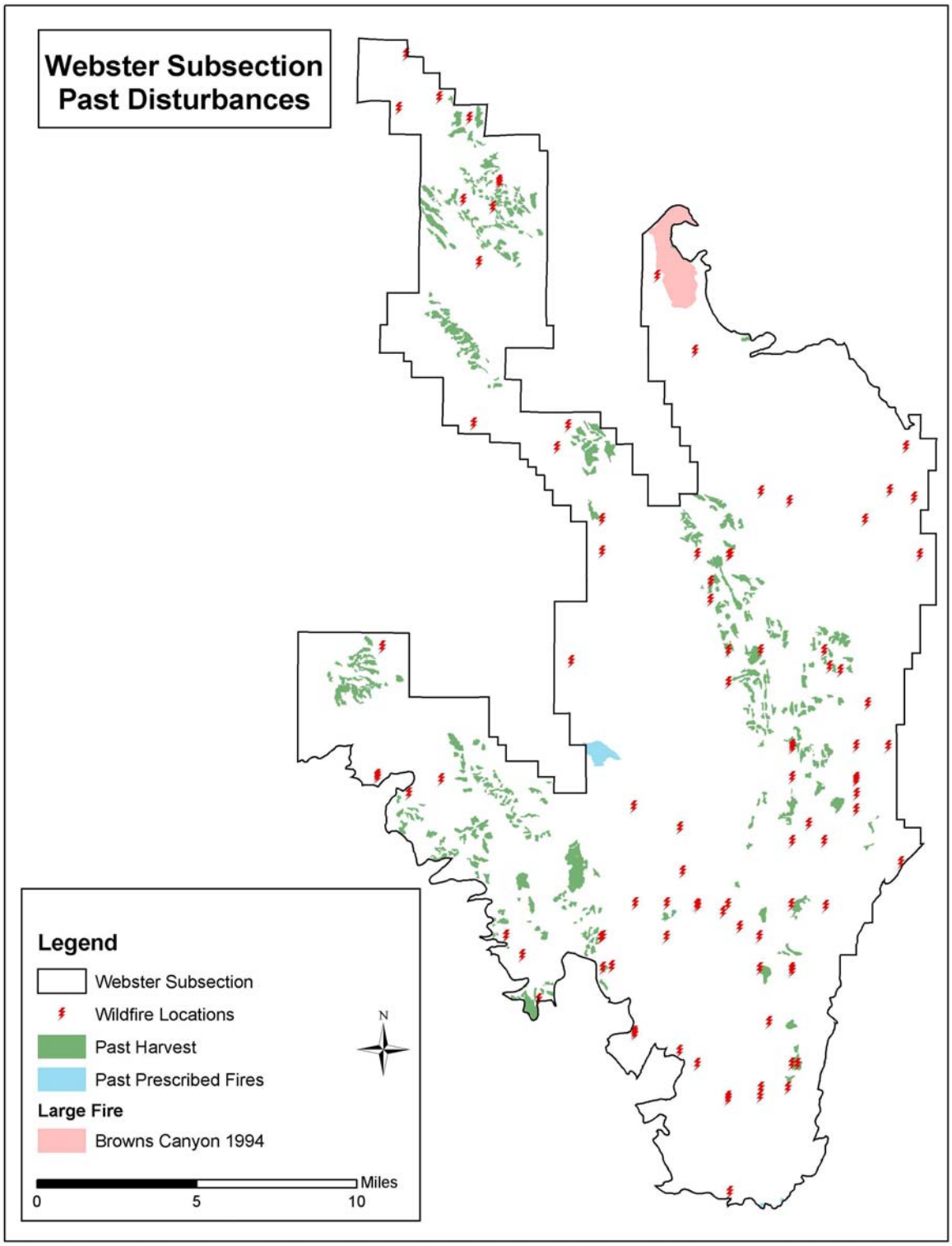
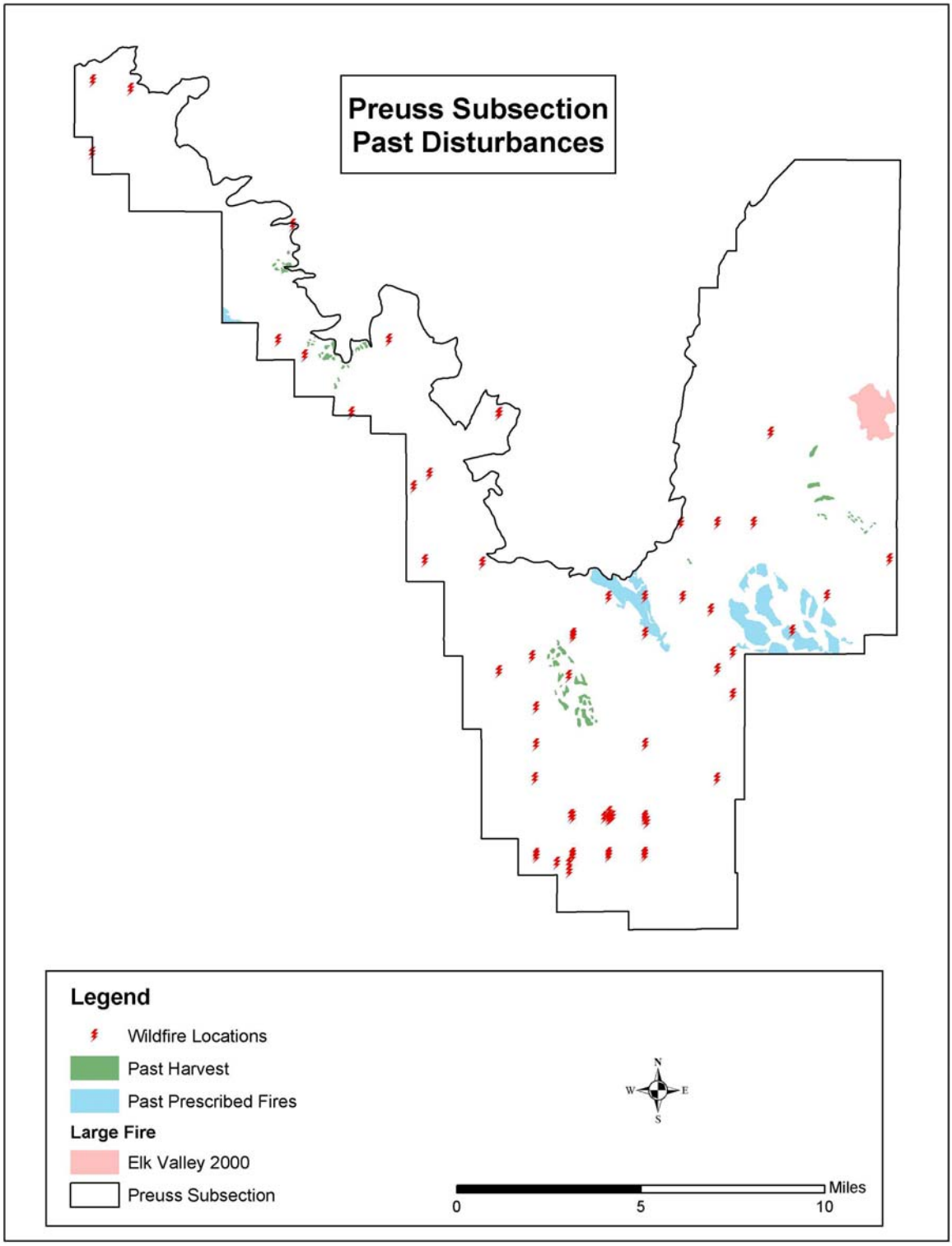


Figure 2.11-10: Past Disturbances within the Preuss Subsection



2.12 Wildlife

The Caribou National Forest (USDA 2003a) provides wildlife habitat in conifer and aspen forest and shrub-steppe from 4,500' – 9,957' elevation. The CNF provideds connectivity or linkage habitat for carnivores with large territories (lynx, wolverine, and wolves). Much of the aspen stands are succeeding to conifer encroachment. Sagebrush habitat on the CNF is gaining more attention. The sage-grouse is a R4 Sensitive Species and CNF Management Indicator Species (MIS). Existing stands of sagebrush are small fragmented remnants of extensive sagebrush habitats that once cover the valley bottoms and lower elevation foothills of Southeast Idaho. This remaining sagebrush is less desirable to wildlife than what existed before European settlement. Tall stands of basin big sagebrush that once grew in productive lands characterized by deeper soils and higher precipitation have been converted to agriculture croplands or human development. Concern over the decline of sagebrush resulted in petitions to list greater sage-grouse under the Endangered Specie Act. The USFWS published a "not warranted" decision on January 12, 2005, meaning that the greater sage-grouse will not be listed at a threatened or endangered species at this time. However, there is still a concern about the birds' future. Wildfire ranked third (after invasive plant species and infrastructure as related to energy development and urbanization) as a threat to habitat identified during an exercise to estimate the risk of extinction. This was due primarily because to the invasion of cheatgrass following wildlife. With that said, sagebrush can be treated on a case-by-case basis when the canopy cover is greater than 15 – 25 percent. And then only 20 percent of sagebrush used by sage-grouse should have a canopy cover less than 15 percent; not providing breeding habitat.

Summary – in order of importance: Reduce conifer invading aspen. Protect sagebrush habitat from fire. Maintain 80% mature mountain big sagebrush. Do not burn near known boreal toad sites, bald eagle nests, goshawk nests, flammulated owl nests, or sage grouse lek sites. Limit disturbance near active bald eagle nests. Leave snags along riparian areas. Maintain 40 percent mature/old forest habitat for owls. Maintain 80 percent aspen, chokecherry and serviceberry.

2.12.1 RFP Direction

Wildlife Forest Plan standards [S] and guidelines [G] (CNF RFP S&Gs) are found on pages {3-24 to 33}. The following is a summary of S&Gs that could be impacted by large fires and need to be considered in fire use planning listed in order of restrictiveness. The "disturbance" is described (reworded) in relation to loss/change of habitat from burning or impacts from fire suppression activities:

RESTRICTIONS burning or disturbance

- Landbirds-leave mature forest and snags along wet meadows (riparian).
- **No burn** buffers around known nest sites
  - Bald Eagle 1,320'/0.25 mile (125 acres)
  - Goshawk 1,666'/0.1 mile (200 acres) around known nests
  - Flammulated owl 645' (30 acres) around known nests
  - Sage grouse 300' (6.5 acres) around known lek sites.
  - Boreal toad 50' (0.2 acres) around ponds

BURN ALLOWANCE from known nest sites – These acres or percentage allowances or limits must include acres from any past disturbances (logging, wildfire, or prescribed burning).

- Boreal toad 1.5 miles (4,522 acres) from known wetlands
- Sage grouse 20% early seral mountain big sagebrush 10 miles (201,000 acres) in last 20 years.
  - Leave 80% mature/old
- Sharp-tailed grouse 20% aspen, chokecherry and serviceberry in last 7 years.
  - Leave 80% mature/mtn. brush
- Great gray owl 60% early seral forest within 1,600 acres / 4,210' / 0.8 miles'
  - Leave 40% mature/forest
- Boreal owl 60% early seral forest within 3,600 acres / 7,066' / 1.34 miles
  - Leave 40% mature/old forest
- Goshawk 23% non-stocked/seedling forest within 5,800 acres / 8,969' 1.7 miles
  - Leave 30% mature/old forest
- Lynx 20% young forest (Forested habitat within a 5th Code HUC)
  - Leave 20% mature/old forest

The following species descriptions are given in order of forest plan guidance.

Bald Eagles – Active bald eagle nests are located along large water bodies and rivers. Disturbance close (1/4 mile) to active nests before September 1 could displace bald eagles, especially in June and July.

Bald Eagle Habitat {3-27}-- Occupied Nesting Zones (Zone I, 0.25 mile radius of nest) and Primary Use Areas (Zone II, 0.5 mile radius of nest)

- **Standards**
  - **# 2.** Vegetation management, such as timber harvest or thinning, which could disturb an active bald eagle nest can occur only between September 1 and January 31 or when documented as unoccupied.
- **Guidelines**
  - **#1.** "Control" should be the suppression response for wildfires to minimize loss of habitat unless a site-specific analysis demonstrates differently.
  - **#2.** All human activities should be minimized from February 1 to August 1.

Canada lynx – the Caribou and Wasatch NFs provide linkage habitat between the Targhee, Bridger-Teton NFs and the Ashley NF. [20 percent of forested habitat in 5th code HUC should be Mature and old age classes]

- **Canada Lynx {3-28}** - Management direction which will maintain linkages for Canada lynx on the Forest is located in the following places:
  - **Vegetation Standard 2 {3-19}** In each 5th code HUC which has the ecological capability to produce forested vegetation, the combination of mature and old age classes (including old growth) shall be at least 20 percent of the forested acres. At least 15 percent of all the forested acres in the HUC are to meet or be actively managed to attain old growth characteristics.

Northern Goshawk – suitable habitat is found throughout the area. Burning or suppression efforts within 400 acres of an active nest would displace nesting birds from March to September [Guideline – Management Season Table – 1: Management Standards and Guidelines within Active Goshawk Nesting Territories.]. Burning over 1,340 acres of mature/old forest habitat would exceed the 22 percent guideline of 6,000 acres of nonstocked/seedling. Burning 1,980 acres of mature forest would exceed the 33 percent guideline within 6,000 acres.

- **Goshawk Habitat {3-30}** – Standards and Guidelines -- The management standards and guidelines in Table 3.5 below apply to all forest types within active and historic goshawk nesting territories.

Table - 1: Management Standards and Guidelines within Active Goshawk Nesting Territories.

Attribute		**Nest Area**	**Post-Fledging Family Area**	**Foraging Area**
Size of each area (acres) (Standard) [6,000 acres total]		≥ 200 acres	≥ 400 acres	≥ 5,400 acres
Management Season (active nests only) (Guideline)		Sept-Mar	Sept-Mar	Year-long
SIZE CLASS DISTRIBUTION FOR FORESTED ACRES (%) (G)**:**				
Nonstocked/seedling	1,340 acres / 22% of 6,000 acres	0%	≤ 20%	≤ 25%
Sapling	1,340 acres / 22% of 6,000 acres	0%	≤ 20%	≤ 25%
Pole	1,340 acres / 22% of 6,000 acres	0%	≤ 20%	≤ 25%
Mature/old	1,980 acres / 33% of 6,000 acres	100%	≥ 40%	≥ 30%

Flammulated Owl, Boreal owl and **great gray owl** habitat is found on the CNF.

- **Boreal Owl Habitat {3-31}**
  - Guideline – Within a 3,600-acre area around all known boreal owl nest sites, maintain over 40% of the forested acres in mature and old age classes. (Hayward and Verner, 1994, Hayward, 1997)
- **Great Gray Owl Habitat {3-31}**
  - Guidelines – Within a 1,600-acre area around all known great gray owl nest sites, maintain over 40% of the forested acres in mature and old age classes. (Hayward and Verner, 1994)

Sage grouse use sagebrush. Leks are located at the lower elevations but sagebrush at higher elevations may be use for nesting and brood-rearing.

- **Sage Grouse {3-32}**
  - Guidelines - Current guidelines for sage grouse management, such as Connelly et al. (2000), should be used as a basis to develop site-specific recommendations for proposed sagebrush treatments.
    - Protect sage-grouse habitat from wildfire
    - Breeding habitat: >80% Sagebrush, 16-32" tall, and 15-25% canopy closure
    - Suppress wildfires in all breeding habitats. In the event of multiple fires, land management agencies should have all breeding habitats identified and prioritized for suppression, giving the greatest priority to those that have become fragmented or reduced by >40% in the last 30 years.
    - Brood-rearing habitat: >40% Sagebrush, 16-32" tall, and 10-25% canopy closure
    - Winter habitat. >80% Sagebrush, 10-14" tall, and 10-30% canopy closure
    - Protect patches of sagebrush within burned areas from disturbance and manipulation.
    - Reseed wildfires if necessary to achieve habitat management objectives.

Sharp-tailed grouse may use the CNF as winter habitat.

- **Columbian Sharp-tailed Grouse {3-32}**
  - Guidelines - Current guidelines for sharp-tailed grouse management (Idaho Sharp-tailed grouse Conservation Plan) should be used as a basis to develop site-specific recommendations for proposed sagebrush treatments.
    - Winter habitat - maintain 80% mature winter forage (chokecherry, serviceberry, and aspen above snow height).

Boreal toads (See fisheries. Section 2.4)

Landbirds use all habitats in the area. High priority habitats are riparian, wetlands and sagebrush (see sage grouse).

- **Landbirds**
  - Guidelines
    - Stands of mature trees (including snags and dead-topped trees) should be maintained next to wet meadows.
    - Where feasible, maintain 30 to 50 percent of the sagebrush habitat in a 5th code HUC in contiguous blocks greater than 320 acres to support sagebrush obligate species.

2.13 Research Natural Areas (RNAs)

There are 7 existing Research Natural Areas (RNAs) on the Caribou National Forest. The Webster subsection contains one established RNA (Horse Creek). The Preuss subsection contains an established RNA (Meade Peak), and Caribou the subsection currently contains no RNAs. RNAs are important ecological or natural areas established for non-manipulative research, education, or to maintain natural diversity on National Forest system lands. They also may assist in carrying out provisions of special acts, such as the Endangered Species Act and the monitoring provisions of the National Forest Management Act. RNAs are good examples of physical or biological units in which current natural conditions are maintained insofar as possible. These conditions are ordinarily achieved by allowing natural, physical and biological processes to prevail without human intervention.

Table 2.13-1: Existing Research Natural Areas within the Webster and Pruess FMAs.

Area Name	Year Established	Ranger District	Size/Acres	Primary RNA Objectives
Horse Creek	1989	Soda Springs	550 acres	Preserve cold spring Preserve several subalpine fir habitat types
Meade Peak	1988	Montpelier	300 acres	Maintain and preserve subalpine conditions

2.13.1 RFP Direction

Forestwide direction for the management of RNAs (Prescription Area 2.2) on the Caribou National Forest is found on pages 4-36 through 4-38 of the Revised Forest Plan (RFP). Additional direction is found in FSM 4063 and Establishment Records for each RNA. Direction for implementing fire in the RNAs on the Caribou National Forest is as follows:

- The ecological role of fire to maintain specific communities for which the RNA was established must be documented in scientific research if fire is used as a tool to maintain vegetation characteristics.

III PROTECTION CONSIDERATIONS

This Chapter discusses the values at risk that occur within and adjacent to the Caribou, Webster, and Preuss subsection's that may require special protection considerations and provides guidelines for informing Forest users of safety concerns during a WFU event.

3.1 General Information

Administrative sites within the subsections and private land within and adjacent to the subsections may require special protection considerations.

The intent of applied fuel treatment measures would be the protection of identified private property and federal facilities. This includes areas of the subsections that are susceptible to interface fire. The long-term objective of any fuel treatment is to eventually increase the opportunity for natural fire to play its role more fully in the forest ecosystem. Fuel treatments should increase the probability of success of the program, restore ecological balance, and substantially reduce the threat of escape from the area or significant damage to capital investments.

Key perimeter areas that are susceptible to a fire crossing from inside the FMA to outside have been identified. These are areas adjacent to administrative (improvements) sites, private/state lands, or management prescription boundaries and automatically convey a higher risk for managing WFU. The land within each FMA has been categorized into three risk zones*:* ***Suppression Zone, Boundary Zone*** *and* ***Interior zone***. Fire managers analyzed values at risk, topography, fuel type, historic fire behavior, fire occurrence, and weather patterns to determine the location and extent of these zones. Each zone has different prescriptive criteria associated with it and is discussed in more detail in Appendix B (Wildland Fire Use Implementation Procedures Reference Guide).

Preventative measures can be taken in advance to reduce risk of wildland fire. These include modifying the fuels characteristics within these areas to increase the probability of suppression actions being successful; excluding the vulnerable areas by modifying the maximum manageable area perimeter so that it is located in the most defensible location. The most defensible location may not be within the subsection.

All known administrative sites, cultural sites, and improvements need to be evaluated to determine the appropriate level of fire protection. Defensibility of each site must be determined in order to properly identify the measures needed to adequately protect the site. This could be done with surveys using the included evaluation forms addressing pertinent information for proper assessment of each site. Seven levels of fire protection are offered for individual sites or groups of sites.

1. No protection
2. Handline construction concurrent with threatening fire
3. Handline and burnout concurrent with fire
4. Fire shelter or water system protection concurrent with threatening fire, prepositioning of protection equipment at crucial sites.
5. Fugitive retardant drops concurrent with fire
6. Use of heavy equipment for line construction concurrent with fire

7. Site/Structure/Improvement pretreatment or fuels reduction prior to fire event
   - Fuels reduction adjacent to and around sites with use of prescribed fire or other vegetative manipulation techniques such as pruning, thinning etc.
   - Flammable material movement (firewood, fuel, etc.)
   - Permissible modifications of structures (building materials).

3.2 Improvements

3.2.1 Caribou Subsection

Specific agency protection considerations in the Caribou Subsection are listed in the table below.

Table 3.2-1: Descriptions and Locations of the Identified Protection Considerations

Site	Description	Legal	Lat/Long
Caribou Mountain Repeater Site	Radio transmitting site	T4S R44E S4	472,012 4,765,438
Eagle Creek Seismic Station	Seismic measuring equipment	T4S R43E S24	469,935 4,766,619
Black Mountain Repeater Site	Radio transmitting site	T4S R45E S1	490,100 4,772,298
Diamond Flat RAWS Station	U.S. Forest Service RAWS Station	T6S R45E S30	482,301 4,745,816
Caribou Mountain Guard Station	Guard Station, Historic Guard Station, and Warming Hut.	T3S R44E S20	473,662 4,776,722
Bald Mountain Guard Station	Historic Guard Station	T3S R44E S13	480,082 4,778,304
Pine Bar Campground	Campground with several campsites	T5S R45E S20	483,237 4,757,351
Tincup Campground	Campground with several campsites	T5S R46E S6	491,267 4,762,148
South Fork of Tincup Trailhead Foot Bridge	Foot Bridge across Tincup Creek	T5S R45E S15	486,434 4,758,948
Fish Creek Trailhead	Foot Bridge across Fish Creek	T3S R45E S15	486,473 4,778,288
Spring Creek Corral	Corral constructed of wooden poles	T3S R44 E S20	473,662 4,776,722
Caribou Basin Corral	Corral constructed of wooden poles	T3S R44E S17	473,668 4,778,326
Oxarango Corral	Corral constructed of wooden poles	T3S R44E S	476,875 4,778,314
Eagle Creek Corral	Corral constructed of wooden poles	T4S R44E S19	472,018 4,767,042
Squaw Creek Corral	Corral constructed of wooden poles	T4S R45E S13	489,665 4,7685,597
Jackknife Corral	Corral constructed of wooden poles	T4S R46E S29	492,873 4,765,385
Dancehall Flat Corral	Corral constructed of wooden poles	T5S R46E S7	491,260 4,760,544
Bear Canyon Corral	Corral constructed of wooden poles	T5S R45E S16	484,826 4,758,951
Bridge Creek Corral	Corral constructed of wooden poles	T5S R44E S15	476,809 4,758,973
Diamond Flat Corral	Corral constructed of wooden poles	T6S R45E S32	476,397 4,744,477

3.2.2 Webster Subsection

Specific agency protection considerations in the Webster Subsection are listed in the table below.

Figure 3.2-2: Descriptions and Locations of the Identified Protection Considerations

Site	Description	Legal	UTM
Trapper's Cabin	Trapper's Cabin	T10S R45E Sec. 5 NW1/4	481,781.98 4,714,835.91
Sage Peak Repeater	Radio Transmitting Site for the B-T	T9S R45E Sec.12	488,376.34 4,721,500.65
Summit View Campground	Campground with several sites	T10S R44E Sec.15 NE1/4	475,780.70 4,711,669.41
Clear Creek Guard Station.	Guard Station	T10S R45E Sec.12 NW1/4	486,003.98 4,707,980.19
Archrey Range	Archrey Range for Caribou Archers	T8S R43E Sec.29	462,059.19 4,727,843.70
Auburn Fish Hatchery	Wyoming fish hatchery	T7S R46E Sec.32 SE1/4	491,894.68 4,734,377.75
Star Valley Trout Farm	Trout farm	T7S R46E Sec.32 NE1/4	491,904.73 4,735,553.88
Telephone Lines	Telephone lines	T8S R43E Sec.27,28,29,30	
Telephone Lines	Telephone lines	T8S R45,46E Sec.17,18,19,24,25	
Power Lines	Power lines	T8S R46E Sec.19,20,30	
Stewart Peak Repeater	Radio Transmitting Site	T8S R45E Sec.30	479,791.60 4,727,823.60
Mill Canyon Campground	Campground with several sites	T7S R43E. Sec.18 SW1/4	470,261.94 4,739,725.62
Diamond Creek Campground	Campground with several sites	T8S R45E Sec.28 NE1/4	483,792.45 4,727,351.14
Trail Canyon Warming Hut	Warming hut for snowmachiners in the winter	T8S R43E Sec.28 NW1/4	464,119.93 4,727,823.60
Johnson Guard Station	Guard Station	T8S R45E Sec.21 NW1/4	483,239.57 4,729,452.08
Stump Creek Guard Station	Guard Station	T7S R46E Sec.21 SE1/4	493,393.64 4,737,721.77
USGS Seismograph Station	Seismograph Station	T8S R46E Sec.5 NW1/4	491,653.42 4,733,935.45
Rasmussen Valley Corral	Corral constructed of wooden poles	T7S R44E Sec.6	470,503.20 4,742,701.13
Blackfoot River Corral	Corral constructed of wooden poles	T7S R44E Sec.18	471,196.81 4,739,916.62
Yellowjacket Creek Corral	Corral constructed of wooden poles	T7S R45E Sec.31	480,545.53 4,735,051.26
Diamond Flat Snotel Site	Snotel Site	T6S R45E Sec. 30	482,299 4,745,820
Slug Creek Snotel Site	Snotel Site	T10S R44E Sec.15	475,377 4,712,895

3.2.3 Preuss Subsection

Specific agency protection considerations in the Preuss Subsection-FMA are listed in the table below.

Figure 3.2-3: Descriptions and Locations of the Identified Protection Considerations

Site	Description	Legal	UTM
Hells Hole Repeater	Radio transmitting site	T13S R45E Sec.5 NE1/4	482,646.48 4,685,613.63
Montpelier Campground	Campground with several sites	T12S R45E Sec.31 SE1/4	481,007.94 4,686,387.66
Montpelier Picnic Area	Several picnic sites	T12S R45E Sec.31 SE1/4	481,269.30 4,686,538.45
Caribou Cattlemen's Association Storage Shed	Storage shed	T10S R45E Sec.36 SE1/4	489,090.06 4,705,487.20
Dry Creek Corral	Corral constructed of wooden poles	T11S R46E Sec.34	495,170.94 4,696,738.75
Giveout Snotel Site	Snotel Site	T11S R45E Sec. 35	486,014 4,696,210

3.3 Minerals

3.3.1 Active Mining Claims

This section will include a table of the active mining claims, patented land, and any other feature that could potentially be adversely affected by a fire. A legal description, as well as contact information will also be included. Most of these people were contacted in order to gather their concerns. The District will maintain close contact with the claim owners located in the fire vicinity. These claim owners will be briefed on fire status, expected fire behavior, and any management actions taken on the fire.

Table 3.3-1: Active Mine Claims

Owner	Phone #	Concerns	Legal
Kent Daniels	208-624-7450	None	T3S R44E S16
George Deavor	unknown	None	T3S R44E S17
Tony Crnkovich	307-883-9782	Pumps, hoses, sluice box	T3S R44E Sec.24,25
Joe Sklenar	307-886-5584	Possibly a trailer, a loader and other small mining equipment	T3S R44E S32
Michael Commons	208-528-0800	Possibly a trailer and a FS owned cabin	T3S R44E S29,30,32 T4S R44E S5
Richard Dixon	208-547-4479	Cabin at the confluence of Bilk Cr. and unnamed drainage in the E1/2 sec. 36	T3S R44E S36
Mark Steele	208-547-4748	Cabins, mostly just old foundations	T4S R44E S4,5,8,9

Table 3.3-2: Patented Mine Claims

Owner	Phone #	Concerns	Legal Description
Mark Steele	208-547-4748	Cabins, mostly just old foundations Timber	T4S R44E S4,5,8,9
Alan Pitto	209-333-0702	None	T4S R44E S10

Other sites on Caribou Mountain that may be of concern are Caribou City, an old abandoned mining town, and Caribou basin.

Historic mining activities on the northern and eastern slopes of Caribou Mountain in the headwaters of Bilk Cr., Iowa Cr., Miner's Delight Cr., Camp Cr. and Barnes Cr. are extensive and may have areas that are unsurveyed by a qualified archeologist. Most of the cabins or structures in these areas will most likely be dilapidated. Headgates for ditches that were constructed from wood may remain, however, enough time has elapsed in this area that decay has disposed of most artifacts made from biodegradable materials.

3.3.2 Phosphate Mines

Currently there are no phosphate mines within the boundary or interior zones in the Caribou, Webster and Preuss subsections. However, phosphate mining areas have many hazards that are associated with them and extra caution should be taken when defending and suppressing wildfires in or close to the following listed mine areas.

Dry Valley Mines

On the National Forest, the North and South Maybe Canyon mines were developed and operated from the 1967 until 1995. Mining the commenced at the Champ mine concurrent with operations at North and South Maybe in 1983 and concluded in 1989. Operations were initiated at the Mountain fuel Mine in 1989 as operations at Champ were closing and continued until 1995. In 1990, the Dry Valley mine opened and operated through 2003 when the mine was temporarily closed. In 2005, a new company will reopen the Dry Valley mine. Operations are estimated to continue through 2012 or until the remaining reserves are removed.

All of the Dry Valley Mines and leases on the forest are operated by Nu-West Mining Inc. No explosives or structures are present on either North Maybe, South Maybe or the Champ Mine. A shop is still present at the Mountain Fuel mine along with a conveyor tipple adjacent to the rail line for loading cars with ore. The shop building has steel siding and a steel roof. No heavy fuel concentration are present around this structure. Reclamation at this site was primarily grasses, mixed with alfalfa. The main access road is gated. A key is available at the Soda Springs District office.

Smoky Canyon Mine

Phosphate Mining operations were initially proposed for the Smoky Canyon drainage in 1979. An EIS was prepared for the development of 5 mine panels A-E. Mining was approved and began in 1982 and continue today. Operations at the Smoky Canyon Mine progressed southward from the A panel to the D panel and to the south end of the lease at the E panel. In 2003, operations moved back onto the B and C panels on the north end of the mine. The mine straddles the district boundary on the north end of the D panel. South of this line operations are on the Montpelier Ranger District and to the north they lie on the Soda Springs District.

Smoky Canyon is an active mine, numerous buildings, fuel storage, and explosive could be encountered at this site. Mining Co. personnel man a security check point on the Smoky Canyon Rd. with a gate to provide public safety. Access to this site is restricted. J.R. Simplot Co. operates 160 Ton haul trucks at this site. These vehicles have severely restricted visibility and present a significant safety hazard. Entry to the site must be coordinated with mine personnel. **Daytime contact can be made at the security gate on the Smoky Canyon access road.**

All buildings and the explosives storage area have been cleared of trees and brush. There is a powerline through the mine site. Trees are cleared from immediately beneath the line, but may be adjacent. Clearing is performed to protect the line from falling trees and fire. Poles are generally treated wood.

Power to the mine is provided by Lower Valley Power. Transmission towers are steel.

Bulk Fuel storage is provided at the mine however the company must meet DOT storage requirements for spill containment and safety.

In case of an emergency fire situation, the mining company should be notified to provide protection for vendors and employees that access the mine along the Smoky Creek Rd. FDR 110 and the Diamond Creek (FDR 102)and Timber Creek (FDR 110) roads.

Reclamation at the mine is generally a combination or grasses and forbs, however several lodge pole pine plantations have been established on reclaimed waste embankments through out the mine area. Under drought conditions reclamation species could be flashy. Adjacent lands are timbered with mixed aspens.

Enoch Valley Mine and South Rasmussen Ridge Mines

The Enoch Valley mine and the South Rasmussen Ridge mines are operated by Monsanto Corporation. Degerstrom construction is their mining contractor. Enoch Valley operations are nearly completed with the last of the waste embankments scheduled for reclamation in 2005. Monsanto's primary operation has moved to the South Rasmussen Ridge Mine and State of Idaho owned lands and adjacent C-T administered lands to the southeast. Travel to and from the mines are on restricted use haulroads where mixing with mine traffic creates a safety issue. Routes to and from the mine are not gated nor is there a security station. Permission is needed to travel these routes unless it is an emergency.

All facilities at either the South Rasmussen or Enoch Valley mines have been cleared of brush and trees. The shop and office area in Rasmussen Valley has a cleared gravel parking area surrounding all of their buildings and fueling areas.

Reclamation at both of these sites is primarily grass and forb communities with pockets of transplanted brush and trees. Heavier fuels at these sites are not continuous but are broken up by large areas planted with grasses and forbs.

Wooley Valley Mine

Operations at the Wooley Valley mine concluded in the 1993 when Rhone-Poulenc Chemical moved their active mine operations to Rasmussen Ridge. No buildings or facilities remain on site. Fuel storage tanks buried at the site have been removed and the contaminated soils associated with these tanks remediated in cooperation with the state of Idaho Department of Environmental Quality. Reclamation at the site is primarily grasses and alfalfa, however some isolated stands of mixed aspen and conifer as islands along the east side of the partially backfilled pits.

Water is available at the site from either the reservoir that remains on the southern end of the property or from the pit lake that sometimes remains on the north end of the property. Caution should be exercised when accessing these ponds as the banks may be soft and at the pit lake the banks could be steep and friable.

No mine personnel are present in SE Idaho. Management oversight for this abandoned mine are located in Silver Bow, Montana. The primary contact is: Dan Bersanti. Dan should be contacted and notified when extended suppression efforts are undertaken. Any prescribed fire activities on the site require that the contact with the company.

Central and North Rasmussen Ridge Mine

Mining began on Agrium's South Rasmussen Ridge Mine when Rhone-Poulenc Chemical Co. held the leases. This lease is now the responsibility of Nu-West Mining Inc.

In 1993 Rhone-Poulenc moved their mining operations from the Wooley Valley Mine to the South Rasmussen Ridge Mine. An ore haulroad was constructed from Little Long Valley, west of the mine at the rail head for the spur, to the Rasmussen Ridge. The 7 mile haulroad has been reconstructed once during the mine life. Access to the Wooley Valley, Enoch Valley and Rasmussen Ridge mines can be had from this road. **Caution must be exercised on this road to avoid conflict with haul traffic.**

Maintenance on the haul road will be intermittent during the temporary cessation of mining operations at the Rasmussen Ridge Mine. Nu-West Mining will leave their office and shop complex unattended during an anticipated 6 year closure. Periodic inspection will be conducted weekly at the mine year round.

Open pits remain at the North and Central Rasmussen Ridge mines. **These pits constitute a significant safety hazard. All employees not trained to be around abandoned mines should stay away. If circumstances require entry into the mine area Jeff Jones, Scott Gerwe, Anita Lusty, or Darrel VandeWeg should be consulted.**

All areas at this site have vegetation cleared away from buildings and equipment sufficient to protect them from fire. **No FS personnel are authorized to enter into any of the buildings without a company representative.**

Reclamation at this mine is similar to all phosphate mines. Grasses and forbs provide most of the cover with pockets of woody materials scattered about or planted in pockets around reclaimed waste embankments.

Georgetown Canyon

Georgetown Canyon was constructed as a mine, processing facility and office in the mid-1960's. Operation ceased in 1968 and has not resumed. Phosphate Rock was mined from patented phosphate mining claims dating before the Mineral Leasing Act of 1920.

Patenting transferred title of the land to private ownership from the Federal Government before 1920. All of the land that once held the phosphate smelter, office, thickener, and parts of the mine are on private land. Today the entire private inholding is surrounded by lands administered by the Caribou-Targhee National Forest. It is owned by Agrium USA and is managed by the Conda Phosphate Operations office in Soda Springs, Idaho.

In 2003, Idaho Department of Environmental Quality began work with Agrium to remove the remaining industrial facilities and to clean up contaminants remaining in the ground and water around the old operational facility. Work was primarily completed in 2005

eventhough the industrial site is still contained within a chain-link exclosure. This facility produced elemental phosphorus as their initial refined product.

Elemental (white) phosphorus oxidizes in a combustion reaction at normal atmospheric temperatures and pressures. It can lie inert in the soil or under water for many years, but when it is disturbed or exposed to the atmosphere combustion occurs. Combustion temperature is over 500°. It causes instantaneous thermal burns on flesh.

During road construction activities at the site in the 1990s and again during site cleanup in 2003, elemental (white) phosphorus was uncovered at the historic plant site. Burning white phosphorus produces large volumes of white smoke with a brilliant green glow from the point of combustion. Smoke from the combustion should be avoided. In an emergency response scenario, water should be used under low pressure to suppress the fire. If the source of elemental phosphorus is movable, immerse it in a bucket of water. **Do not put in a stream**. If the site is secure and no safety issues are present, let the source totally oxidize (burn itself out). If it is safe and only a small quantity is present, white phosphorus can be buried and wetted to suppress oxidation reactions and combustion. If white phosphorus contacts skin, immediately flood the area with water and scrub away the source. Immediately seek medical treatment. **Once the site dries or the source is again exposed to oxygen in the atmosphere combustion will re-occur.**

Fire suppression activities at the Georgetown site should include a briefing on the site hazards. Agrium CPO **(Scott Sprague, 547-3539 ext.13)** should be notified immediately. No resources or improvements remain at the site that would be substantially damaged by wildfire.

Above the industrial site below the ridge line west of Snowdrift Mountain are several small open mine pits. Slopes around the pits and on the waste piles are very steep with loose rock and should be considered unsafe. A road does exist that leads to these mine features, but it is under lock and key held by Agrium (Scott Sprague).

Recent site investigation work has revealed other hazardous and toxic substances remain on the site. If it is necessary to suppress a fire on or near the industrial site (Jeff Jones, 547-4356 or (home) 234-0406 or (cell 313-7907)) should be contacted immediately.

Water found on the site is safe for fire suppression use in engine tanks, however, I recommend that upon leaving the site water tanks are purged and refilled with clean water. Georgetown Creek passes beneath the site in a 1600 foot long culvert. Equipment should not be walked over the shallow covered culvert but walked around the end unless verified safe by a qualified engineer.

Contacts for the mines can be found in Table 3.3-1.

Table 3.3-1: Phosphate Mine Contacts

Mine	Contact Name	Phone Number
Dry Valley Mine	Dan Kline	(208)547-3935
	Rob Squires	
Smokey Canyon Mine	Dennis Facer	(208)873-3700
	Lower Valley Power	(307)886-3175
Enoch Valley Mine and South Rassmussen Ridge Mine	Dave Farnsworth	(208)547-1271
	Randy Vranes	(208)547-6129
	Mike Vice	(208)547-6132
Wooley ValleyMine	Dan Bersanti	(406)782-1215
Central And North Rassmussen Ridge Mines	Nu-West Mining Inc.	(208) 547-4381
Georgetown Canyon	Scott Sprague	547-3539 ext.13

3.4 Outfitter Campsites

The Soda Springs and Montpelier District will maintain close contact with special use permit outfitter camps located in the fire vicinity. Outfitters will be briefed on fire status, expected fire behavior, and any management actions taken on the fire.

The possibility exists that some temporary outfitter camp locations may be damaged by fire. If this occurs, the Forest Service will assist and give first consideration to affected outfitters. The Forest Service will immediately investigate any known tangible damage to private property. Outfitter campsites are identified in the tables below.

Table 3.4-1: Description and Locations of the Outfitters within the Caribou FMA

Operator	Description	Location	Legal	Lat/Long
Hamilton Outfitters	Pack in outfitter camp. Active only in Sept./Oct./Nov.	South Fork of Tincup Creek	T6S R45E S9 NE1/4	42° 54 45N 111° 11 10W
Hamilton Outfitters	Pack in outfitter camp. Active only in Sept./Oct./Nov.	Jack Knife Creek	T4S R45E S19 NE1/4	43° 03 27N 111° 13 31W

Table 3.4-2: Description and Locations of the Outfitters within the Webster FMA

Operator	Description	Location	Legal	Lat/Long
Poker Peak Outfitters	No camps currently in use	N/A	N/A	N/A
Phil Baker	No camps currently in use	N/A	N/A	N/A

Table 3.4-3: Description and Locations of the Outfitters within the Preuss FMA

Operator	Description	Location	Legal	Lat/Long
Poker Peak Outfitters	No Camps currently in use	N/A	N/A	N/A

3.5 Public Safety

The following will be utilized to inform Forest users of safety concerns and minimize the chances of endangering the personal safety of users in the Forest as a result of the wildland fire use program.

The following items will ensure that forest users will be advised of the hazards and risks in the fire area, as well as safe routes in the vicinity of the fire:

- Trailheads, and trails in the vicinity of the fire area will be signed appropriately, advising Forest users of fire status, hazards and risks, as well as suggested alternative routes of travel. Government personnel will be updated routinely so they can alert and inform visitors they contact.

- If a fire is located along a major access route, visitor information personnel will be assigned to contact and advise visitors as they enter the fire vicinity.

- In the event fire conditions deteriorate significantly, and there is imminent danger to known visitors; the Line Officer may elect to use the forest helicopter to warn users and make evacuations of those users incapable of responding rapidly.

- The Line Officer may request official closure of trails and campsites in the fire vicinity if that person feels that the fire presents significant threats to life and visitor safety.

- Information concerning active Fire Use incidents will be posted and kept up to date on the Caribou-Targhee website.

Site Evaluation Worksheet

Site: _____**Legal**:_____

Factors Influencing Rate of Spread;

Slope_____ Position on slope_____ Aspect_____ Fuel Model_____
Fuel Continuity_____ Ladder Fuel_____

Remarks _____
_____

Resources
Water supply (type and capacity) _____
Equipment on site _____
Available Barriers _____

Access/Egress:
Road (width, grade, condition, bridges, etc.) _____
Trails _____
Airstrip _____
Helispot _____
Boat _____

Occupancy (number, type, duration, etc.) _____

Identified Protection Level:

- _____No protection
- _____Handline construction concurrent with threatening fire
- _____Handline and burnout concurrent with threatening fire
- _____Fire Shelter or water system protection concurrent with threatening fire
- _____Use of heavy equipment for fireline construction concurrent with threatening fire
- _____Pretreatment: fuels reduction of unnatural fuels prior to fire event
  - fuels reduction
  - flammable material movement (firewood, fuel etc.)
  - change in building materials

Proposed Tactics:
_____
_____

Probability of success

		Flame Length 0-2’	2-4’	4-6’	6-8’	8’	8+
Fair	40%+	___	___	___	___	___	___
Good	60%+	___	___	___	___	___	___
Excellent	80%=	___	___	___	___	___	___

Prepared By _____**Date** _____

Draw Site Map on back: attach relevant notes and photographs

Structure Evaluation Worksheet

Structure: _____***(1 of) Site:*** _____

- Roof: Construction, type/condition _____
- Siding: material/condition _____
- Heat traps: gables/decks/porches/vents _____
- Windows: exposed/covered/type _____
- Overhead Lines: power/phone/shutoffs _____
- Underground Lines: power/phone/shutoffs _____
- Fuel Storage: type/quantity/lines/shutoffs _____
- Outside combustibles: wood piles/fences/yard accumulation _____

  _____
- Septic Tank/location: _____
- Position on slope: _____
- Working space – minimum clearance guide:

Slope Percentage	Uphill	Actual	Sides	Actual	Downhill	Actual
Level to 20%	100ft	_____	100ft	_____	100ft	_____
21% to 40%	150ft	_____	150ft	_____	150ft	_____
41% to 60%	200ft	_____	200ft	_____	200ft	_____

Additional Comments: _____

_____

_____

_____

_____

_____

_____

Prepared by:_____ Date: _____

(Attach maps, drawings, notes, digital photographs, or other appropriate information)

IV IMPLEMENTATION

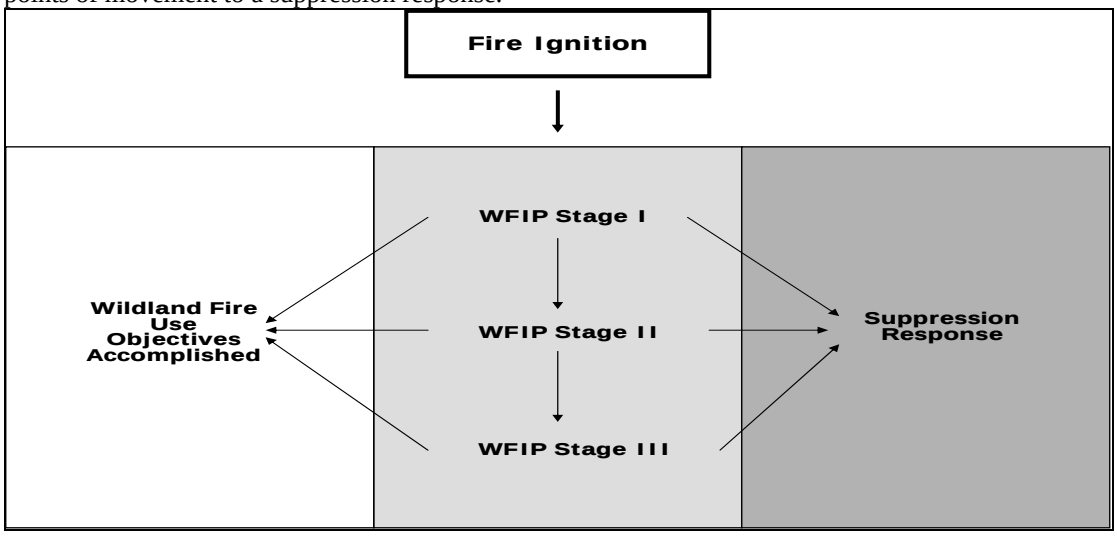
4.1 Wildland Fire Implementation Plan

Strict planning and documentation requirements exist for management of wildland fires where resource benefits are a primary objective. Figure 4.1-1 illustrates the basic Wildland Fire Use planning process.

A standard Wildland Fire Implementation Plan (WFIP) has been developed. The WFIP is prepared progressively by Stages and has specific forms and formats for each stage. Each individual stage represents a stand alone implementation plan. Progression to the next stage is dependent upon fire activity, potential duration, and relative risk as it relates to the incident. As each stage is prepared, it is attached to previous stages until completed or management of the fire accomplishes the objectives.

The complete WFIP consists of three stages. Since each stage can be completed individually and can be used as a stand-alone plan, it is possible that an individual fire will be managed under only Stage 1 for its duration. Some fires may progress to Stage II and some may progress to Stage III. Thus, the overall objectives for managing individual fires can be accomplished through successful implementation of any or all of the stages, as illustrated by the left portion of Figure 4.1-1.

Figure 4.1-1: Generalized flow of Wildland Fire Implementation Plan showing progression of stages and points of movement to a suppression response.



WFIP Stage I is designed to document the fire situation, Agency Administrator decision, initial management actions, and set the initial periodic assessment schedule. This Stage is the preliminary stage of the planning process and given suitable circumstances and fire situation, can be used to manage a fire with low potential for spread. Important components of the WFIP Stage I include:

- Strategic Fire Size-Up (documents fire situation, determines fire location and cause). A Strategic Fire Size-Up is completed for all wildland fires and provides direction to implement a wildland fire use or a suppression response. All wildland fires which are naturally caused and in a fire management unit where WFU is an option will require completion of Stage I WFIP.
- Decision Criteria Checklist (documents the decision to manage fire for resource benefits or initiate a suppression action)
- Initial Management Actions (identifies initial management actions)
- Periodic Fire Assessment (set assessment frequency, confirms decision to continue with WFU, and identifies planning stage needs). A Periodic Fire Assessment is done as part of each Stage on a schedule determined by Managers. Completing this step in Stage I provides direction to move to Stage II, remain with Stage I, or move to a suppression response.

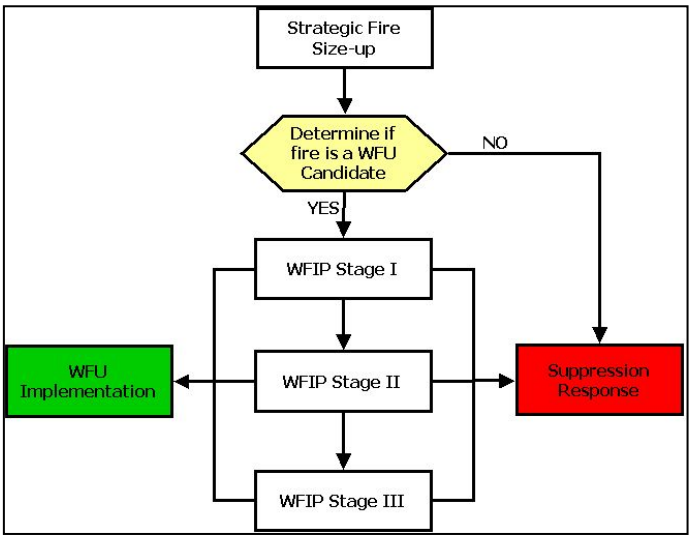


Figure 4.1-2: Components of WFIP Stage I

The Strategic Fire Size-Up, Decision Criteria Checklist, and Periodic Fire Assessment are points in the WFIP Stage I where a suppression response can be indicated (**Figure 4.1-3**).

WFIP Stage II is designed to define management actions required in response to changing fire situation as indicated by the Periodic Fire Assessment completed as part of Stage I. Stage II is the secondary stage of the planning process and will be used to manage larger, more active fires with greater potential for spread than in Stage I. Under suitable circumstances and fire situation, this stage could represent the end point in WFIP planning and could be used to manage a fire through its duration. Important components of the WFIP Stage II include:

- Objectives
- Fire Situation
  - Safety considerations
  - External concerns
  - Environmental concerns
  - Threats

    - Current and predicted fire behavior
    - Current and predicted weather
- Management actions (include description of action and expected duration)
- Estimated costs
- Periodic fire assessment. Completing this step in Stage II provides direction to move to Stage III, remain with Stage II, or move to a suppression response.

WFIP Stage III is designed to define management actions required in response to an escalating fire situation, potential long duration, and increased need for management activity, as indicated by the Periodic Fire Assessment completed as part of Stage II. This stage represents the most detailed and comprehensive level of long-term strategic planning done for wildland fire management. It addresses management objectives and constraints in detail, describes the maximum area that the fire will be managed within (Maximum Manageable Area), identifies all threats and concerns, provides a quantitative long-term risk assessment, identifies management actions to mitigate or eliminate all threats, provides cost estimates, and documents a periodic assessment of the situation. This stage is the final WFIP Stage and constitutes a substantial planning effort. Much of the information contained in this stage can be pre-planned or completed prior to fire ignition if the administrative unit desires to do so. Such pre-planning is strongly encouraged. Important components of the WFIP Stage III include:

- Objectives and Risk Assessment Considerations
    - Natural and Cultural resource objectives
    - Management Constraints
- MMA Definition and Maps
- Weather conditions/drought Prognosis.
- Long-Term Risk Assessment (describe techniques and outputs, include maps as appropriate)
- Threats
    - MMA
    - Public Use and Firefighter Safety
    - Smoke dispersion and effects
    - Other
- Monitoring Actions (actions, frequency, and duration)
- Mitigation Actions (describe holding actions, management action points that initiate these actions, and key to map if necessary)
- Resources needed to manage the fire
- Contingency Actions (describe actions necessary when mitigation actions are unsuccessful)
- Information Plan
- Estimated costs
- Post-burn evaluation
- Signatures and Date
- Periodic Fire Assessment

4.1.1 Wildland Fire Implementation Plan Completion Timeframes

Specific completion timeframes have been established for each stage of the WFIP. The maximum completion timeframes for WFU planning tasks are outlined in the table below.

Table 4.1-1: WFIP Completion Timeframes

WFIP Stage	Maximum Completion Timeframe
WFIP Stage I	8 hours after confirmed fire detection and Strategic Fire Size-Up
WFIP Stage II	48 hours after need indicated by Planning Needs Assessment
WFIP Stage III	7 days after need indicated by Planning Needs Assessment
Periodic Fire Assessment	As part of all stages and on assigned frequency thereafter

4.2 Minimum Planning and Implementation Qualifications

The following table shows the minimum qualification requirements for planning and implementation at each stage of the WFIP process.

Table 4.2-1: WFIP planning minimum qualifications. Agencies or individual units may choose to require higher qualification levels.

WFIP Stage	Minimum Planning Qualifications
WFIP Stage I	Unit Duty Officer
WFIP Stage II	Fire Use Manager Type 2 (FUM2)
WFIP Stage III	Fire Use Manager Type 2 (FUM2)

Table 4.2-2: WFIP implementation minimum qualifications. Agencies or individual units may choose to require higher qualification levels.

WFIP Stage	Minimum Planning Qualifications	Minimum Implementation Qualifications
WFIP Stage I	Unit Duty Officer	Incident Commander Type 4 (ICT4) **(Must have local knowledge or prior experience in implementing WFIPs and managing wildland fire use events)**
WFIP Stage II	Fire Use Manager Type 2 (FUM2)	Fire Use Manager Type 2 (FUM2) (Use Fire Use Manager Decision Chart to determine type)
WFIP Stage III	Fire Use Manager Type 2 (FUM2)	Fire Use Manager Type 2 (FUM2) (Use Fire Use Manager Decision Chart to determine type)

The determination of the appropriate level of qualifications is made through the Fire Use Management Decision Chart located in Figure 8 of the Wildland Fire Use Implementation Procedures Reference Guide.

The minimum national skills, knowledge, standards, and physical qualifications for each position required for fire use implementation are outlined in the Wildland Fire Qualification Subsystem Guide, NWCG, PMS 310-1 (see FSM 5108 for further information on this guide) and the Wildland Fire Qualifications Handbook, FSH 5109.17. Exceptions are noted for Prescribed Fire Planning Specialist, Prescribed Fire Burn Boss Type 3, and Fire Use Manager. Standards are provided for these positions in FSM 5145.21, 5145.22, and 5145.31, respectively (FSM 5145.1).

Line officer delegation of authority to approve Wildland Fire Implementation Plans (WFIP) and implementation positions are the two categories of qualifications concerning management of the WFU program. Each Forest Fire Management Officer and Forest Supervisor will review designated personnel that are delegated the authority for WFU approval on an annual basis. Training, experience, and knowledge will be part of this review prior to issuance of the delegation of authority letter. Line officers must meet the standards outlined in R4 supplement 5100-2001-5 5140.42.

Every wildland fire used to achieve resource objectives requires that the line officer designate a Fire Use Manager (FUMA) who is directly responsible for all aspects of the Wildland Fire Implementation Plan (WFIP) (FSM 5145.3). The FUMA may individually manage multiple fires that do not require significant staffing, external communication, or holding resources for plan implementation, or the FUMA may be the leader of a specialized team needed to manage one or more complex fires. An individual FUMA must be assigned for each wildland fire requiring Stage III analysis described in the Implementation Guide (FSM 5143.32). As complexity increases, consideration should be given to assigning a formal team. Indicators of increasing complexity include: safety, the number of fires being managed, acreage increases, anticipated severe weather, increasing coordination needs, smoke issues, threatened resources, and logistical demands. Fire Use Management Team (FUMT) leaders, Type I or II Incident Commanders may also be designated as FUMAs when they have completed appropriate fire use training (FSM 5145.31). In the case of a long duration fire where the FUMA needs to be relieved due to consecutive days of service, the replacement must be designated by a line officer at the same level of authority as made the initial FUMA assignment.

When required by the Implementation Guide (FSM 5140.32), long-term fire behavior predictions, based on the best scientific process available must be provided by a Long Term Fire Analyst (LTAN) or Fire Behavior Analyst (FBAN) with experience in long-term fire behavior prediction.

The Fire Use Manager (FUMA) or formal team leader determines, through development of the WFIP, the organization and expertise necessary to successfully manage wildland fire(s) to meet resource objectives. The organization required to implement fire use projects is based on the complexity of the project, the number of fires burning, and the resources available at any one time. On less complex projects, one person may perform multiple duties simultaneously. More complex projects require more highly qualified personnel. The required organization must be delineated in the approved Prescribed Fire

Burn Plan (RxBP) or Wildland Fire Implementation Plan (WFIP). Two levels of Fire Use manager have been identified. In general a FUM 1 is required for incidents progressing to Stage 3. Qualifications for FUM1 and FUM2 are described in their entirety in FSH 5109.17.

Requirements of the **FUM1** position require:

- Qualification as a Prescribed Fire Burn Boss 1 (RxB1) and
- Satisfactory performance as a Fire Use Manager on a wildland fire incident used to achieve land use objectives ***OR***
- Incident Commander Type 2 ***AND***
- Prior successful management of wildland fire use and/or confinement strategies and tactics ***AND***
- Satisfactory performance as a Fire Use Manager on a wildland fire incident used to achieve land use objectives.

Requirements for the **FUM2** position require:

- Prescribed Fire Burn Boss Type 2 ***AND***
- Satisfactory position performance as a Fire Use Manager on a wildland fire incident used to achieve land use objectives ***OR***
- Incident Commander Type 3 ***AND***
- Prior successful management of wildland fire use and/or confinement strategies and tactics ***AND***
- Satisfactory position performance as a Fire Use Manager on a wildland fire incident used to achieve land use objectives.

In addition, a FUMA must have successfully completed a suitable fire use course at the Regional or National level, such as Advanced Fire Applications, S-580. The required fitness level is moderate. Only assignment as FUMA maintains currency (FSM 5109.17).

Along with the Fire Use Manager and District Ranger involvement, participation in developing the WFIP and managing the WFU may also include local specialists familiar with issues and policies associated with the fire management unit and the wildland fire use program. These specialists may include but are not limited to:

- Aerial Monitor - usually a person familiar with local conditions such as the regular Forest aerial observer. May have the need for an ICS-qualified FOBS or FBAN.
- Resource Advisor - not necessarily ICS qualified; may include other specialists such as wildlife or fish biologist, soil scientist, hydrologist, range, or archaeologist.
- Technical Specialists - experienced with RERAP, FARSITE, and GIS programs.
- Public Information Officer - familiar with language and concepts of wildland fire use.
- Division Supervisor - may implement holding actions identified in the WFIP.

If a wildland fire managed for resource benefits exceeds prescription parameters and cannot be brought back into prescription within **48 hours**, it will be declared a wildfire.

A Wildland Fire Situation Analysis will then be prepared and the appropriate suppression response taken.

All personnel assigned to any wildland fire will meet the qualification standards established by their home agency unless they are trainees operating under Task Books and with a fully qualified person for the training position.

A small pool of qualified FUMAs exists in the Greater Yellowstone Area. A list of qualified personnel is updated yearly in the Greater Yellowstone Area Interagency Fire Management Planning and Coordination Guide. Personnel listed in the guide should be available for Fire Use assignments under the jurisdiction of any of the agencies that are members of the GYA.

4.3 Wildland Fire

A wildland fire will be managed for protection considerations whenever an ignition does not meet one or more of the prescription criteria in the initial Stage I decision process, the Stage II analysis and wildland fire implementation plan development, or exceeds prescription parameters during Stage III Management and the daily revalidation. An appropriate management response must be initiated immediately once a fire is no longer being managed as wildland fire use. The appropriate management response will be based on least cost plus value lost that is consistent with Forest management goals and objectives. For additional information on the appropriate management response refer to the Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide (pg 33-35). The following guidelines will help select the most appropriate management response:

- Suppression strategies must consider cost-effectiveness, protection of private property, and human life.
- Pre-plan dispatch guidelines and available resources will dictate the appropriate management response.
- Minimum Impact Suppression Tactics (MIST) should be employed to the maximum extent possible when emphasized in a particular management prescription area (RFP 4-15-85). Refer to section **4.4** for more information on MIST.

4.4 Minimum Impact Management Tactics

The tactics are organized by basic fire management activities–fireline construction, burning out, mop-up, and by specific types of actions such as tree cutting, hazard tree management, helicopter operations, and camp situations. A section on rehabilitation is also included.

One of the most basic tools in minimum impact management tactics is choosing the time of day in which to concentrate fire management efforts. Typically efforts should be concentrated at night or in the cooler parts of the day. Efforts in the heat of the day are

often ineffective, especially in lighter fuels such as grass and sagebrush. Efforts at night or the cooler part of the day using the appropriate methods can be quite successful.

Firelining

The basic intent of fireline is to halt additional fire spread. Fireline does not have to be constructed to meet this intent.

- Use aerial tactics (retardant or bucket drops) in light fuels, such as grass.
- Burn out from existing roads or trails, including animal trails.
- Use foam or water along the fire edge.
  - When using water, use spray or mist nozzle settings. Do not use straight stream settings.
  - Use 72-gallon blivits with lightweight hose long-lined in by helicopter in remote areas.
- Use all available natural barriers, such as rocky areas, bare streambeds, vegetation changes, and already cool fire perimeter.
- When hand fireline must be constructed, consider such measures as:
  - Locate the fireline in areas requiring a minimum of scraping and cutting.
  - Keep the width and depth to the minimum necessary to stop the fire's spread.
  - Widen minimal firelines through burning out.
  - Limb or fall trees and snags only when necessary for safety or to prevent fire spread.
  - Minimize clearing of fuels next to the fire's edge.
  - If possible, roll logs out of intended fireline instead of bucking. If not possible to roll, consider building fireline around the log and let it remain in the burned area if it will not pose a serious threat to fire escape.
  - When possible, scrape fuels from the base of snags or around heavy fuel concentrations to prevent fire spread and possible spotting.
  - Consider the use of fireline explosives to construct line and fell snags and trees.

- If machine fireline will be used, consider the following:
  - Have dozer operators avoid gouging the soil layer.
  - Use excavators instead of dozers, especially in deep duff.

Burning Out

- Conduct burning out operations using the same considerations and methods as when conducting a prescribed fire. Complete consumption of all live or dead fuels is not necessary. Creating mosaic type burns can also serve to slow or halt fire spread without creating high fire intensities or burn severities.
- Conduct burnouts during periods of lower fire intensity, such as at night or cooler portions of the day.

Mop-up

Some mop-up may be necessary in order to fully contain the fire. However, it is often not necessary to mop-up every smoke. Evaluate the potential of any smoking area to actually threaten escape and further spread before mopping-up.

To lessen mop-up activities:

- Cold trail extensively.
- Try to avoid tool scars by using water or foam to extinguish the fire.
- Minimize spading. When spading, minimize soil disturbance.
- Do not use straight stream nozzle settings except during attempts to extinguish burning snags and trees.
- Roll logs to check for fire instead of bucking or excessive cutting. If rolling is not possible, let the log burn out if it is not a threat to additional fire spread.
- Cool, remove, or burn fuels that may ignite and cause fire spread.
- Allow fuels, snags, and trees to burn until out when they are well inside the fire perimeter and do not pose a serious threat to safety or fire spread.
- When falling appears necessary, consider alternative methods such as fireline.

Tree Cutting

The basic questions to ask when considering cutting a tree down are: 1) does the tree or snag pose a risk of fire escape and continued spread and 2) if the tree or snag does not pose a risk, is it necessary that firefighters be working in its vicinity.
Consider the following alternatives to cutting:

Firelining

- Use minimum limbing (pruning) for trees with branches that extend to the ground.
- Avoid cutting any trees whose limbs are well above the surface fuel layer even when near a fireline.
- Gambel oak is not susceptible to fire spread up the bole; avoid cutting these trees even when near the fireline.
- Scrape around the base of trees or snags near the fireline to keep fire spread from igniting the base.
- Where burning out is planned, fall only those snags that would reach the fireline, should they burn and fall over.
- Avoid felling snags outside of the line in the intended burned out area only if they are an obvious safety hazard to crews working in the area.
- When necessary to cut trees or snags, follow up on rehabilitation to reduce the impact.

Mop-up

- Whenever possible, allow burning trees and snags to burn themselves out or down provided they do not pose a safety risk to crews that must work in the vicinity.
- Identify hazard trees with an observer, flagging, or glow-sticks.
- If burning trees or snags pose a serious threat of spreading firebrands, extinguish the fire with water or dirt. Consider falling by blasting, if available. Felling by chainsaw should be the last resort.

Hazard Trees

- Carefully evaluate any tree for true hazard to trails and roads after the fire. Many tree species can withstand partial consumption of the bole and remain solid on the stump for many years.
- Trees weakened by fire tend to fall over in the direction of the cat face. If the cat face points away from the road or trail allow it to fall over on its own.
- Trees that lean away from the road or trail should be allowed to fall over naturally.
- Evaluate the height of the tree or snag; will it even reach the road or trail? If not, allow it to stand.
- Trees and snags on the downhill side of the road or trail should be left unless they have a pronounced uphill lean.

Helicopter Operations

Planning/Proposed Phase

- What will be the primary function of this helispot (crew shuttle, logistic support, or both)?
- If for logistic support only, use long line remote hook instead of constructed helispots.
- If for crew shuttle, consider the minimum sized helicopter and opening for safe operations and still meet the intended management response.
- Use natural openings as far as practical. If construction is necessary, avoid high visitor use areas. Perform an aerial reconnaissance discussion over the area or fire perimeter where helispots are desired. With a Type II or I Incident Management Team involve, at minimum the Air Operations Manager, Resource Advisor, and Helitack Foreman who will be in charge of on-the-ground construction. With a Type III Incident Management Team involve, at minimum, the Resource Advisor and Helitack Foreman. Draw a sketch and discuss which trees to cut to ensure safe helicopter operations. Insure that all parties involved in the discussion have audio equipped helmets.
- As a group, discuss mitigating measures in order to restore the helispot to as natural a condition as possible or to blend the opening with the surrounding untouched natural landscape.
- If adverse environmental or wilderness impacts are anticipated from proposed helispots inside or within the fire area, are there other possibilities some distance away that would result in less impact and still accomplish the intended management objectives?
- Provide specific instructions, preferably written, for the on-the-ground supervisor and crew to use when constructing the helispot.
- If possible, monitor helispot construction.

Construction Phase

- Cut trees and snags close to the ground, leaving stump heights of 0-3 inches. Follow-up flush cutting may be necessary to reduce stumps to this height.
- If possible, directionally fell trees and snags such that the boles will be in a criss-crossed or in a natural appearing arrangement.
- Buck only what is necessary to create safe and practical operating space in and around the landing pad area.
- Limb only what is necessary to create safe and practical operating space; if possible break limbs instead of cutting them.

Base/Spike Camps and Personal Conduct

- If possible, use existing campsites.
- Camp at impact resistant sites such as rocky or sandy soils or openings within dense vegetation. Avoid camping in meadows or near stream banks and lakeshores.
- Avoid clearing vegetation, trenching around bedding sites, and cutting boughs for bedding.
- Change camp location if the area shows excessive use; use alternate travel routes to avoid excessive trail wear.
- Use stoves for cooking when possible and avoid construction of several campfire sites, especially fire pits and rock rings.
- Locate toilet sites a minimum of 200 feet from water sources.
- Keep latrine holes to less than 8 inches deep to speed decomposition of waste by soil bacteria.
- Evaluate coyote and spike camps verses daily travel to and from base camps, especially where sensitive areas are involved.

Rehabilitation

- Before starting rehabilitation activities, walk through adjacent untouched areas and observe the appearance, arrangement, and color scheme of the vegetation. Use these areas as a guide in directing rehabilitation efforts.
- Firelines and Mop-up Activity
- After fire spread is secured, replace dug-out soil and duff; obliterate berms and leave as natural appearing.
- Provide some means of drainage to prevent erosion on firelines or trails created on steeper slopes, such as shallow depth water bars or natural materials to act as sediment dams.
- Scatter some cut brush and limbs onto fireline or impacted areas so it blends more with the natural appearing landscape.
- Scatter obvious, excess accumulations of cut limbs, seedlings, and saplings into a more natural arrangement.
- Flush cut stumps of felled trees and snags with the ground surface; scatter cut portion out of sight.
- Camouflage cut stumps in a manner that blends with the surrounding landscape.

- Use a variety of methods to camouflage cut faces of stumps and boles instead of just one: rocks, dead woody material, dirt, fragments of stumps or bolewood, fallen or broken green branches, hack with pulaski or ax, etc.
- If needed, bring in some natural material from adjacent untouched areas to use in camouflaging cut faces of boles and stumps.
- Piece together cut sections of downed logs so they appear as un-cut, if possible. Place soil or some existing debris over the cuts.
- Position cut logs where they will be least noticeable to visitors.
- If bolewood can be moved, place cut end adjacent or underneath existing down material.
- For large size bolewood that cannot be moved, place a slant cut (45-60 degree angle) on the bottom side.
- Do not lop and scatter tops of cut trees.
- Selectively place a few of the cut seedlings and saplings in an upright position (wedged between downed logs, old root wads, etc.).
- If there has been an excessive amount of bucking, limbing, and topping; consider slinging or removing cut rounds and tops from the site.
- Consider using explosives on some stumps and cut faces of bolewood to create the appearance of a wind-thrown tree.
- Remove all flagging and trash along the fireline.

Helispots

- If excessive amounts of cut material exist, pile and arrange for it to be burned at a later date or consider slinging cut material from the site.
- Obliterate the landing pad and leave in as natural a condition as possible. Bury painted helispot markers, if they exist.

Camps

- Scatter campfire site rocks and charcoal; cover charred fire ring rocks with soil if necessary.
- Scatter any cut limbs or splittings that may have occurred.
- Cover latrine site.
- Remove camp or tent poles and stakes made from trees and scatter in a nearby tree-covered area.
- Pick up litter and pack out all garbage.

4.5 Wildland Fire Situation Analysis

The Wildland Fire Situation Analysis (WFSA) is a decision making process in which the agency administrator or representative describes the situation, establishes objectives and constraints, compares multiple strategic wildland fire management alternatives, evaluates the expected effects of the alternatives, selects the preferred alternative, and documents the decision.

Use of the WFSA is integral to successful management of both wildland and prescribed fires. It serves as a contingency when fire spread and behavior exceed suppression

efforts, when there is an inability to accomplish wildland fire use objectives, or when prescribed fires can no longer be implemented in accordance with the approved plan. The WFSA document can be used to compare alternatives reflecting the full range of appropriate management responses and can assess alternatives for realizing protection and/or resource benefits opportunities.

If a wildland fire use event exceeds the prescription parameters or the Maximum Manageable Area (MMA), a WFSA will be developed. After this decision is made, the fire will never revert back to the original status. The WFSA should be amended as conditions or strategy change.

4.6 Coordination

The following governmental agencies or entities should be consulted during preseason planning and in the event of a WFU within the plan area. Coordination and information-sharing intensity and effort will be based on the overall fire situation complexity.

4.6.1 Other Federal Agencies

USDI Bureau of Land Management	(208) 524-7500
USDI Bureau of Indian Affairs	(208) 238-2301
USDI Fish and Wildlife Service	(208) 237-6975
USFS (Bridger-Teton NF)	(307) 739-5500

4.6.2 States of Wyoming and Idaho

Wyoming Game and Fish	(307) 773-2321
Idaho Dept. of State Lands	(208) 525-7167
Wyoming Dept. of Environmental Quality	(307) 777-7937
Idaho Dept. Of Fish and Game	(208) 232-4703
Idaho Dept. Of Environmental Quality	(208) 236-6160

4.6.3 Local Governments

City Governments

Afton	(307) 885-9831
Alpine	(307) 654-7754
Thayne	(307) 883-2668
Montpelier	(208) 847-0824
Georgetown	(208) 847-2120
Soda Springs	(208) 547-2600

County Board of Commissioners

Caribou County	(208) 547-4324
Lincoln County	(307) 877-9056
Bonneville County	(208) 529-1350
Bear Lake	(208) 847-2212

City/County Health Departments

Caribou County	(208) 547-4375
Lincoln County	(307) 885-9598
Bonneville/Idaho Falls	(208) 528-5799
Bear Lake	(208) 847-3000

County Sheriffs

Caribou County	(208) 547-2561
Bonneville County	(208) 529-1350 ext. 1310
Lincoln County	(307) 885-5231
Bear Lake County	(208) 945-2121

City/Rural/Volunteer Fire Departments

Caribou County	(208) 547-2583
Lincoln County	(307) 886-0329
Bonneville County	(208) 529-1350
Bear Lake County	(208) 847-2121(sheriff dispatch)

4.6.4 Tribal Governments

Shoshone Bannock Tribes	(208) 238-3700

Coordination must also occur at the local level among the units managing the FMUs. Decisions made by one District could affect the potential decisions made by the adjacent District. Good communications should be maintained to facilitate information exchange concerning WFU within the subsection. Timely information exchange aids in the Stage I and Stage II decision process, this information assists the analysis team and/or decision maker to evaluate the cumulative effects of the decision on adjacent communities, Forest users, and fire suppression resources.

4.6.5 Caribou-Targhee Wildland Fire Use Contact List

Table 4.6-1: Supervisor's Office: 1405 Hollipark Dr. Idaho Falls, ID 83401 (208) 524-7500

Forest Supervisor	Jerry Reese
Forest FMO	Chris Ourada
C-TNF/NPF Fire/Fuels Planner	Gina Martin
Fuels Specialist/Forest AFMO	John Kidd
Forest Fire Ecologist	Viki Edwards
Recreation/Operations	Lisa Klinger
Public Affairs Officer	Lynn Ballard/ Joanna Wilson

Table 4.6-2: Eastern Idaho Interagency Dispatch Center: 1405 Hollipark Dr. Idaho Falls, ID 83401 (208) 524-7600 (208) 529-1020 1-800-438-8160

Dispatch Manager	Kathy Pipkin
Asst. EIIFC Manager (Intelligence)	Kai Olsen
Asst. EIIFC Manager(Operations)	Summer Johnson
Lead BLM Dispatcher	Heather Borgoro
Lead Forest Service Dispatcher	Amy Grows

Table 4.6-3: Ashton / Island Park Ranger District: PO Box 858 Ashton, ID 83420 (208) 652-7442/ HC 65 Box 975 Island Park; ID 83429 (208) 558-7301

District Ranger	Adrienne Keller
Zone FMO	Skip Hurt (shared)
ZAFMO (Operations)	Steve Davis (shared)
ZAFMO (Fuels)	Jim Cox (shared)
Wilderness Program Manager	Megan Bogle

Table 4.6-4: Dubois Ranger Station: PO Box 46 Dubois, ID 83423 (208) 374-5422

District Ranger	Robert Mickelsen
Zone FMO	Skip Hurt (shared)
ZAFMO (Suppression)	Steve Davis (shared)
ZAFMO (Fuels)	Jim Cox (shared)

Table 4.6-5: Palisades Ranger District: 3659 E. Ririe Highway Idaho Falls, ID 83401 (208) 542-5800

District Ranger	Ronald Dickemore
Zone FMO	Larry Zajanc (shared)
ZAFMO (Operations)	Spencer Johnston (shared)

Table 4.6-6: Teton Basin Ranger District: PO Box 777 Driggs, ID 83422 (208) 354-2312

District Ranger	Jay Pence
Zone FMO	Larry Zajanc (shared)
ZAFMO (Operations)	Spencer Johnston (shared)
Wilderness Program Manager	Megan Bogle

Table 4.6-7: Montpelier Ranger District: 322 N. 4th Montpelier, ID 83254 (208) 847-0375

District Ranger	Dennis Duehren
Zone FMO	Garth Alleman
ZAFMO (Operations)	Jared Mattson
ZAFMO (Fuels)	Dylan Johnson

Table 4.6-8: Soda Springs Ranger District: 410 E. Hooper Soda Springs, ID 83276 (208) 547-4356

District Ranger	Dave Whittekiend
Zone FMO	Garth Alleman
ZAFMO (Operations)	Jared Mattson
ZAFMO (Fuels)	Dylan Johnson

Table 4.6-9: Westside Ranger District: 75 S. 140 E. Malad, ID 83252,(208) 766-4743, 4350 Cliff Drive Pocatello, Idaho 83204 (208) 236-7500

District Ranger	Jerald Tower
Zone FMO	Greg Burch (shared)
ZAFMO (Operations)	Jeff Hill (shared)
ZAFMO (Fuels)	Gary Bishop (shared)

4.6.6 Adjacent Forest/Agencies Contacts

Table 4.6-10: Adjacent Forests/Agencies Contact Information

Bridger-Teton National Forest		
Forest FMO	Rod Dykehouse	(307) 739-5576
Bureau of Land Management		
Fire Management Officer	Rick Belger	(208) 524-7601
Teton Interagency Dispatch Center		
		(307) 739-3630

4.7 Inform and Involve Plan

The Wildland Fire Use Inform and Involve program is crucial to gain the support and understanding necessary to re-establish and implement a successful program. The following categories will guide Wildland Fire Use information dissemination and coordination pertaining to Wildland Fire Use on the Caribou-Targhee NF.

Pre-Fire Season Information and Involvement - These activities prepare the subsection complex for the upcoming fire season. Strategies to emphasize public awareness and education also occur here. Refer to Table 4.7-1.

Fire Use Management - A specific inform and involve plan is developed for each WFU. This category of action involves current activity. Refer to Table 4.7-2.

Post-Season Activities - Information gathering and evaluation of the Wildland Fire Use Program. Activities consist of analyzing individual fire monitoring plans and programmatic monitoring data. Program results and interpretations should be disseminated to interested parties, other agencies, and within agency. Refer to Table 4.7-3.

Table 4.7-1: Pre-fire season Information and Involvement

TASK	TOOLS	RESPONSIBILITY	TIMING
Dry run of WFU ignition evaluation and decision scenario	Meeting	Forest Supervisor and District Rangers	Annually by May
Develop list of qualified individuals for positions to implement the Wildland Fire Use Program	FMO meeting	Fire Managers	Annually by May

Present general fire management information to employees	Meetings	District Rangers, & Fire Staff	Annually by June
Provide information to outfitters, permittees, general Forest users, and the public that may be affected by wildland fire use	Meetings	District Rangers	As needed
Integrate Wildland Fire Management into Forest education programs at local schools	Classroom presentations	District Rangers/Fire Management	As needed
Prepare news releases on Wildland Fire Use in the Forest	News Releases	District Rangers and PIO	Pre-fire season and also during and post-fire season
Post Wildland Fire Use info at the trailheads and access points	Posters and signs	District Ranger/Fire Management	Annually by June

Table 4.7-2: Fire Use Management

TASK	TOOLS	RESPONSIBILITY	TIMING
Keep appropriate Line Officer appraised of current and expected fire behavior and fire status	Meetings, phone calls, and briefings associated with analysis and management of WFU	Fire Use Manager (FUMA) Analysis Team	On-going during, ignition, fire duration, and when significant changes occur
Make news media aware of Wildland Fire situation	Radio, Television and papers	Forest Supervisor, District Ranger, FUMA, and PIO	On-going during ignition, fire duration, and when significant changes occur
Post "Fire Caution" signs and information at trailheads and access points	Signs and posters	FUMA and District Ranger	Duration of Wildland Fire
Determine conditions that would dictate a fire closure. Coordinate with adjacent units and agencies	Meetings, phone calls, and field recons	Forest Supervisor, Forest FMO, FBA, and FUMA	Determined by current and expected conditions
Post fire closure signs at trailheads and access points. Contact permittees, general forest users, and other agencies	Signs, posters, phone calls and meetings	Forest Supervisor, District Ranger, PIO, and FUMA	When closure is put into effect
Keep National, Regional, and Local political contacts appraised of Wildland Fire status	Phone calls, meetings, briefing papers, and news releases	Regional Office, Forest Supervisor, District Ranger, PIO and FUMA	Based on National, Regional, and Local fire situation
Keep wilderness rangers, field personnel, and frontliners appraised of fire status	Phone calls and meetings	Forest Supervisor and District Ranger	Duration of Wildland Fire

Table 4.7-3: Post-Season Activities

TASK	TOOLS	RESPONSIBILITY	TIMING
Review information and education efforts involving Wildland Fire Use	Meetings	Forest Supervisor, Forest FMO, and District Rangers	Within three months of fire season ending
Evaluate and interpret post-fire monitoring and programmatic monitoring efforts and results	Meetings	Forest Supervisor, Forest FMO, and District Rangers	Within three months of fire season ending
Review C-T Fire Use Guidebook and Forest FMAP to ascertain how they were implemented and how they operated during the past fire season	Evaluation and Recommendatin Report	Forest Supervisor	By the end of the calendar year
Contact general Forest users, permittees, and the public concerning this past seasons fire activity	Meetings, phone calls and news releases	District Rangers and PIO	By the end of the calendar year
Report motorized use and mechanized transport with wilderness to Forest Wilderness Program Manager	Phone calls, E-Mail	Dispatch	By the end of the calendar year

4.8 Monitoring & Evaluation

Monitoring and evaluation are important at several phases of the Wildland Fire Use program. These phases are **Implementation** (during the fire), **Effectiveness** (within 6 months) and **Validation**.

4.8.1 Implementation

Any ongoing WFU will be monitored. Fire size, chronology, management actions (e.g. flights, holding actions, and closures) and expenditures are all categories of information that must be tracked. The primary monitoring will be recorded in the Wildland Fire Implementation Plan (WFIP) and the Periodic Fire Assessment form. This information will be used for local/regional data base development and will be completed during the fire by the Fire Use Manager (FUMA). If multiple fires occur it is important to document each fire separately with such items as visibility impairments, days of trail closures, etc. All wildland fire use events will require either a complete or abbreviated ICS-209. An abbreviated ICS-209 is defined as Blocks 2 through 7, 9 through 11, 14, 15, and 44 through 47. Once a WFU reaches 100 acres in size a complete ICS-209 will be required (Great Basin Mob Guide).

4.8.2 Effectiveness

The wildland fire use observation record form (located in Stage III) should be initiated. This form identifies items that need to be captured for all fires Class B or larger and in some cases the evaluation may be helpful for Class A fires. This would indicate if there were problems with the process or if special circumstances related to ecological or social concerns are present (e.g. T&E species or concentrated public use).

The information for the WFU records would be collected on the Forest within six months of the fire. At a minimum the FUMA and Resource Advisor need to be involved. For fires that exceed 100 acres, an on-site interdisciplinary review will be conducted. This review will collect the following data:

- Fire Intensity Mapping (with Photo corroboration)
  - Fire Area (acres)
  - % Crown Fire (acres)
  - % Lethal underburn (acres)
  - % Non-lethal underburn (acres)
  - % Un-burned area within fire perimeter (acres)
  - Indicate vegetation or habitat type and fuel model

- Fuel Consumption - Give a narrative description of what is left or an estimate of percent consumed. This may help with estimate of smoke emissions and risk reduction. It is also important ecologically as it relates to moisture retention, organic material available for soil building, cover, and erosion.

- Extended Damage:
  - Trail system damage as a result of fire. (e.g. loss of trail structures, miles of trail clearing, etc.). Give number of years to restore trail and complete hazard reductions.
  - Other structures (e.g. signs, cabins).
  - Weed infestations within the burned area.

- Look at management actions that have the potential to impact the area characteristics such as use of aircraft, pumps, chainsaws, locations of helispots, spikecamps, and fire control lines. Determine if such actions impacted the area characteristics and if so what alternative course of action may be used in the future to reduce the effects of such use.

- Assess what opportunities were available for additional monitoring or research concerning fire effects on wildlife, soils, water and biodiversity. Were appropriate individuals and/or groups made aware of these opportunities? What was done to facilitate the initiation implementation of additional fire effects monitoring and research?

- A cost analysis should be accomplished for fires over 100 acres in size to determine the cost effectiveness of allowing these fires to burn. The cost comparison should be made using the WFSA cost analysis versus the actual cost of the WFU project.

- Post-fire evaluations should be implemented at the District office in collaboration with the Supervisors office.

4.8.3 Validation

The primary objective of the WFU program in these subsections is to permit lightning caused fires to play, as nearly as possible, their natural ecological role. This objective cannot be measured in a quantitative way, but can be gauged in a relative sense.

A WFU in any subsection is only a part of a bigger picture; for this reason validation monitoring needs to take place. This overview by regional and forest staff will answer questions relating to broad scale reintroduction of fire into the landscape. This will be completed within six months of the fire.

Information in the fire records will include:

- Total number of starts in the subsection.
- % of fires in WFU status.
- % of fires in Confine, Contain status.
- Acres included in each of the previous categories.
- Agency acceptance.
- Days of restrictions of programs because of smoke, safety concerns, political reasons.
- Decision analysis, including all starts.
- Tracking of off-site smoke problems.

Analyze the rationale as to why some fires are managed as WFU and some are not. Analyze suppression responses to all fires to ascertain whether the chosen strategy was appropriate considering resource values, smoke concerns, public and personnel safety, and threats to administrative facilities and private property.

Determine through history and experience whether adjustments in procedures or guidelines need to be implemented to streamline or improve the effectiveness of the Wildland Fire Use Program.

Evaluate yearly what effect the WFU program has on fire personnel, public, and resource user safety.

Analyze public information requirements during a WFU and ascertain whether opportunities increased for the public and permittees to observe and interpret fires natural role in the ecosystem?

4.9 General Funding Requirements

The initial sighting of all fires within this fire management area will be financed with appropriated fire funds, the same as any other reported or detected ignition. A determination must be made after detection whether the ignition will be a wildland fire use (WFU) or a wildfire.

When it is determined that the fire will be managed as wildland fire use, dispatch will assign the fire a “G” code. This years Region 4 code is G4BES3 and is for all ABC and D miscellaneous Fire Use events.

When prescriptive criteria are exceeded and the fire cannot be brought back into prescription, the fire will then be managed for protection considerations and appropriate suppression action will be taken. Dispatch will then change the fire number from a "G" code to a "P" code. All activities, equipment, tools, and extra personnel needed to perform the appropriate suppression response will be financed as any wildfire suppression by emergency fire suppression funds utilizing this "P" code.

4.10 Fire Management Prescriptions

Natural ignitions will be allowed to burn under varying weather and fire behavior conditions. The ecological significance of large fires in the subsection is recognized, and naturally caused fires will be allowed, provided they meet the prescription criteria.

- A site specific Wildland Fire Implementation Plan will be prepared for each fire managed as WFU.

- National, Intermountain Region, and Greater Yellowstone Preparedness levels allow declaration of a WFU.

- The WFIP will be reviewed and revalidated each day by the appropriate line officer.

- Protection of life is assured. There will be adequate time to warn Forest visitors of potential threats from the fire, and there is no predicted threat to visitors and residents outside of the plan area.

- Protection of property is assured.

- Acceptable air quality predicted. Smoke modeling predictions combined with current smoke dispersal forecasts indicate that WFU will not cause significant impacts to neighboring communities and residents. In addition, many smoke complaints by neighboring communities will be considered a "smoke impact".

- Adequate resources are available to carry out the WFIP. Adequate resources include, but are not limited to a Fire Use Manager, Fire Monitors, Public Information Specialists, etc. to implement the plan properly.

- Fire behavior forecasts indicate that WFU will meet prescription elements of the WFIP.

- A risk assessment of impacts to Threatened and Endangered Species and their habitat shows no predicted long-term significant impacts to the recovery of any listed species.

- Social, political and economic assessments indicate no significant impact to neighboring communities and residents.

- Energy Release Component (ERC) is used as one of the initial evaluation criteria. ERC is calculated daily as part of the National Fire Danger Rating System (NFDRS), and is related to the available energy (BTU) per unit area (square foot) within the flaming front at the head of the fire. ERC is considered a “composite" fuel moisture index based on both living and dead fuel moisture. Actual ERC is compared to the historic fire weather charts for the representative weather station. Current ERC is compared to the historic 90^{th}, $97^{th,}$ and normal percentile values; and compared to the selected years. A best estimate of the high ERC for the remaining fire season will be predicted based on long-

term forecasts and climatological data. Fire behavior predictions will be adjusted to reflect the current and predicted ERC.

- Current drought index and large fuel moisture are assessed. Actual 1000 hour and Keetch-Byrum Drought Index are compared with historic records. Fire behavior predictions are adjusted to reflect current drought conditions. ERC, 1000 hour and Keetch-Byrum Drought Index historic weather charts are located in this chapter and will be updated as necessary.
- The land within the Caribou, Webster, and Preuss subsections have been categorized into three risk zones: *Suppression Zone, Boundary Zone and Interior Zone.* Fire managers analyzing values at risk, topography, fuel type, historic fire behavior/occurrence, and weather patterns determined the location and extent of theses zones. Prescriptive criteria for each zone follows.

  - **Suppression Zone:** All ignitions human or natural originating within the suppression zone will be suppressed utilizing the appropriate management response. Fires entering the suppression zone from either the boundary or interior zones will be managed with the appropriate management response.
  - **Boundary Zone: B**oundary zones have been established in the Caribou, Webster, and Preuss subsections. Natural ignitions in the boundary zone before August 15th ***and*** >90th percentile 3-day average ERC are out of prescription and the appropriate management response would be implemented. All ignitions occurring after August 15th are within prescriptive limits for this zone as well as ignitions occurring prior to August 15th with ERCs < 90th percentile. If a WFU fire moves into this zone prior to August 15th and >90th percentile 3-day average ERC the appropriate management response would be taken.
  - **Interior Zone:** Natural ignitions occurring within the Interior zone should normally pass the initial decision criteria with regard to threat to life, property, or the management area boundary. Provided other criteria are met, ignitions in this area should proceed to the Stage II analysis.

In general, WFU events within the Caribou, Webster, and Preuss subsection's will utilize the Diamond Flat weather station. All ERC data from this station utilize fuel model G. Exceptions to the default weather station can be made if conditions at the fire site are better reflected by some other station. The Diamond Flat RAWS was recently established in the Flat Valley area (established in 2000). While having very little historical weather information, this station will likely better represent conditions in the Caribou, Webster, and Preuss FMA's. If another RAWS station is used document the rationale for station selection.

Figure 4.10-1: Caribou Subsection Risk Zones

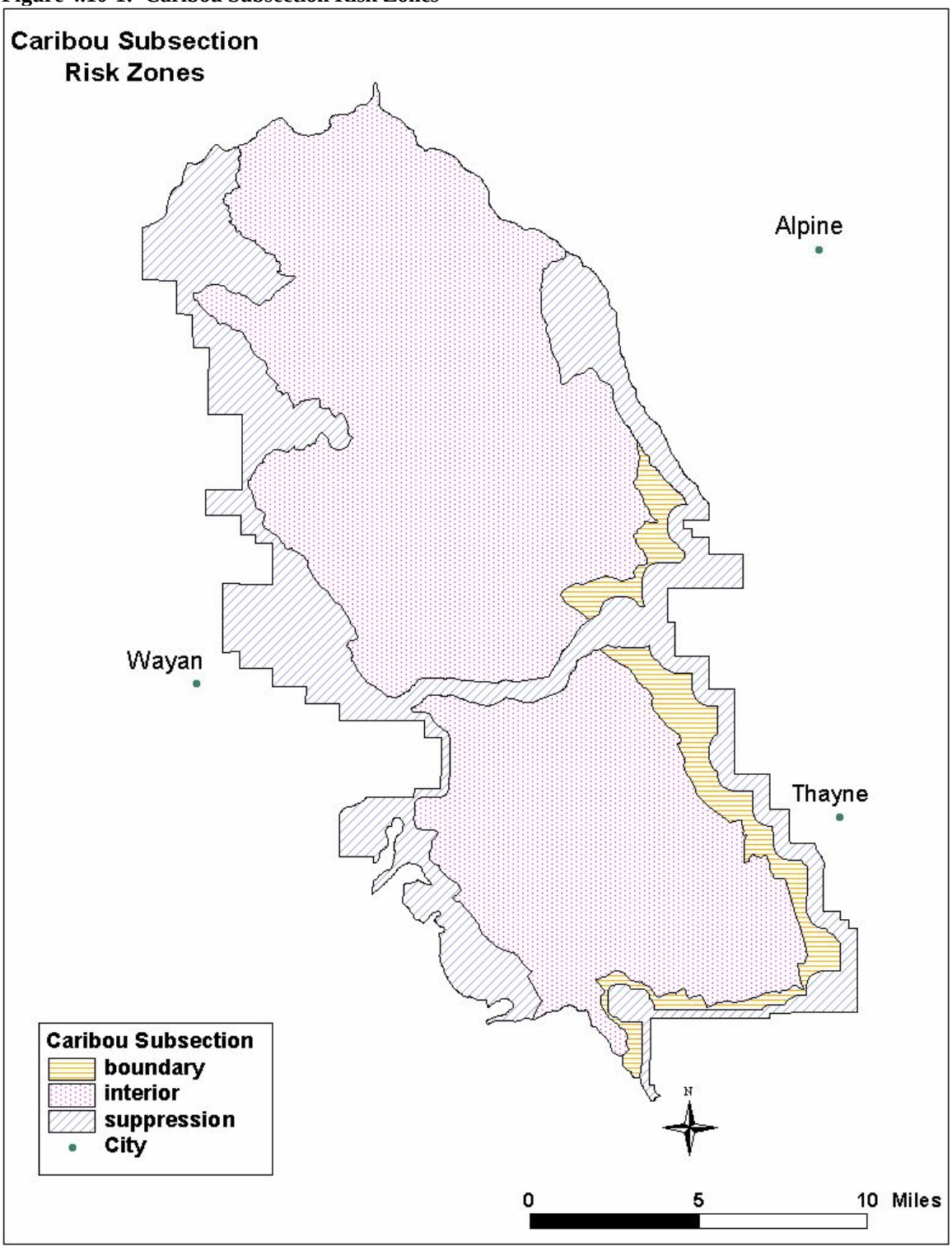


Figure 4.10-2: Webster Subsection Risk Zones

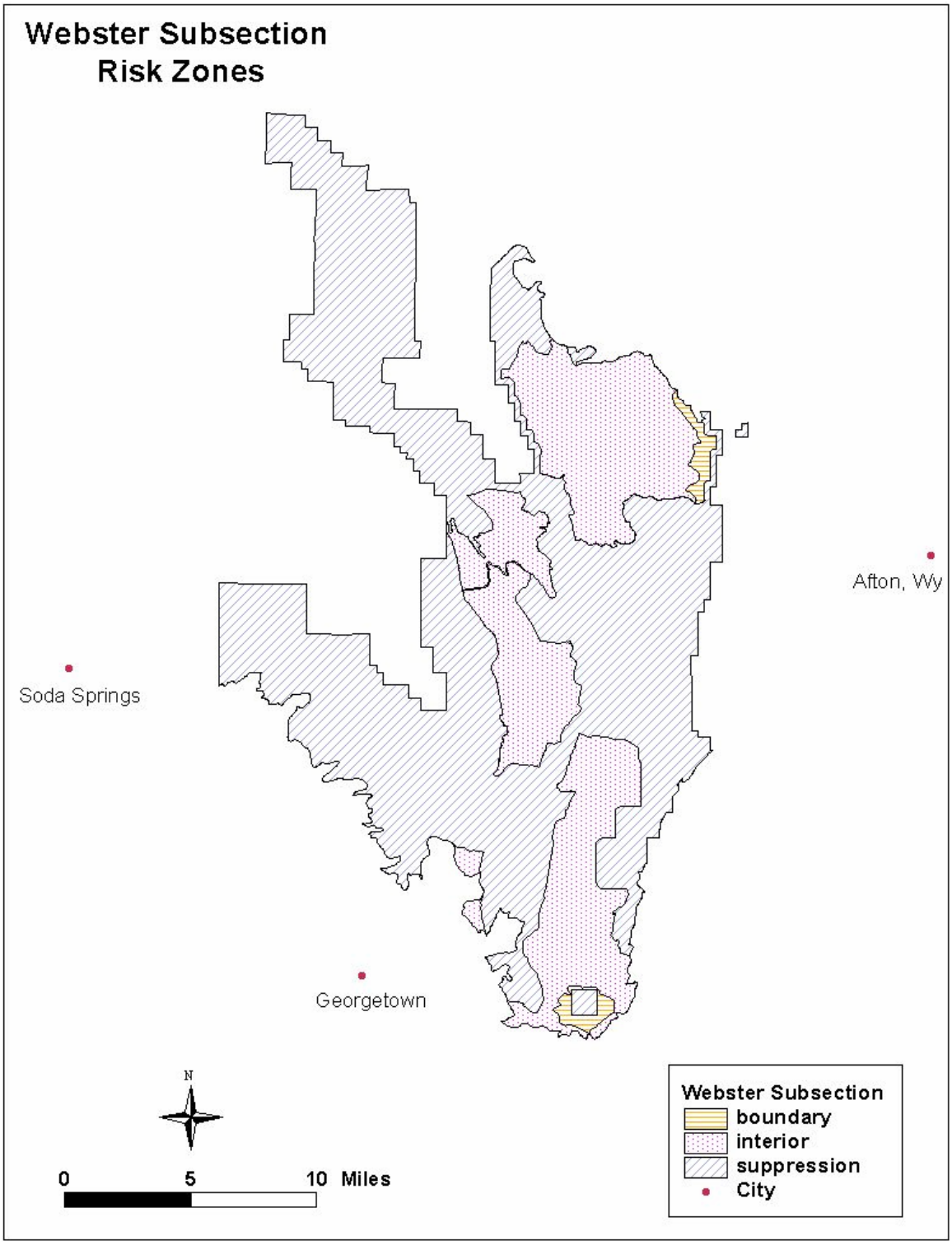
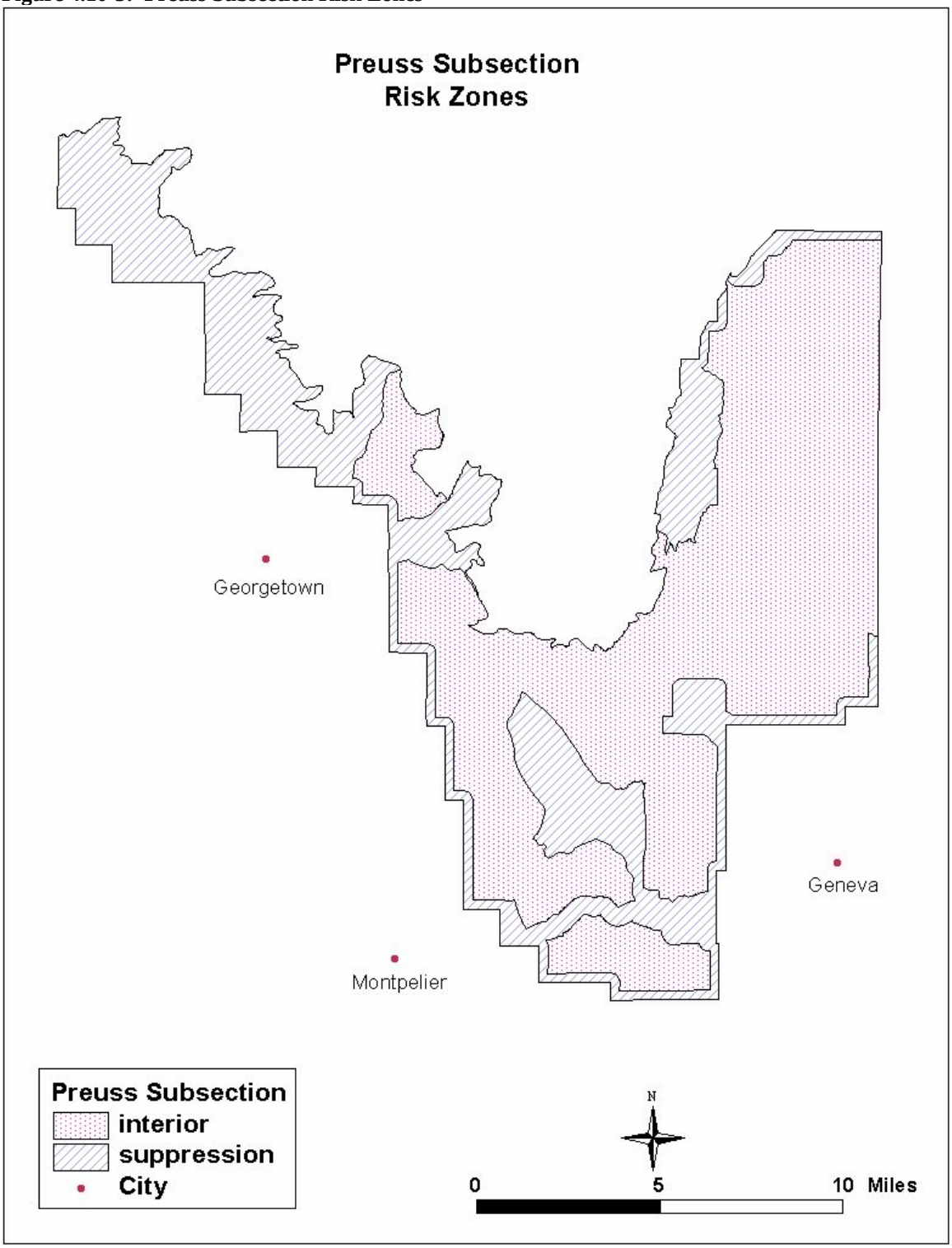


Figure 4.10-3: Preuss Subsection Risk Zones



4.11 Historic Fire Weather Charts

Since the Diamond Flat RAWS was established in 2000 and lacks long term weather data, the Moody RAWS with a longer collection of daily weather observations will also be displayed in this section. The following graphs were generated from weather data for the Diamond Flat (103904) and Moody (102301) weather stations. The graphs display the Energy Release Component, 1000-hour fuel moisture, and Keetch-Byrum Drought Index values starting in 2000 for the Diamond Flat and 1982 for Moody station. The elevation for this RAWS is 7500 ft for Diamond and 7040 ft for Moody.

The graphs were calculated with the program Firefamily Plus. This is a software system for summarizing and analyzing daily weather observations while computing fire danger indices based on the National Fire Danger Rating System (NFDRS). Three-day averages are used to eliminate noise in the data and smooth the line, which serves as the prescriptive limit. Averaging helps to eliminate being in prescription one day and out of prescription the next, particularly during the early and late season when fewer observations are recorded. When plotted, this method results in a graph, which reflects the curve of wetting and drying through the season. Current indices can then be compared with the historical data.

Historically, weather observations have stopped as the fire season ended. Late season weather observations are skewed toward dry years in which fire activity continued into this period. As a result, the late season portion of the graphs generally indicates drier conditions than actually occurred on average.

4.11.1 Energy Release Component

Energy Release Component is a measure of seasonal drying trends and includes both live and dead fuel moisture inputs. ERC is valuable for displaying fire risks and as an element of a fire prescription. Prescriptive criteria are based on fuel model G (dense conifer, heavy down dead), which, due to its greater 100-hour and 1000-hour time lag fuel components, better represents potential for extreme fire behavior in natural fuels. Fuel Model G's responsiveness to drying is not as rapid as fuel models C (open pine, grass understory) or H (short-needle conifer, sparse undergrowth).

The ERC graph developed for the Caribou-Targhee Fire Use Guidebook South represents current and historical weather conditions to provide a reference when evaluating fire management options.

The gray line on the graph is the 3-day average for the data. This line reflects the average of the ERC values for the day in question and the two previous days, for all available data. The maximum ERC line (blue) represents the highest ERC observed for that date. On the Moody figures, the final two lines are the 3-day average lines for the year 1993, a relatively wet year (dotted pink line), 1988 and 2000, relatively dry years (dashed blue line and dashed/dotted green lines respectively). These lines are provided as a basis for

comparison. By comparing current ERC values to the 1988, 1993, and 2000 values, Fire managers can make some general expected fire behavior assumptions and ascertain trends in the current fire season.

Current year ERC can be added to the figures below in Firefamily software by plotting the three day average using a separate color on the chart. Weather files are currently updated and available biweekly by personnel at EIFC.

Figure 4.11-1: The ERC for the Moody RAWS

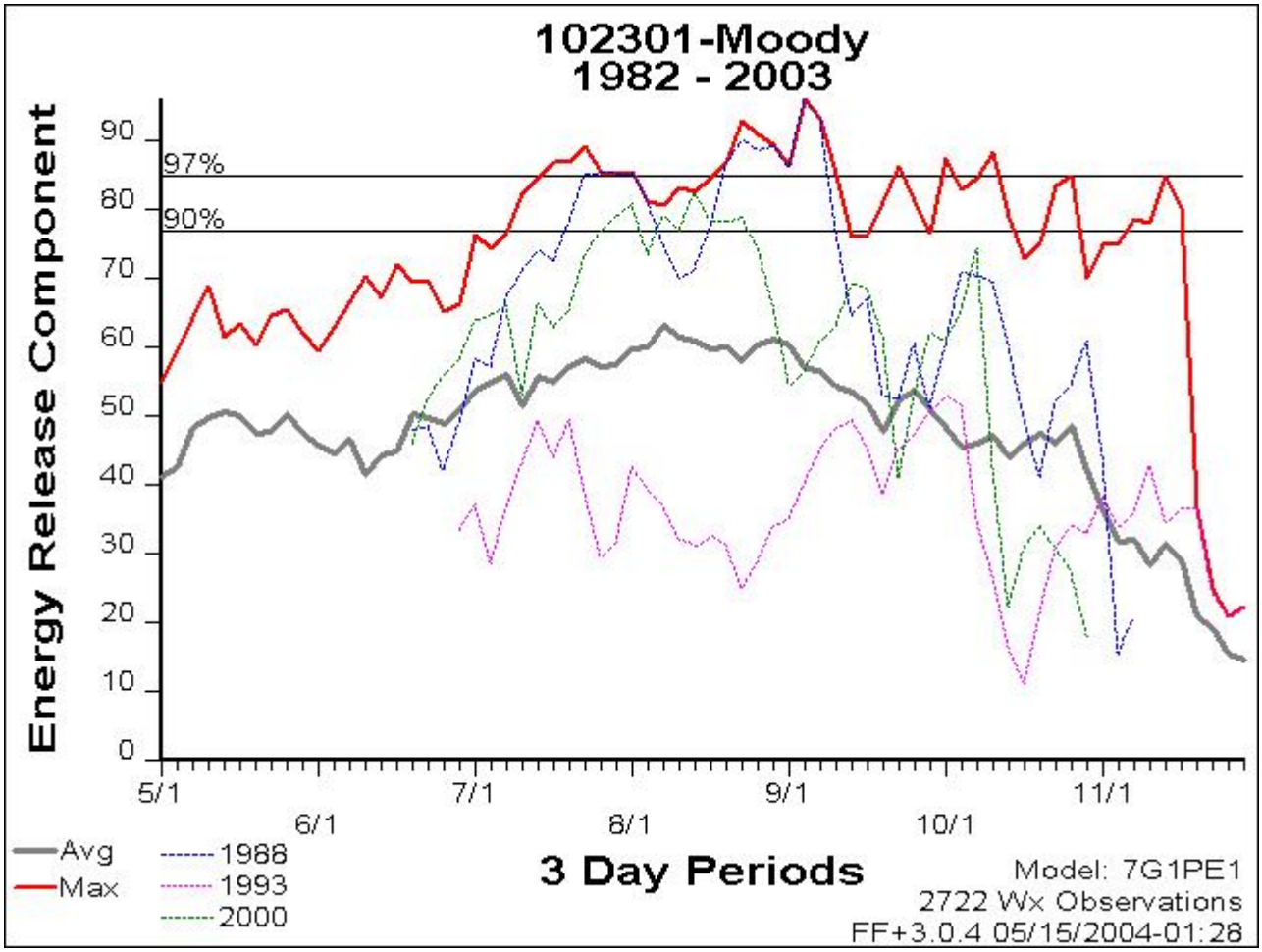
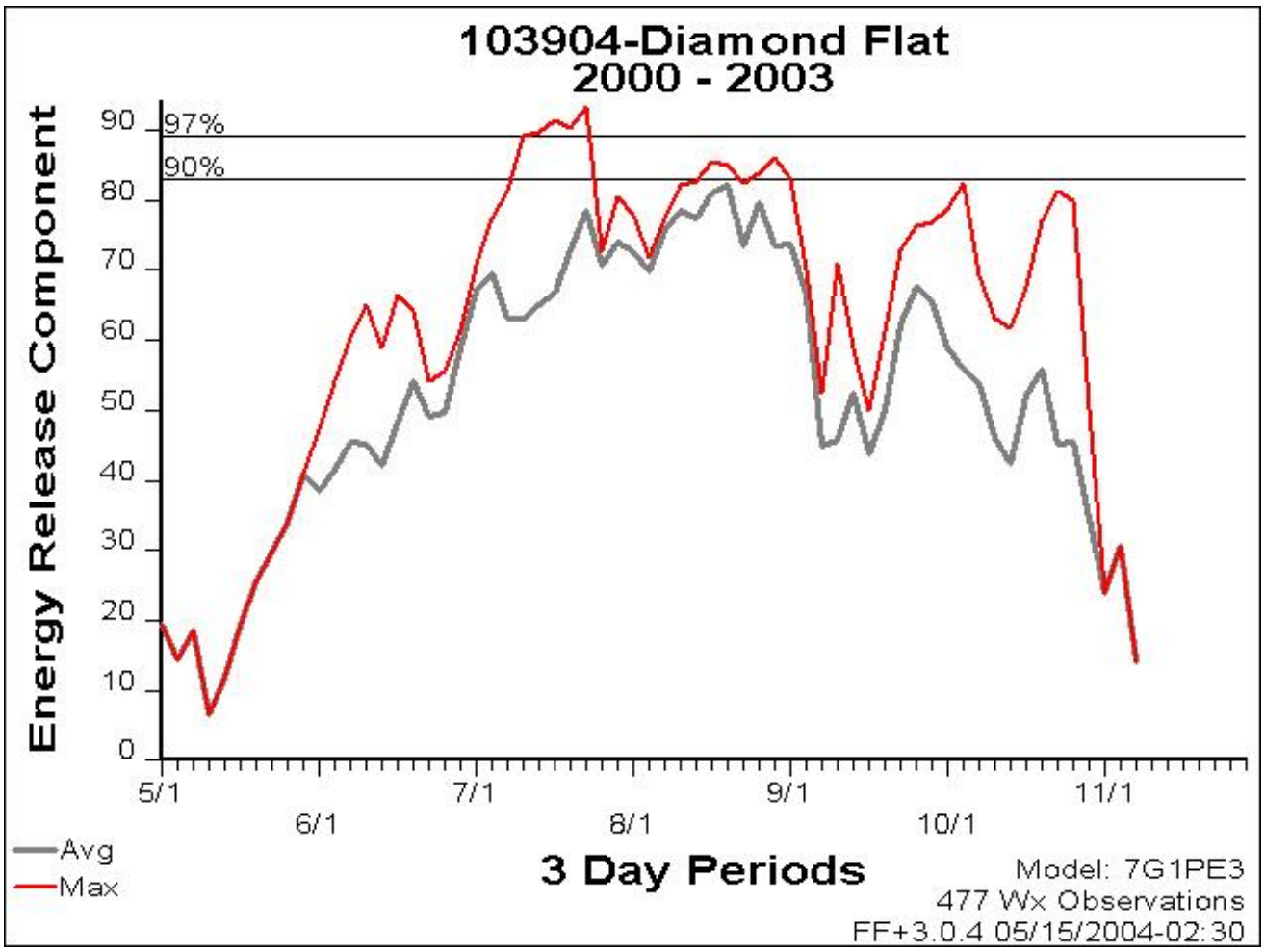


Figure 4.11-2: ERC for Diamond Flat RAWS



4.11.2 1000-Hour and Keetch-Byrum Drought Index

The 1000-hour graph is an indicator of long-term seasonal drying. Keetch-Byrum Drought Index (KBDI) represents the net effect of evapotranspiration and precipitation in producing moisture deficits in deep duff and the upper soil layers.

The graphs generated for 1000-hour fuel moisture and Keetch-Byrum Drought Index are similar to the above description for ERC. Both include (Moody RAWS only) an average line and the 1993 (wet year) and 1988 and 2000 (dry years) for historical comparison. The KBDI includes a maximum, 90th and 97th percentile plots, while the 1000-hour graph includes minimum and 10th (90th) and 3rd (97th) percentile.

Figure 4.11-3: 1000hr Fuel Moisture for the Moody RAWS

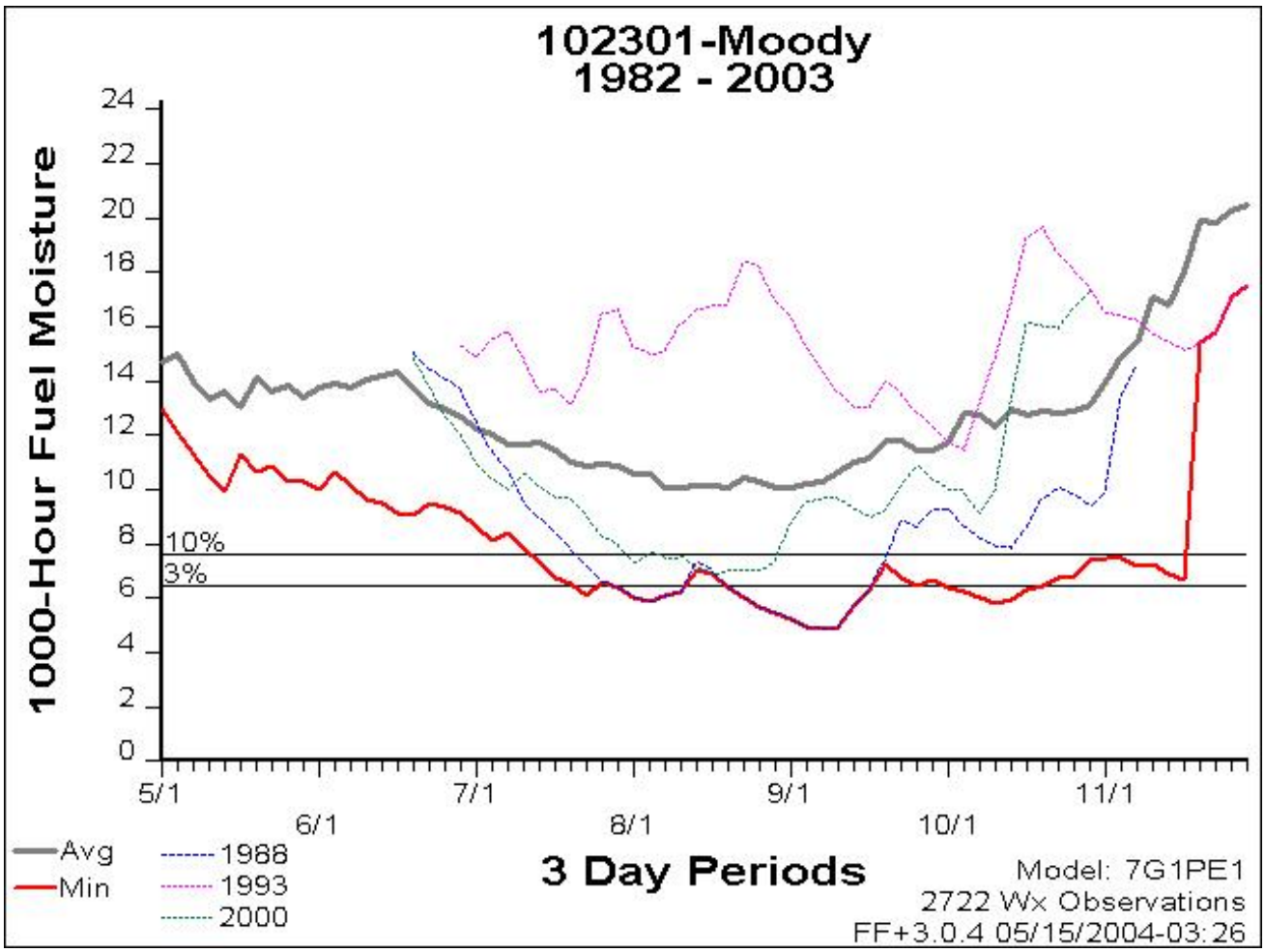


Figure 4.11-4: KBDI for the Moody RAWS

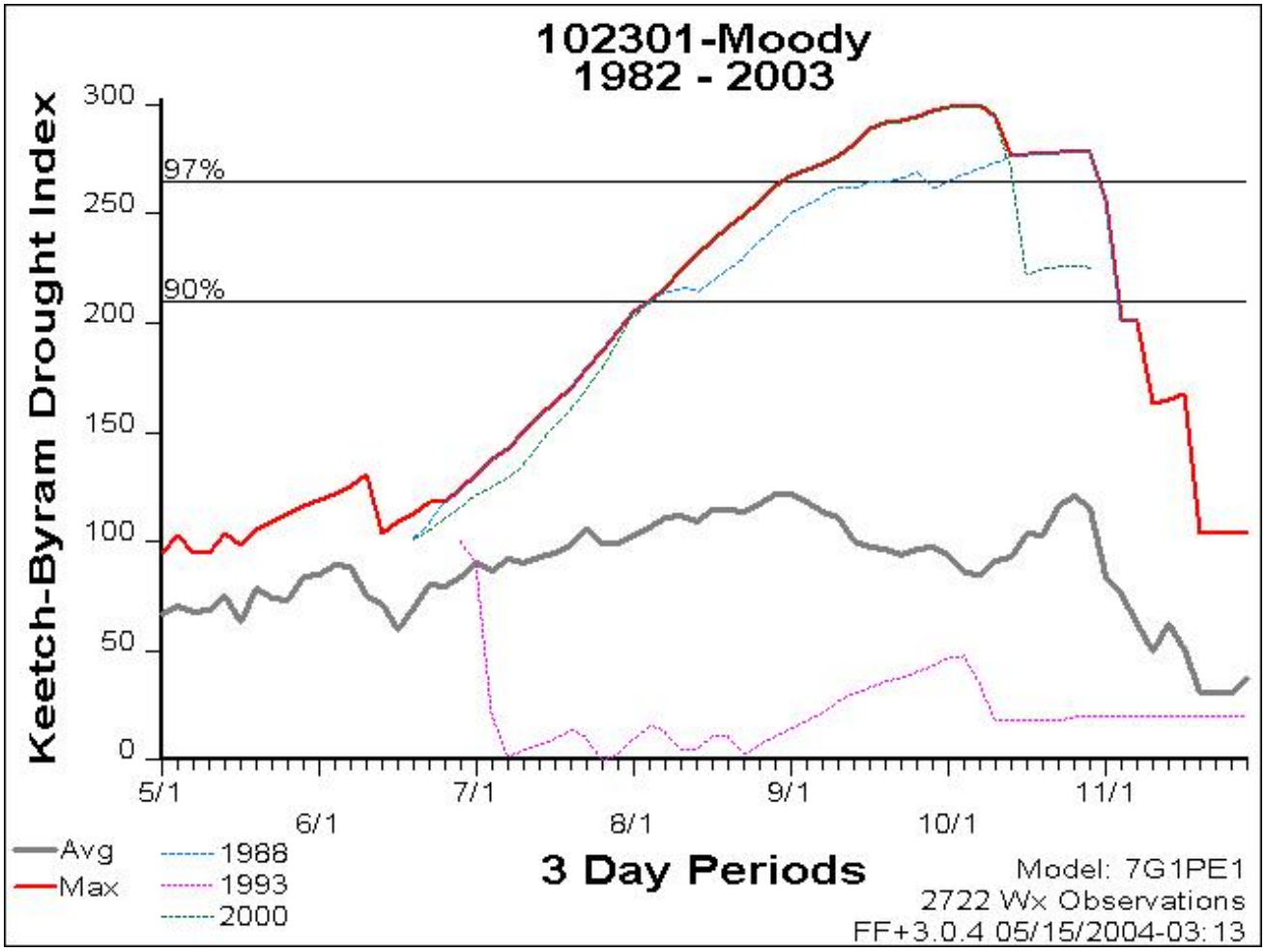


Figure 4.11-5: 1000hr for the Diamond Flat RAWS

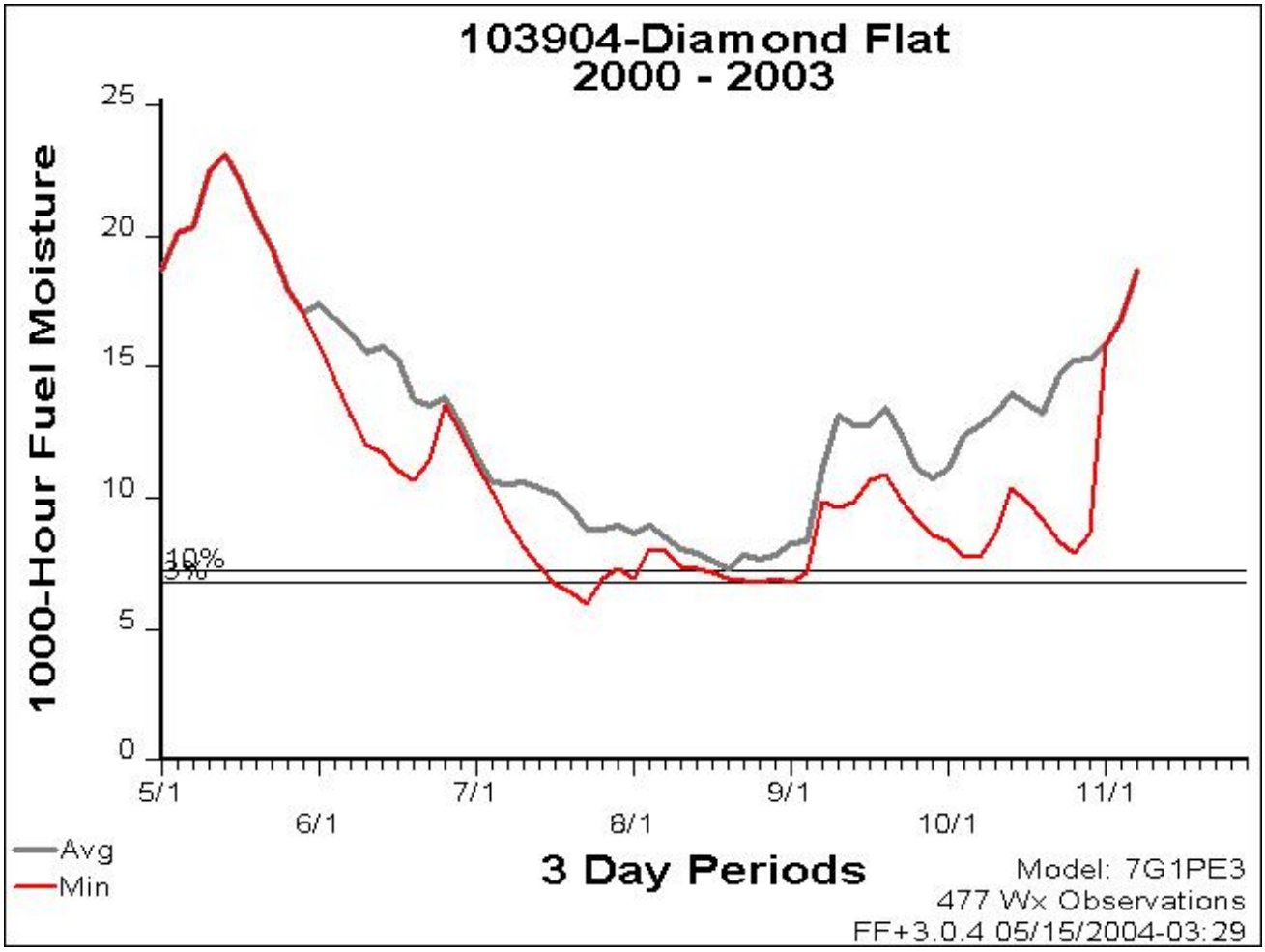
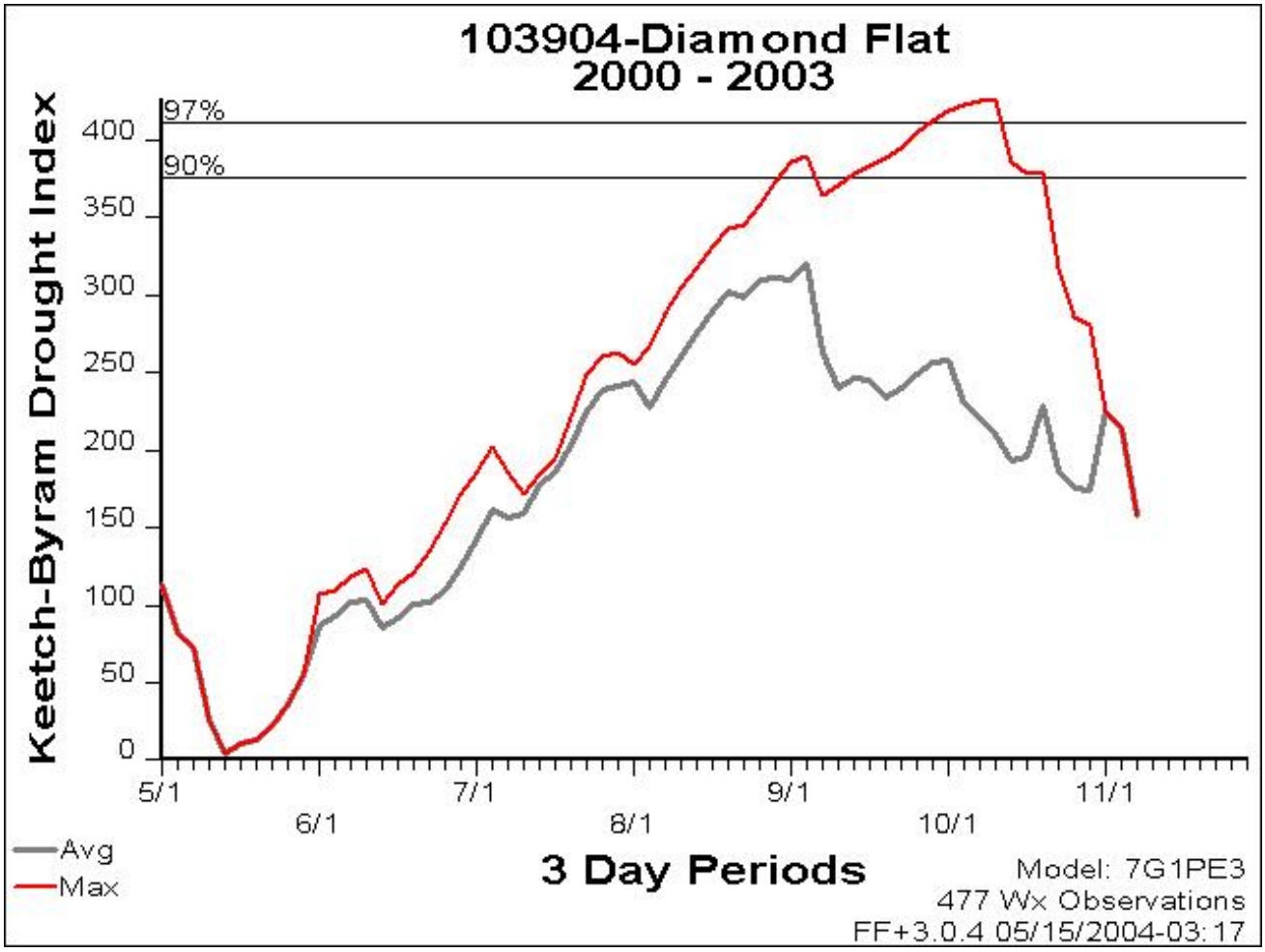


Figure 4.11-6: KBDI for the Diamond Flat RAWS



V REFERENCES and GLOSSARY

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5.2 Useful Websites

Federal Wildland Fire Policy - http://www.fs.fed.us/land/wdfire.htm

Wildland Fire Use Implementation Procedures Reference Guide
http://www.nifc.gov/fire_policy/pdf/wildland_fire_use_guide.pdf

Revised 5140 - http://www.fs.fed.us/fire/fireuse/rxfire/5140/index.html

Eastern Great Basin Predictive Services - http://www.blm.gov/utah/egbcc/

National Wildfire Coordinating Group - http://www.nwcg.gov

WFAS Wildland Fire Assessment System - http://www.fs.fed.us/land/wfas

Western Regional Climate Center - http://www.wrcc.sage.dri.edu/

National Weather Service Western Region Headquarters - http://www.wrh.noaa.gov/

National Weather Service Forecast Office Pocatello (Fire Weather Forecast) -
http://www.wrh.noaa.gov/cgi-bin/getproduct.pl?PIHBOIFWFPIH

Diamond Flat RAWS - http://raws.boi.noaa.gov/obs2/ID_DIAMOND_FLAT.html

Moody RAWS -
http://www.wrh.noaa.gov/cgibin/Missoula/msoobs?site=MYFI1&type=2&fmt=dec&src=rgl&hh=48&gh=48&gy=1

RAWS Links - http://www.fs.fed.us/raws/links.shtml

Montana/Idaho Airshed Group - http://www.smokemu.org/

Ventilation Climate Information System - http://www.fs.fed.us/pnw/fera/vent/

Fire Effects Information System - http://www.fs.fed.us/database/feis/welcome.htm

TerraServer - http://terraserver.microsoft.com/

Topozone - http://www.topozone.com/map.asp?lat=43.4316&lon=-111.347&s=25&size=m

5.3 Glossary

Appropriate Management Response - Specific actions taken in response to a wildland fie to implement protection and fire use objectives.

Appropriate Suppression Response - Specific actions taken in response to a wildland fire, with priority consideration given to firefighter and public safety.

Burning Period - That part of each day when fires spread most rapidly.

Confine - Confinement is the strategy employed in appropriate management responses where a fire perimeter is managed by a combination of direct and indirect actions

(burnout, helicopter water drops, etc.) and use of natural topographic features, fuel, and weather factors.

Contain/Control - These terms, when used in the context of suppression strategies, are confusing since they also have tactical meanings. Containment and Control will continue to be used to represent the status of a particular fire for reporting purposes (e.g., a controlled fire, date of control, date of containment, etc.) and not to represent a type of management strategy.

Contingency Plan - A back up plan of action for implementation when actions described in the primary plan are no longer appropriate. On prescribed fires these are the actions to be taken if the fire is declared out of prescription and is designated a wildfire.

Drought Index - A number representing net effect of evaporation, transpiration, and precipitation in producing cumulative moisture depletion in deep duff or upper soil layers.

Energy Release Component - A number related to the rate of heat release (BTU's per second) per unit area (square foot) within the flaming zone of the fire. This component of the National Fire Danger Rating System is used by fire managers to assess fire potential in forest fuels.

Escaped Fire - A fire which has exceeded, or is anticipated to exceed, initial action capabilities or the fire management direction or prescription.

Expected Weather Conditions - Those weather conditions indicated as common, likely, or highly probable based on current and expected trends and their comparison to historical weather records. These are the most probable weather conditions for this location and time. These conditions are used in making fire behavior forecasts for different scenarios (one necessary scenario involves fire behavior prediction under "expected weather conditions").

Experienced Severe Weather Conditions - Those weather conditions that occur infrequently, but have been experienced on the fire site area during the period of weather records. Fore example, rare event weather conditions that significantly influence fires may have occurred only once, but their record can be used to establish a baseline for a worst-case scenario. These are the most severe conditions that can be expected. These conditions are used in making fire behavior forecasts for different scenarios (one necessary scenario involves fire behavior prediction under "experienced severe weather conditions").

Fire Group - A collection of similar habitat types and their associated fire ecology.

Fireline Intensity - The amount of heat released in BTU's per foot of fire front per second. It related to the difficulty of containment of a fire.

Fire Management Area (FMA) - A sub-geographic area within an FMU that represents a predefined ultimate acceptable management area for a fire managed for resource benefits. This predefined area can constitute a Maximum Manageable Area (MMA) and is useful for those units having light fuel types conducive to very rapid fire spread rates. Predefinition of these areas removes the time-lag in defining an MMA after ignition and permits preplanning of the fire area; identification of threats to life, property, resources, and boundaries; and identification on initial actions.

Fire Management Plan (FMP) - A strategic plan that defines a program to manage wildland and prescribed fires and documents the Fire Management Program in the approved land use plan. The plan is supplemented by operational plans such as preparedness plans, preplanned dispatch plans, prescribed fire plans, and prevention plans.

Fire Management Unit (FMU) - Any land management area definable by objectives, topographic features, access, values to be protected, political boundaries, fuel types, or major fire regimes, etc.., that set it apart from management characteristics of an adjacent unit. FMUs are delineated in FMP's. These units may have dominant management objectives and preselected strategies assigned to accomplish these objectives.

Fire Use - The combination of wildland fire use and prescribed fire application to meet resource objectives.

Fuel Management - The practice of evaluating, planning, and treating wildland fuels to reduce flammability and to reduce it's resistance to control. Through mechanical, chemical, biological, or manual means, including prescribed fire and wildland fire use in support of land management objectives.

Fuel Model - A simulated fuel complex for which all fuel descriptors required for the solution of a mathematical fire spread model have been specified.

Fuel Profile - The mosaic of fuel as it occurs on an area of land over time and space.

Fuel Treatment - The manipulation of wildland fuel, such as lopping, chipping, crushing, piling and burning, or removal for the purpose of reducing its flammability or resistance to control.

Hazard - The measure of ease of ignition, fire spread potential, and fire suppression difficulty as influenced by the type, volume, size, distribution, condition, arrangement, and location of the fuel profile.

Holding Actions - Planned actions required to achieve wildland and prescribed fire management objectives. These actions have specific implementation timeframes for fire use actions but can have less sensitive implementation demands for suppression actions. For wildland fires managed for resource benefits, an MMA may not be totally naturally defensible. Specific holding actions are developed to preclude fire from exceeding the

MMA. For prescribed fires, these actions are developed to restrict the fire inside the planned burn unit. For suppression actions, holding actions may be implemented to prohibit the fire from crossing containment boundaries. These actions may be implemented as firelines are established to limit the spread of fire.

Initial Attack - An aggressive suppression action consistent with firefighter and public safety and values to be protected.

Keetch-Byrum Drought Index (KBDI) - This index attempts to measure the amount of precipitation necessary to return the soil to full field capacity. It is a closed system ranging from 0-800 units, and represents a moisture regime from 0-8 inches of water through the

Management Action Points (also called trigger points) - Either geographic points on the ground or specific points in time where an escalation or alteration of management actions is warranted. These points are defined and the management actions to be taken are clearly described in an approved Wildland Fire Implementation Plan (WFIP) or Prescribed Fire Plan. Timely implementation of the actions when the fire reaches the action point is generally critical to successful accomplishment of the objectives.

Maximum Manageable Area (MMA) - The firm limits of management capability to accommodate the social, political, and resource impacts of a wildland fire. Once established as part of an approved plan, the general impact area is fixed and not subject to change. MMAs can be developed as part of the FMP and described as an FMA. They can also be developed as part of the planning and implementation of management actions after a fire has ignited. If they are developed after the ignition, their definition will occur during the Wildland Fire Implementation Plan Stage III process. In the event a fire occurs in a preplanned MMA or FMA and the local unit determines that this MMA is not the best-suited alternative for the present conditions, a new MMA can be developed as part of the Stage III process. Once this occurs, the Stage III MMA becomes the firm limits of the fire and is fixed.

Mitigation Actions - Those on-the-ground activities that will serve to increase the defensibility of the MMA; check, direct, or delay the spread of fire; and minimize threats to life, property, and resources. Mitigation actions may include mechanical and physical nonfire tasks, specific fire applications, and limited suppression actions. These actions will be used to construct firelines, reduce excessive fuel concentrations, reduce vertical fuel continuity, create fuel breaks or barriers around critical or sensitive sites or resources, create "blacklines" through controlled burnouts, and to limit fire spread and behavior.

Most Cost-Efficient Fuel Profile - The fuel profile that minimizes the sum of presuppression costs, including fuel treatment, suppression cost, and net value change.

Most Efficient Level - The fire management program budget level that results in the minimum cost plus net value change (C+NVC).

National Fire Management Analysis System (NFMAS) - The fire management analysis process providing input for Forest planning and Forest and Regional fire program development and budgeting

Natural Fuel - Fuel comprised of combustible wildland vegetation resulting from natural processes and not directly generated or altered by management practices, including fuel that has accumulated as a result of fire exclusion.

Natural Ignition - An ignition resulting from any natural cause.

Net Value Change - The sum of the changes in resource values on a land area that results from increases (benefits) and decreased (damages) in resource outputs as a consequence of fire

Preparedness - Activities that lead to a safe, efficient, and cost-effective fire management program in support of land and resource management objectives through appropriate planning and coordination. This term replaces presuppression.

Preparedness Plan - A plan providing for timely recognition of approaching critical fire situations, priority setting, deployment of forces, and other actions to respond to those situations.

Prescribed Fire - Any fire ignited by management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition. This term replaces management ignited prescribed fire.

Prescribed Fire Plan - A plan required for each fire application ignited by managers. The plan is prepared by qualified personnel and approved by the appropriate agency administrator prior to implementation. Each plan follows specific agency direction and includes critical elements described in agency manuals.

Prescribed Natural Fire (PNF) - This term on longer represents a type of fire and has no further use other than in historical descriptions. This term is replaced by wildland fire use.

Prescription - Measurable criteria that define conditions under which a prescribed fire may be ignited, guide selection of appropriate management responses, and indicate other required actions. Prescription criteria may include safety, economic, public health, environmental, geographic, administrative, social, or legal considerations.

Risk Assessment - Process used in prescribed fires or wildland fire use planning to determine the level of risk. The risk assessment is documented and used by the approving official to make informed decisions. The risk assessment is completed in the Stage III Long-Term Implementation Action Plan.

Supplemental Protection - The increased resources assigned to protect activity fuel from wildfire in lieu of fuel treatment.

Trigger Points - See Management Action Points.

Wildfire - An unwanted wildland fire.

Wildland Fire - Any nonstructural fire, other than prescribed fire, that occurs in the wildland. This term encompasses fires previously called both wildfires and prescribed natural fires.

Wildland Fire Implementation Plan (WFIP) - A progressively developed assessment and operational management plan that documents the analysis and selection of strategies and describes the appropriate management response for a wildland fire being managed for resource benefits. A full WFIP consists of three stages. Different levels of completion may occur for differing management strategies (i.e., fires managed for resource benefits will have two-three stages of the WFIP completed while some fires that receive a suppression response may only have a portion of Stage I completed.

Wildland Fire Management Program - The full range of activities and functions necessary for planning, preparedness, emergency rehabilitation of wildland fires, and prescribed fire operations, including non-activity fuels management to reduce risks to public safety and to restore and sustain ecosystem health.

Wildland Fire Situation Analysis (WFSA) - A decision making process that evaluates alternative management strategies against selected safety, environmental, social, political, and resource management objectives.

Wildland Fire Suppression - An appropriate management response to wildland fire that results in curtailment of fire spread and eliminates all identified threats from the particular fire. All wildland fire suppression activities provide for firefighter and public safety as the highest consideration, but minimize loss of resource values, economic expenditures, and/or the use of critical firefighting resources.

Wildland Fire Use - The management of naturally ignited wildland fires to accomplish specific prestated resource management objectives in predefined geographic areas outlined in FMPs. Operational management is described in the WFIP. Wildland fire use is not to be confused with "fire use" which is a broader term encompassing more than just wildland fires.

APPENDIX A

Fire Groups

Historic fire regimes are generally based on the habitat type or potential natural vegetation. Historic fire regimes are assigned to fire groups, based on the response of the dominant species to fire, the potential frequency of fire, and the similarity of post-fire succession (Bradley, et al, 1992). A fire regime is intended to characterize the features of historic, natural fires that have been typical for a particular ecosystem. In general terms, fire regimes give us a description of the fire frequency, or expected fire free interval between fire events. This information also tells us what type of fire effects can be expected for different layers of forest and non-forest vegetation. Each fire regime entails three descriptors, fire type and severity (i.e. lethal, non-lethal, mixed-severity), frequency or return interval (frequent, non-frequent), and burn pattern (mosaic, uniform). Descriptions of fire regimes are general and broad because of the enormous variability of fire over time and space, so each of the major regimes is addressed briefly in the following discussion.

Rangeland Habitat Types; Fire Group 1

Those rangeland habitat types that occupy the drier portions of the Subsection generally have similar basic characteristics. They include the basin big sagebrush, mountain big sagebrush, and low sagebrush. Because of these similarities they are categorized as a dry shrub group. This group can be characterized by a lethal fire regime with a 10 to 40 year fire return interval (Winward 1991). It is important to note that given the wide range of fuel situations and our understanding of yearly climatic variation in the sagebrush ecosystem, a naturally wide variation in fire frequency in this system should be expected.

Other rangeland types that occupy more mesic positions include subalpine big sagebrush, spiked big sagebrush, threetip sagebrush, snowbrush, bigtooth maple, and chokecherry-serviceberry-rose. Because these species have similar basic characteristics they are categorized as a cool shrub group. This group can be characterized by a lethal fire regime with a fire interval ranging from 25 to 75 years.

Historical fires naturally burned spotty leaving islands and stringers unburned during any one fire. Those areas that did burn received various intensities of fire. The overall result was an ever-changing mosaic of different densities and ages of crowns. In any specific geographic area, a mosaic of ecological settings existed ranging from open temporary prairie types where fires were most recent, to relatively dense stands where considerable time had elapsed since the last fire (Winward 1991).

Woodland Habitat Types; Fire Group 1

This group is composed of curlleaf mountain-mahogany. This community type typically forms the transition zone between shrubland communities at lower elevations and closed forest communities at higher elevations. Mountain mahogany can form open stands by itself, or in combination with limber pine or Douglas-fir. The majority of mountain-mahogany communities generally avoid fire by inhabiting rocky sites or sites on shallow soils with sparse undergrowth that normally will not sustain fire. Mountain-mahogany that has developed on sites with deeper soils with an understory that can sustain fire is easily killed by fire. The woodland habitat type is characterized by a mixed severity fire regime, with a 50-70 year fire return interval (USDA 1997).

Xeric Douglas-Fir Habitat Types; Fire Group 2

This group is composed of cool, dry, relatively unproductive Douglas-fir habitat types. Douglas-fir is often the climax species, and lodgepole pine is occasionally present on some noncalcerous soils. These sites do not develop dense overstories, but support a scattered to open forest. Because of severe microsite drought and light flashy fuels, these communities likely had the most frequent fires of any forest type in the area. The cool, dry Douglas fir fire regime is characterized by a low intensity, non-lethal underburning fire pattern which favors mature open canopy stands. Barrett's fire history research on the Caribou National Forest indicated the mean fire interval was 19 years, and the mean fire interval ranged from 7 to 39 years.

Mesic Douglas-Fir Habitat Types; Fire Group 3

This group consists of relatively moist Douglas-fir habitat types where lodgepole pine, aspen, or Douglas-fir are the major seral species. These habitat types occur on cooler or moist exposures between 5,700 and 8,500 feet in elevation. Limber pine may occur in small amounts on drier microsites within these habitat types.

Fire regimes of Douglas-fir and lodgepole pine are variable over their distribution (Kilgore 1981). Topography, weather, stand structure, and fuel loading all contribute to different patterns of fire intensity and frequency. A complete range of fire behavior is represented in this type, from light surface fires to stand-replacement fires. A mosaic of fire effects probably occurred across the historical landscape, with much variability also existing within a single fire. Stands are thinned or replaced, and the potential dominance of one species over another is altered. Thinning fires favor Douglas-fir because mature trees are relatively fire resistant. Stand-replacement fires favor seral lodgepole pine or aspen on sites where seeds or suckering roots are available. The success of aspen regeneration depends partly on the severity of the fire.

Fire interval variability in this habitat type was relatively high, ranging from as little as 5 years to as long as 100 years. However, the average range for this type was 26 to 71 years, and comparatively long fire intervals (e.g. 100-125 yr) are uncommon (Barrett 1994).

Quaking Aspen-Dominated Community Types; Fire Group 4

This fire group is composed of community types where aspen appears to be the long-term seral dominant. Aspen is able to tolerate a wide range of environmental conditions and is associated with a diverse number of understory shrub and herbaceous species. Stands bordering forest are the most successionally perplexing. The aspen here are often quite vigorous and will quickly occupy adjacent sites when the conifers are removed. These stands often contain an occasional conifer that is usually healthy but shows little sign of increasing in the stand. Within the zone of coniferous forest, aspen stands tend to become more clearly seral. Here aspen occupies sites where fire or logging has removed the conifers or where landslides have provided a fresh substrate. Conifers may reclaim these sites fairly rapidly but in some areas conifer establishment appears retarded by a lush development of seral forbs and graminoids.

Aspen has a paradoxical relationship with fire. Individual aspen stems (suckers) have very thin bark that contains a green photosynthetic layer, and thus are very heat sensitive and easily killed by fire. Conversely, aspen clones are very fire resistant in that the clones are very long-lived, aggressively sending up suckers after fires. Since quaking aspen is fire-sensitive, the fires burned in a mosaic pattern with varying severities, from high intensity stand replacement (aspen-conifer) to low severity fires (aspen). Barrett (1994) reported a mean fire interval of 69 years in aspen-conifer sites, and much longer fire interval in aspen with a dense forb understories lacking a conifer component on the Caribou National Forest.

Xeric Subalpine fir and Engelmann Spruce Habitat Types; Fire Group 6

This fire group contains the bulk of subalpine fir and Engelmann spruce habitat types found in the analysis area. Lodgepole pine is the dominant seral species in these forests. Douglas-fir is important in warmer exposures. Engelmann spruce may be a long-lived seral species, or a climax/co-climax dominate with subalpine fir. Aspen often persists on the periphery of older stands, or it may exist with conifer species in the early to mid stages of succession. While aspen is retained on a site, it has the potential to become seral dominant after fire (Steele, et al, 1983). The understory makeup is variable. Some habitat types may be dominated by shrub growth; in others shrubs may contribute only minor amounts of cover.

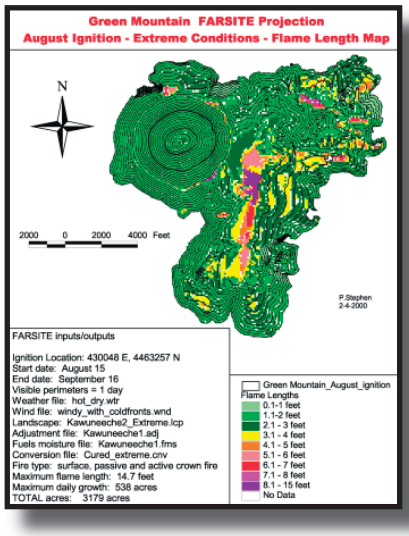
Barrett (1994) characterized these habitat types as having a mixed-severity fire regime with a moderately long fire return interval. He reported a mean fire interval range of 25 to 113 years (weighted mean of 97 years) in southeastern Idaho. In general, sites with aspen or Douglas-fir are represented by the short end of reported fire return intervals for xeric subalpine forests (Barrett 1994), while sites with lodgepole pine typically report longer fire return intervals (Bradley, et al, 1992).

APPENDIX B

Wildland Fire Use Implementation Procedures Reference Guide

Wildland Fire Use

Implementation Procedures Reference Guide



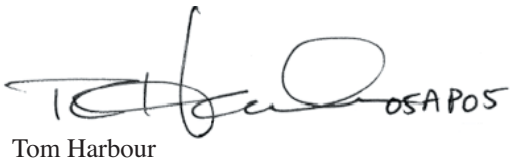
May 2005

Forward

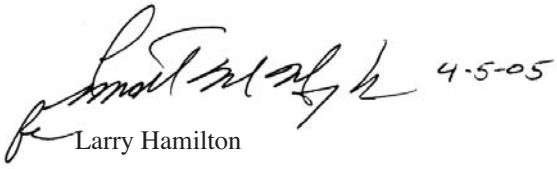
"Wildland Fire Use, Implementation Procedures Reference Guide" (2005 Guide) provides standardized procedures, specifically associated with the planning and implementation of wildland fire use. These procedures meet all policy requirements described in the 2003 "Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy." In addition, the 2005 Guide tiers directly to policy as defined in agency manuals.

Prior to implementing wildland fire use under the standards in the 2005 Guide, local units must have ensured compliance with National Environmental Policy Act (NEPA), National Historic Preservation Act (NHPA) and Endangered Species Act (ESA) requirements. In addition, an approved fire management plan must be in place which identifies how the local unit plans to implement wildland fire use. All actions implemented under this guide must also be consistent with local unit land and resource management plans.

This "Implementation Procedures Reference Guide" (2005 Guide) meets the requirements of the National Fire and Aviation Executive Board (NFAEB) to develop common language and unified direction or guidance for agency/bureau manuals, directive handbooks, and guidelines to complete final implementation of this policy.



Tom Harbour
Director, Fire & Aviation Management
USDA Forest Service



Larry Hamilton
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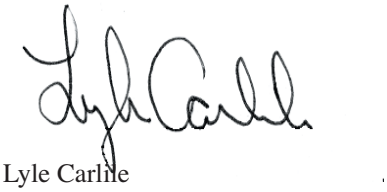

Lyle Carlile
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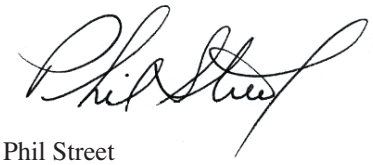


Phil Street
Fire Director
U.S. Fish & Wildlife Service

Executive Summary

This document, the "Wildland Fire Use Implementation Procedures Reference Guide" (2005 Guide) provides direction, guidance, and assistance in implementing the Federal Wildland Fire Management Policy, specifically associated with the planning and implementation of wildland fire use, for the National Park Service, USDA Forest Service, Bureau of Indian Affairs, U.S. Fish and Wildlife Service, and Bureau of Land Management.

Originally, this document was published as the "Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide" (USDI/USDA1998) (1998 Guide). The 1998 Guide established consistent agreement among agencies regarding specific, detailed implementation of Federal fire policy direction. The 2005 Guide represents the first revision to the original and expands and clarifies the process for wildland fire use planning and implementation consistent with the "Federal Wildland Management Policy Review and Update" (USDI/USDA/DOE/DOD/USEPA/ FEMA/NASF 2001) and the "Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy" (USDA/USDI 2003). The 2005 Guide tiers directly to agency policy and guidance as specifically cited in agency manuals.

The 2005 Guide describes basic policy framework and clarifies what is and is not applicable within policy. The new implementation guide incorporates changes and revisions based on 7 years of experience in using the original process.

The purpose of the 2005 Guide is to provide standardized interagency operational level interpretation and implementation of the appropriate management response to all wildland fires, but has the greatest value for potentially long-duration wildland fires. Planning, implementation procedures, management requirements, and formats, including the wildland fire implementation plan (WFIP), are provided. The WFIP is a progressively developed strategic plan consisting of three stages. Progression through the stages is based on changing levels of fire complexity and management needs.

Effective and efficient implementation of wildland fire is the goal of the Federal Fire Policy. Managing wildland fires to accomplish resource objectives, maintain public and firefighter safety, and manage cost expenditures requires significant information archival to document the management decision process for wildland fire use and other wildland fires. This evolving documentation process has been the cornerstone of successful applications of wildland fire use over the past 30 years.

Contents

Introduction

The Departments of Interior and Agriculture, together with tribal governments, states, and other jurisdictions, have responsibility for protection and management of natural and cultural resources on public and Indian Trust lands in the United States. Managing wildland fires for resource benefit (wildland fire use (WFU)) is an option available to Federal agencies who have an approved land use plan and fire management plan that allow for wildland fire use. Opportunities and risks associated with management of wildland fire use and other long duration fire incidents are increasing in both complexity and geographic extent. Escalating values to be protected associated with intricate land use objectives are compounding wildland fire use management program implementation concerns. Uniform Federal policies and procedures are essential to facilitate greater efficiency and responsiveness in the management of fire to meet resource objectives.

Wildland fire use, based on Federal Fire Policy direction, is a direct component of wildland fire management. It is a management action equal to wildfire suppression and thus, constitutes an emergency action. It receives consideration, management attention, and management policies equal to wildfire suppression, except for specific differences related to ignition source and management action success (see operational clarification statements below).

This guide provides procedures and requirements to implement the full range of wildland fire use management actions within an appropriate management response framework consistent with the "Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy" (USDI/USDA 2003). Policy statements from the Federal Wildland Fire Policy directly relevant to wildland fire use include:

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

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

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 fires is based on ecological, social and legal consequences of the fire.

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.

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.

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

Communication and Education: Agencies will enhance knowledge and understanding of wildland fire management policies and practices through internal and external communication and education programs.

Operational clarification statements from the Federal Fire Policy directly relevant to wildland fire use include:

"Only one management objective will be applied to a wildland fire. Wildland fires will either be managed for resource benefits or suppressed. A wildland fire cannot be managed for both objectives concurrently. If two wildland fires converge, they will be managed as a single wildland fire."

"Human-caused wildland fires will be suppressed in every instance and will not be managed for resource benefits."

"Once a wildland fire has been managed for suppression objectives, it may never be managed for resource benefit objectives."

"Wildland fire use is the result of a natural event. The Land and Resource Management Plan, or the Fire Management Plan, will identify areas where the strategy of wildland fire use is suitable. The wildland fire implementation plan (WFIP) is the tool that examines the available response strategies to determine if a fire is being considered for wildland fire use."

"When a prescribed fire or a fire designated for wildland fire use is no longer achieving the intended resource management objectives and contingency or mitigation actions have failed, the fire will be declared a wildfire. Once a wildfire, it cannot be returned to a prescribed fire or wildland fire use status."

Clarifying terms and definitions from the Federal Fire Policy having importance to wildland fire use include:

Wildland Fire: Any nonstructure fire that occurs in the wildland. Three distinct types of wildland fire have been defined and include wildfire, wildland fire use and prescribed fire.

Wildfire: An unplanned, unwanted wildland fire, including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to put the fire out.

Wildland Fire Use: The application of the appropriate management response to naturally-ignited wildland fires to accomplish specific resource management objectives in predefined designated areas outlined in fire management plans.

Prescribed Fire: Any fire ignited by management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements (where applicable) must be met prior to ignition.

Other policy clarifying briefing papers include:

> **Three Kinds of Wildland Fire:** Wildfire, wildland fire use, and prescribed fire. (National Fire and Aviation Executive Board 2005a).
>
> **Use of Wildland Fire:** Describes the two types of wildland fire applications—wildland fire use or prescribed fire—that provide for resource benefits. The term is synonymous with "Fire Use." (National Fire and Aviation Executive Board 2005b).

While unique agency missions may cause wildland fire use management operational differences, it is expected that these differences will be minor and not limit cross-jurisdictional planning and implementation. The interagency wildland fire use planning and implementation procedures described in this guide will enhance effective and efficient operations across administrative boundaries, facilitate short- to long-duration management, reduce problems or suspensions of operations during personnel transfer of commands, improve agency ability to meet other challenges and opportunities when managing wildland fires for resource benefit, and fulfill the standardization of procedures and policies direction from the Federal Fire Policy.

This reference guide is structured to provide a management summary for each section (in shaded red boxes), then more detailed descriptions of processes, and contains reproducible forms in Appendix A.

Wildland Fire Use Planning and Assessment

Wildland Fire Implementation Plan

Specific planning and documentation requirements exist for management of wildland fires where resource benefits are a primary objective. The full planning process used for wildland fire use events is uniquely different from the processes used for management of unwanted wildfires. Figure 1 illustrates the basic wildland fire use planning process.

A standard wildland fire implementation plan (WFIP) has been developed. The complete WFIP consists of three stages and is prepared progressively. Each individual stage constitutes a stand alone implementation plan and specific forms and formats are available for each stage. Progression from one stage to the next is dependent upon fire activity, potential duration, and relative risk as it relates to the incident. As each progressive stage is prepared, it is attached to the previous stage and becomes the guiding document until management of the fire accomplishes resource objectives or progression to a higher stage occurs.

Since each stage can be completed individually and used as a stand-alone plan, it is possible that an individual fire will be managed under only Stage I for its duration. Some fires will progress to Stage II and some will progress to Stage III. Thus, the overall objectives for managing individual fires can be accomplished through successful implementation of any or all of the stages, as illustrated by the left portion of Figure 1.

WFIP Stage I documents the fire situation, agency administrator decision, management actions, and sets the

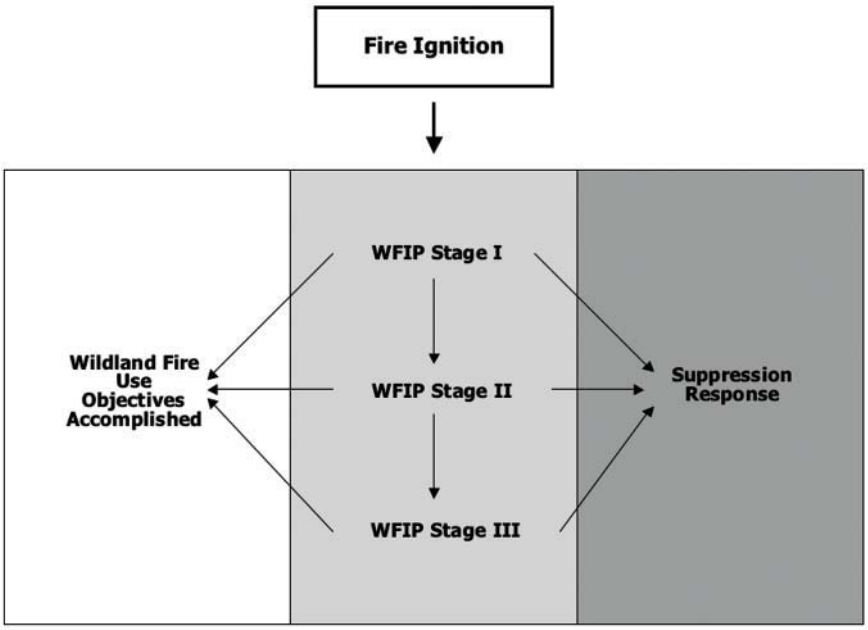


Figure 1. Generalized flow of wildland fire implementation plan showing progression of stages and points of movement to a suppression response.

initial periodic assessment schedule. This stage is the initial stage of the planning process. Given suitable circumstances, it can be used to manage a fire with low potential for spread and negative impacts. Components of WFIP Stage I include:

- **Strategic Fire Size-Up** (documents fire situation, including fire location and cause). A Strategic Fire Size-Up is completed for all wildland fires and provides information necessary to decide whether to implement a wildland fire use or a suppression response. All wildland fires naturally caused and in a fire management unit approved for wildland fire use become wildland fire use (WFU) candidates. For fires not meeting these criteria, WFIP planning stops at this point and a suppression action is initiated. For wildland fires meeting these criteria (WFU candidate), planning continues into the Decision Criteria Checklist.

- **Decision Criteria Checklist** (documents the decision to manage the fire for resource benefits or initiate a suppression action).

- **Management Actions** (identifies management actions).

- **Periodic Fire Assessment** (sets assessment frequency, confirms decision to continue with WFU, identifies planning stage needs and implementation qualification levels). A Periodic Fire Assessment is completed as part of each stage on a schedule determined by managers. Completing this step in Stage I provides direction to move to Stage II, remain with Stage I, or initiate a suppression response.

The Strategic Fire Size-Up, Decision Criteria Checklist, and Periodic Fire Assessment are points in WFIP Stage I where a suppression response could be indicated (Figure 1), although the agency administrator can decide to suppress a fire at any time.

WFIP Stage II defines management actions required in response to a changing fire situation as indicated by monitoring information and the Periodic Fire Assessment completed as part of Stage I. Stage II is used to manage larger, more active fires with greater potential for geographic extent than in Stage I. Under suitable circumstances and fire situations, this stage could represent the end point in WFIP planning and be used to manage a fire through its duration. Components of WFIP Stage II include:

- Objectives

- Fire Situation
  - —Current and predicted fire behavior
  - —Current and predicted weather
  - —Threats
  - —Safety considerations
  - —Environmental concerns
  - —External concerns

- Management Actions (include description of action and expected duration)

- Estimated Costs

- Periodic Fire Assessment. Completing this step in Stage II provides direction to move to Stage III, remain with Stage II, or initiate a suppression response.

WFIP Stage III defines management actions required in response to an escalating fire situation, potential long duration, and increased need for management activity, as indicated by the Periodic Fire Assessment completed as part of Stage II. It addresses management objectives and constraints in detail, describes the maximum area that the fire may be managed within (Maximum Manageable Area or MMA), identifies foreseeable threats and concerns, provides a quantitative long-term risk assessment, identifies management actions to mitigate or eliminate threats,

provides cost estimates, and documents a periodic assessment of the situation. This stage constitutes a substantial planning effort but some of the information used in this stage can be preplanned or completed prior to fire ignition if the administrative unit desires to do so. Such preplanning is strongly encouraged. Additional information on preplanning is provided in Appendix B.

Components of WFIP Stage III include:

- Objectives and Risk Assessment Considerations
  - —Natural and Cultural Resource Objectives
  - —Management Constraints
- Maximum Manageable Area (MMA) Definition and Maps
- Weather Conditions and Drought Prognosis
- Long-term Risk Assessment (describe techniques and outputs, include maps as appropriate)
- Threats
  - —MMA
  - —Public Use and Firefighter Safety
  - —Smoke Dispersion and Effects
  - —Other
- Monitoring Actions (actions, frequency, and duration)
- Mitigation Actions (describe management actions, management action points that initiate these actions, and key to map if necessary)
- Resources Needed to Manage the Fire
- Contingency Actions (describe actions necessary when mitigation actions are unsuccessful)
- Information Plan
- Estimated Costs
- Post-burn Evaluation
- Signatures and Date
- Periodic Fire Assessment

Table 1. WFIP completion timeframes

WFIP Stage	Maximum Completion Timeframe
WFIP Stage I	8 hours after confirmed fire detection and Strategic Fire Size-Up
WFIP Stage II	48 hours after need indicated by Planning Needs Assessment
WFIP Stage III	7 days after need indicated by Planning Needs Assessment
Periodic Fire Assessment	As part of all stages and on assigned frequency thereafter

Wildland Fire Implementation Plan Completion Timeframes

Specific completion timeframes have been established for each stage of the WFIP. Table 1 shows maximum completion timeframes for WFU planning tasks. Units may accelerate planning timeframes to facilitate implementation of management actions.

Detailed Description - Wildland Fire Implementation Plan Procedures

Wildland Fire Implementation Plan - Stage I

WFIP Stage I establishes the information base for managing the fire. It documents the current and predicted situation, all appropriate administrative information, and aids managers by providing them with information to make an initial decision to continue management of the fire for resource benefits or to take suppression action. It also allows the manager to select and document a recommended response action. Stage I consists of four specific components: Strategic Fire Size-Up, Decision Criteria Checklist, Management Actions, and Periodic Fire Assessment (an element of all stages). The information shown in the box below illustrates all WFIP Stage I elements. The four Stage I components are described in detail in the following sections. Advancement in the planning process above Stage I is determined by the Periodic Fire Assessment indicating a higher stage is needed or the agency administrator directing a higher stage be initiated. A sample plan is included in Appendix A and an electronic software package for WFIP preparation is available.

Purpose: Documents the fire situation and agency administrator decision, describes management actions, and sets the initial periodic assessment schedule as the preliminary stage of the planning process.

Information Sources: Fire size-up information, current fire weather and fuel moisture conditions, local information, agency administrator input, and site-specific information from the fire management plan (FMP).

Completion Time: The Strategic Fire Size-Up is completed as soon as aerial or on-the-ground resources provide a confirmation of the fire's existence and the required fire size-up information.

All remaining Stage I components are completed within 8 hours of completion of Strategic Fire Size-Up.

WFIP Stage I Content

- ❑ Strategic Fire Size-Up
  - Fire name
  - Fire number
  - Administrative unit(s)
  - Start date/time
  - Discovery date/time
  - Current size
  - Fuel model(s)
  - Current weather
  - Observed fire behavior
  - Location
  - Fire management unit
  - Cause
- ❑ Decision Criteria Checklist
- ❑ Management Actions
  - Forecasted weather
  - Forecasted fire behavior
  - Hazards and safety concerns
  - Management actions
  - Availability of resources
- ❑ Periodic Fire Assessment

Strategic Fire Size-Up

All reported wildland fires receive a size-up. The Strategic Fire Size-Up consists of a standard information set (refer to Incident Response Pocket Guide or Interagency Standards for Fire and Fire Aviation Operations or locally developed operating guidelines and forms) needed for the duty officer to determine if the fire meets the requirements for WFU management. The duty officer is responsible within his/her delegated authority for determining if the fire meets minimum WFU requirements and keeping the agency administrator informed of the situation. Two key pieces of information collected for the Strategic Fire Size-Up will help the duty officer make this determination. These are fire location in regard to the fire management plan's fire management unit (FMU) and the cause of the fire. Location of the fire in an FMU not approved for wildland fire use or being human-caused is reason to initiate a suppression response. If the fire is located in an FMU approved for wildland fire use and naturally ignited, it becomes a WFU candidate and the planning process continues into the Decision Criteria Checklist. This determination is noted at the bottom of the Strategic Fire Size-Up form (Figure 2 shows that portion of the Strategic Fire Size-Up). The entire form is available in Appendix A. The appropriate information is circled and the person preparing this form initials and dates after completion.

Decision Criteria Checklist

The Decision Criteria Checklist consists of three sections: decision elements, approved response action, and justification for suppression response (Figure 3). The decision elements are five questions the agency administrator must answer. This process allows the agency administrator to gain better situational awareness and helps evaluate if the current wildland fire should be managed under a WFU response. These questions assess threats from the fire, potential effects of the fire, risk from the fire, effects of other fire activity on management capability, and allows the agency administrator to consider external or other unanticipated issues.

To complete the checklist, the agency administrator answers the decision elements, based on input from his/her staff, and determines if the fire should receive a WFU management response or a suppression response. **A "Yes" response to any of the five elements indicates that management should take a suppression response. All "No" answers to the decision elements indicate that the fire is a viable candidate to be managed as a WFU.**

FMU (circle appropriate FMU situation)	WFU Approved	WFU Not Approved		
Cause (circle fire cause)	Natural Ignition	Human-caused Ignition		
Suitability for Wildland Fire Use (circle situation, initials of person preparing, date/time)	**Wildland Fire Use Candidate** – Continue with Decision Criteria Checklist	**Suppression**	**Initials**	**Date/Time**

Figure 2. Location, cause, and WFU suitability portions of Strategic Fire Size-Up.

Detailed Explanations of Decision Elements

- ❑ The first decision element involves the relative threats to life and property. If known threats cannot be adequately mitigated (i.e., "yes" answer), managing the fire as a WFU has potential concerns due to fire location, serious threats to firefighter and public safety, and potentially significant consequences.

- ❑ The second decision element involves objectives and resource conditions for wildland fire management as stated in the FMP. Potential outcomes and desired effects are closely correlated with burning conditions and fire behavior. Objectives and constraints include air quality and effects on natural and cultural resources, as applicable. References for objectives and constraints include the unit FMP, unit land management plan, and agency administrator input.

- ❑ The third decision element involves a relative assessment of the risk for the fire. Since the decision to suppress or manage the fire is time constrained (8-hour decision space), it may not be possible to complete a long-term risk assessment. In lieu of the quantitative long-term risk assessment, a qualitative assessment process has been developed to provide the agency administrator with a quick but comprehensive assessment of the relative risk of the fire. Input information for this decision element is acquired by completing the Wildland Fire Relative Risk Assessment (Figure 4). This assessment must be completed to support the Decision Criteria Checklist in Stage I, and is reevaluated during each Periodic Fire Assessment. Neither a high nor low relative risk rating necessarily predisposes a "yes" or "no" answer on the Decision Criteria Checklist. The agency administrator must still decide what level of risk is acceptable. A description of the

Decision Criteria Checklist

Decision Element	Yes	No
Is there a threat to life, property, or public and firefighter safety that cannot be mitigated?		
Are potential effects on cultural and natural resources outside the range of acceptable effects?		
Are relative risk indicators and/or risk assessment results unacceptable to the appropriate agency administrator?		
Is there other proximate fire activity that limits or precludes successful management of this fire?		
Are there other agency administrator issues that preclude wildland fire use?		

The Decision Criteria Checklist is a process to assess whether or not the situation warrants continued wildland fire use implementation. A "Yes" response to any element on the checklist indicates that the appropriate management response should be suppression-oriented.

Approved Response Action (check one)		Signature/Position	Date
Suppression Response			
Wildland Fire Use Response			

Justification for Suppression Response:

Figure 3. Decision Criteria Checklist (a standard size reproducible copy of the checklist is included in Appendix A).

Wildland Fire Relative Risk Assessment is provided in the following section (Wildland Fire Relative Risk Assessment).

- ❏ The fourth decision element pertains to other local and regional fire activity, commitments of unit and cooperator resources, specific unit FMP limitations on fire numbers, and availability to fill special skill positions from local resources for this fire. If current fire activity precludes the ability to manage the fire with adequate resources and skill mixes, then the response to this element will be "Yes" and a suppression response is indicated.

- ❏ The final decision element allows agency administrator discretion in the event there are other issues which were unknown to the fire staff and must be considered as part of the decision to manage the fire for resource benefits. Agency administrators will document other issues that precluded management of the fire for resource benefits.

Once the Decision Criteria Checklist is complete, the agency administrator decides whether to initiate actions to manage the fire as a WFU or manage it under a suppression response. At the bottom of the Decision Criteria Checklist is a check box for the approved response action followed by the agency administrator's (or other delegated individual's) signature and date. If a suppression response is selected, the agency administrator must include a justification for this selection at the bottom of the page.

Wildland Fire Relative Risk Assessment

The Federal Fire Policy requires that sound risk management be a foundation for all fire management activities. Recent reviews and audits have also stressed the need for risk management. In fact, risk management is rapidly becoming a cornerstone phrase associated with fire management. A report by the National Academy of Public Administration (NAPA) (2001), "stresses the role of risk reduction in wildlands as a critical mitigation approach to improve community protection." The Government Accountability Office (USGAO 2004) completed a report on risk assessment associated with the fuels treatment program. This report also stresses the importance of risk assessment in fire and fuels management.

Using fire to meet resource objectives contains an inherent level of risk given that we are dealing with a number of unknowns and uncertainty in what the future will bring. The relative risk rating is intended to characterize the general magnitude of risks associated with implementing a wildland fire use incident as a snapshot in time. It is an attempt to qualify the level of uncertainty regarding the eventual outcomes of the fire in relation to management objectives and other mandates. The relative risk rating is a direct input into the Decision Criteria Checklist, Wildland Fire Use Management Assessment, and Periodic Fire Assessment.

The Wildland Fire Relative Risk Assessment provides the agency administrator with a quick but comprehensive assessment of the relative risk of the fire. This is a qualitative process that can be completed in less time than a quantitative, long-term risk assessment. The relative risk rating produced from this assessment is a decision support aid for the agency administrator in answering Decision Criteria Checklist elements and during the Periodic Fire Assessment.

The relative risk assessment chart uses three risk components: values, hazard, and probability. Each of these components is assessed in an independent step. Then, the three outputs are evaluated in a final step that provides the relative risk for the fire. Each risk component is defined by three variables. One variable is located on the right and one on the left side of the box and the third variable is defined by three interior lines extending from top to bottom (Figure 4).

Values: Values are those ecologic, social, and economic resources that could be lost or damaged

because of a fire. Ecologic values consist of vegetation, wildlife species and their habitat, air and water quality, soil productivity, and other ecologic functions. Social effects can include life, cultural and historical resources, natural resources, artifacts, and sacred sites. Economic values make up things like property and infrastructure, economically valuable natural and cultural resources, recreation, and tourism opportunities.

Hazard: The hazard in wildland fire is made up of the conditions under which it occurs and exists, its ability to spread and circulate, the intensity and severity it may present, and its spatial extent.

Probability: Probability refers to the likelihood of a fire becoming an active event with potential to adversely affect values.

The Wildland Fire Relative Risk Assessment Chart is shown in Figure 4. Four steps are necessary to complete the risk assessment. Step-by-step instructions for completing the Wildland Fire Relative Risk Assessment are included in Appendix A. Each step is available individually in a larger format figure in Appendix A.

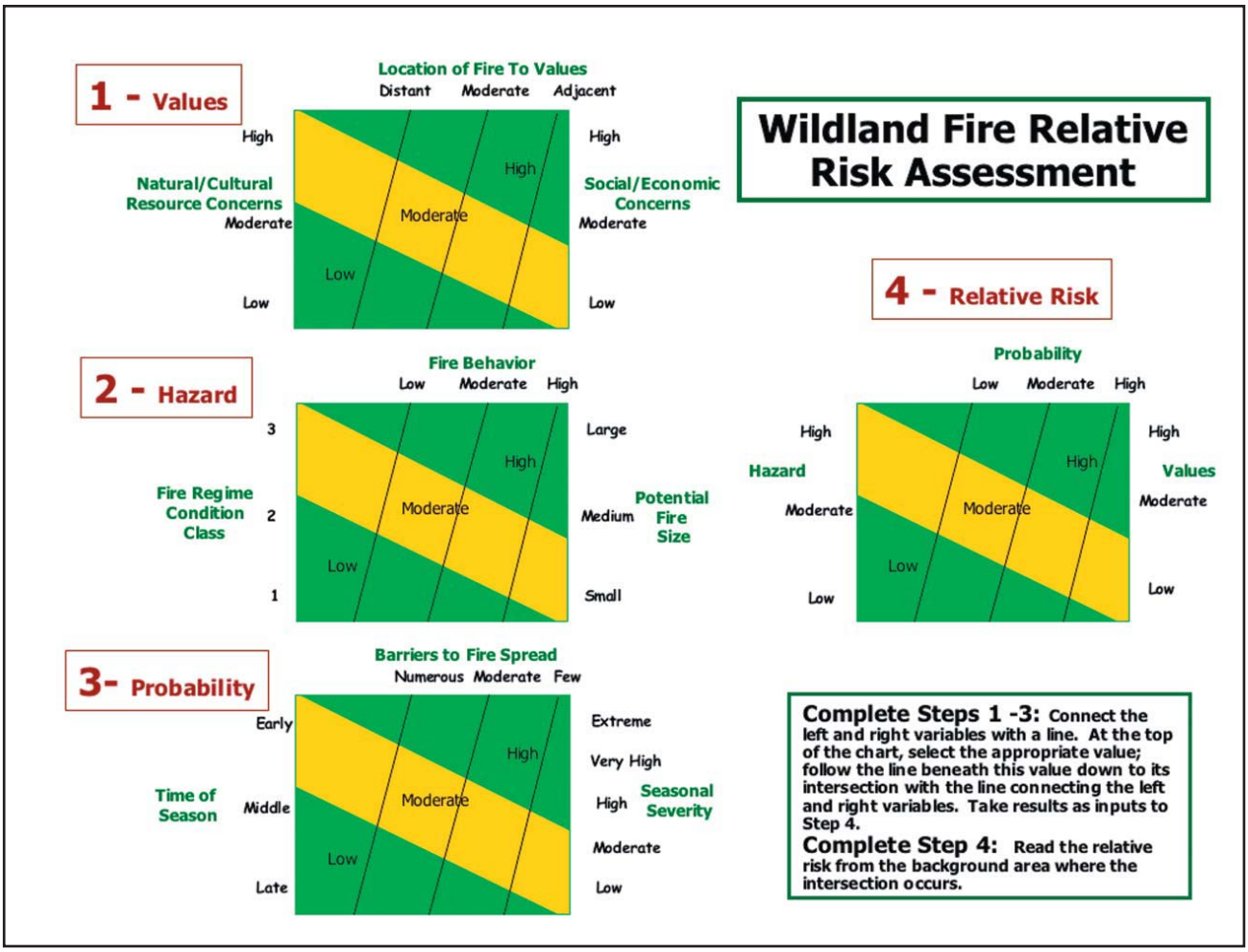


Figure 4. Wildland Fire Relative Risk Assessment.

Initial information to consider in developing the rating for the individual element is provided in the following section and after each individual chart in Appendix A. This descriptive list is not all inclusive and items on the list can vary by place and time. Users are expected to exercise their judgment in determining the ratings; information is intended to provide both guidance in completion and flexibility in determining exactly what the descriptions mean. Local information can and should be amended to the lists to better reflect site-specific situations. Local, site-specific information concerning air quality and smoke management must be amended into the Wildland Fire Relative Risk Assessment at the local level to reflect variances in situations and local values and regulatory concerns. Air quality criteria should be reflected in the values assessment portion, smoke production can be incorporated into the hazard descriptive list, and descriptive information related to the probability of adverse smoke events, if available, can be addressed as part of the probability assessment.

Part 1: Value Assessment: Values are those ecologic, social, and economic effects that could be lost or damaged because of a fire. Ecologic values consist of vegetation, wildlife species and their habitat, air and water quality, soil productivity, and other ecologic functions. Social effects can include life, cultural and historical resources, natural resources, artifacts, and sacred sites. Economic values make up things like property and infrastructure, economically valuable natural and cultural resources, recreation, and tourism opportunities. This assessment area allows opportunity for the local agency administrator to identify particular local concerns. These concerns may be identified in the fire management plan or other planning documents.

Natural/Cultural Resource Concerns - key resources potentially affected by the fire. Examples include, but are not limited to, habitat or populations of threatened, endangered, or sensitive species, water quality, erosion concerns, and invasive species.

Low	Moderate	High
Resource concerns are few and generally do not conflict with management of the fire. Mitigation measures are effective.	Significant resource concerns exist, but there is little conflict with management of the fire. Mitigation measures are generally effective.	Multiple resource concerns exist, some of which may conflict with management of the fire. The effectiveness of needed mitigation measures is not well established.

Social/Economic Concerns - the risk of the fire, or effects of the fire, impacting the social or economic concerns of an individual, business, community or other stakeholder involved with or affected by the fire. Social concerns may include degree of support for the wildland fire use program or resulting fire effects, potential consequences to other fire management jurisdictions, impacts to tribal subsistence or gathering of natural resources, air quality regulatory requirements and public tolerance of smoke. Economic concerns may include potential financial impacts to property, business, or infrastructure. Infrastructure impacts may be costs to repair or replace sediment catchments, wildlife guzzlers, corrals, roads, culverts, power lines, domestic water supply intakes, and similar items.

Low	Moderate	High
Local support for wildland fire use is high. The fire should have little or no impact on subsistence or tribal activities involving treaty rights. The fire is expected to remain within a single jurisdiction or agreements are in place to allow the fire to move across several jurisdictions. Media coverage is favorable. Few structures or business ventures are potentially affected by the fire. There are few impacts to recreation and tourism.	Local support of wildland fire use is clearly divided between supporters and opponents. The fire will have some impacts on subsistence or tribal activities involving treaty rights. The fire is expected to involve more than one jurisdiction, cooperator, or special interest group and agreements need to be developed. Media coverage tends to be a mix of favorable and unfavorable views. Some structures may be threatened by the fire or some business ventures may be affected by the fire.	Local support for wildland fire use is low. The fire will have significant impacts on subsistence or tribal activities involving treaty rights. Smoke impacts may become a concern for higher level air quality regulatory agencies. The fire is expected to involve several jurisdictions, cooperators, and special interest groups and agreements requiring significant negotiation need to be developed. Media coverage tends to be unfavorable. Many structures or private properties could be threatened.

Location of Fire to Values

Distant	Moderate	Adjacent
Fire location is not proximate to values to be protected or fire is located where it is highly unlikely that it would reach the values.	Fire location is moderately proximate to values. Location is such that, based on historical data, fire could potentially reach the values but will take multiple burning periods and sustained fire activity to reach the values.	Fire location is in close proximity to values. Without mitigation actions, fire will be expected to reach the values.

Part 2: Hazard Assessment: The hazard in wildland fire is made up of the conditions under which it occurs and exists, its ability to spread and circulate, the intensity and severity it may present, and its spatial extent.

Current Fire Behavior – the current fire behavior or that most recently observed. Changing fire behavior is addressed through repeated completion of the Periodic Fire Assessment.

Low	Moderate	High
Short duration flaming front with occasional torching. Fuels are uniform and fire behavior can be easily predicted and tactics implemented.	Short range spotting occurring. Moderate rates of spread are expected with mainly surface fire and torching. Fuels and terrain are varied but don't pose significant problems in holding actions.	Long range spotting greater than one-quarter mile. Extreme rates of spread, and crown fire activity are possible. Fuels, elevation, and topography vary throughout the fire area creating high resistance to control.

Fire Regime Condition Class — a measure of ecological functions at risk based on changes in vegetation.

1	2	3
Vegetative composition and structure are resilient and key components are at low risk of loss. Few, if any, fire return intervals have been missed and fuel complexes are similar to historic levels.	Both the composition and structure of vegetation has shifted toward conditions that are less resilient and more at risk of loss. Some fire return intervals have been missed, stand structure and composition, and fuel complexes have been altered and present potential for fires of severity and intensity levels in excess of historic levels.	The highly altered composition and structure of the vegetation predisposes the landscape to fire effects well outside the range of historic variability, potentially producing changed fire environments never before measured.

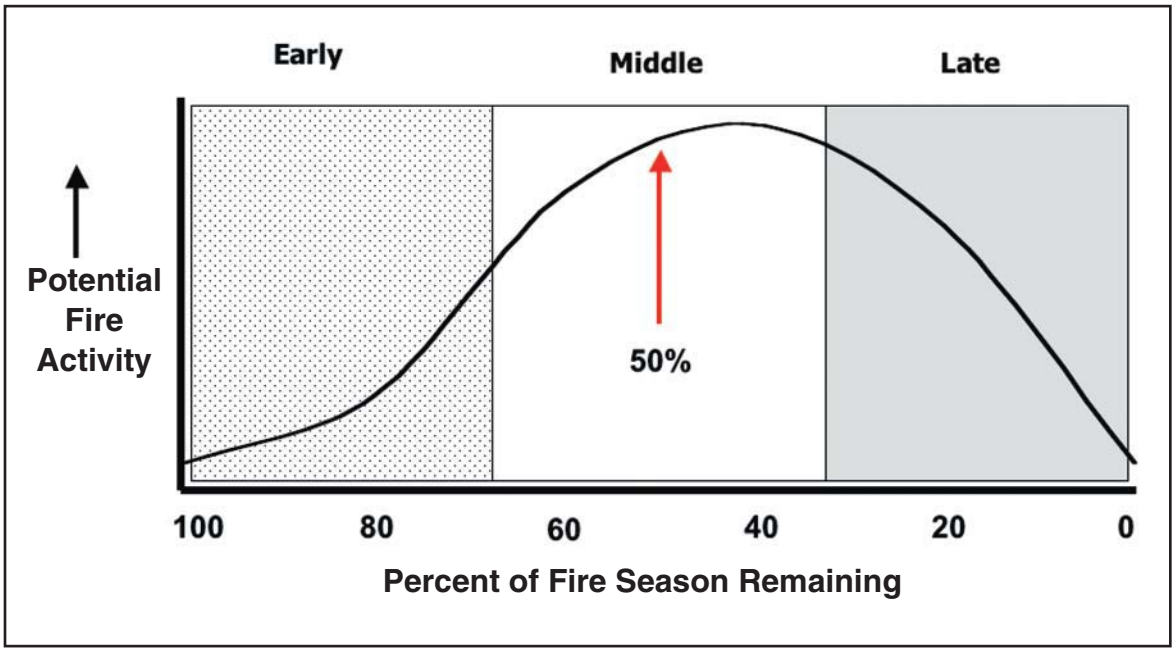
Potential Fire Size — the potential fire size by the end of the season in comparison to historical fire occurrence.

Small	Medium	Large
Fire size is expected to be small for the dominant fuel type involved.	Fire size is expected to be in the mid-range for the dominant fuel type involved.	Fire size is expected to be large for the dominant fuel type involved.

Part 3: Probability Assessment: Probability refers to the likelihood of a fire becoming an active event having potential to adversely affect values.

Time of Season — the current time in relation to the historical fire season. The chart below the guidelines reinforces the importance of time of season. During the early part of the fire season, the peak of burning activity is still to come, thus the fire could present substantial variation in behavior and activity. In the middle of the season, the peak of burning activity may or may not have occurred while in the late part of the season, the peak of fire activity generally has occurred and managers can reasonably expect diminishing fire activity and behavior as time progresses. As the amount of fire season remaining decreases or as the time of season progresses from early to late, management concerns and issues associated with potential fire activity decrease.

Early	Middle	Late
The current date is in the early portion of the historic fire season, at least two-thirds of the established fire season remains and the peak of burning activity is still to come.	The current date is in the middle of the historic fire season, at least one-third of that period has passed and no less than one-third remains. The peak burning activity period either has occurred, is occurring now, or will occur very soon.	The current date is in the latter part of the historic fire season. At least two-thirds of the historic period has passed, the peak burning activity period has occurred, and the probability of a season-ending or fire-ending event is increasing quickly.



Seasonal Severity — a measure of the potential burning conditions as expressed by factors such as energy release component (ERC), drought status, live fuel moistures, dead fuels moistures, soil moisture, stream discharge, and similar types of measures.

Low	High	Extreme
Measures of fire danger are below to somewhat above seasonal averages. Drought status is within seasonal norms with no long-term drought present.	Measures of fire danger are well above seasonal averages but not setting new records. The area is in short-term drought (1-2 years of drought) but not considered to be in long-term drought.	Measures of fire danger are setting new records. The area is considered to be in long-term drought (3 or more years of drought).

Barriers to Fire Spread – a measure of the natural defensibility of the fire location and an indication of degree of potential mitigation actions needed.

Numerous	Moderate	Few
The location of the fire and presence of natural barriers and firebreaks limit the horizontal fuel continuity, minimal mitigation actions on the ground will be needed.	The location of the fire and presence of some natural barriers and firebreaks limit the horizontal fuel continuity on some, but not all, fire flanks, some mitigation actions on the ground will be needed to protect threats to boundaries and sensitive areas.	The location of the fire and presence of only limited natural barriers and firebreaks will permit fire spread across continuous fuels. Mitigation actions on the ground will be needed but are expected to be effective.

Alternative Risk Assessment Methods

If preplanning or ongoing planning efforts lead to the development of additional mechanisms for assessing risk, these outputs can be utilized during the relative risk assessment process. Some planning analyses provide indications of values, hazards, and probability that may be used in lieu of completing Steps 1, 2, and 3 of the Relative Risk Assessment. Step 4, determination of the risk, must be completed, regardless of how the values, hazard, and probability are determined. Figures 5 and 6 show some examples of preplanning products that could be used for Steps 1, 2, and 3.

Mapping products like those illustrated in Figure 5 provide locations of communities, wildland-urban interface, infrastructure, natural resource concerns, etc. These maps can be used in conjunction with fire management units to assess risk from fire to these values and can be directly used in the relative risk chart as levels of values for Step 1 or Step 4.

In Figure 6, fire hazard can be used to evaluate the hazard portion of the relative risk, and fire risk could be an indicator of probability. These data can be used in conjunction with fire management unit information to assess the hazard and probability and can be directly used in the relative risk chart as levels of hazard and probability in Steps 2, 3, and/or 4.

There are numerous other methods that can be used to help evaluate the relative risk. If an alternative method is used to derive the value, hazard, and probability, that method must be documented on the relative risk rating charts.

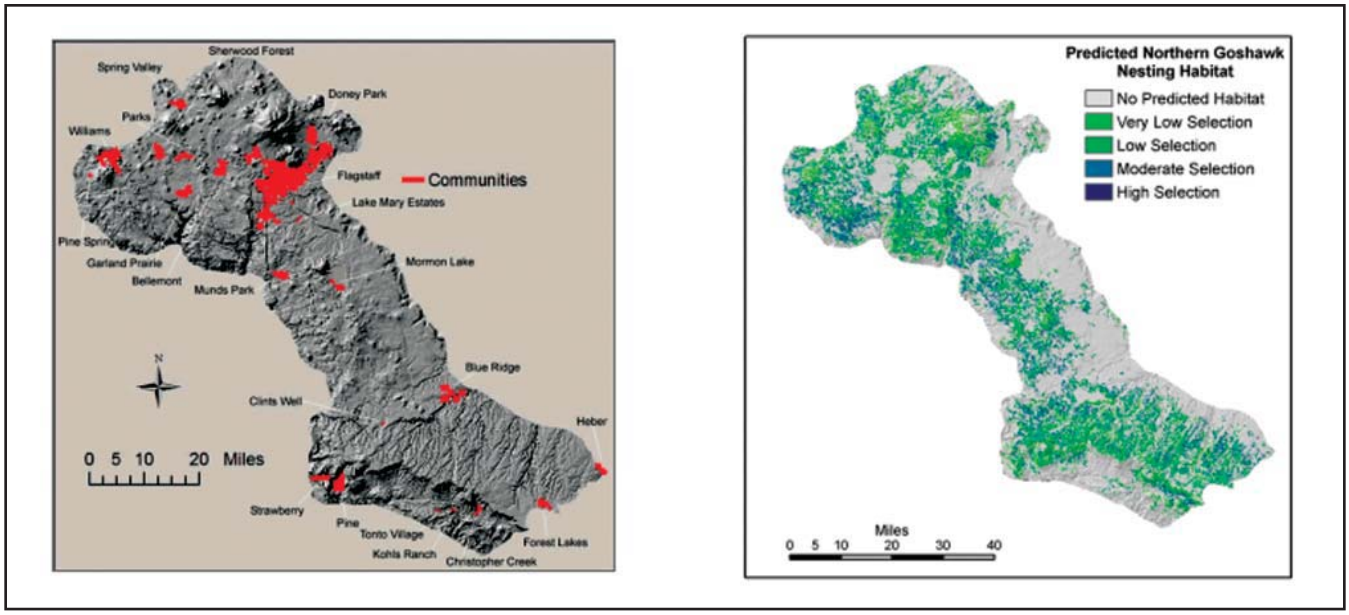


Figure 5. Geographic information system (GIS) mapping outputs showing community locations and wildlife species concern areas (courtesy of ForestERA, Northern Arizona University, Flagstaff, AZ).

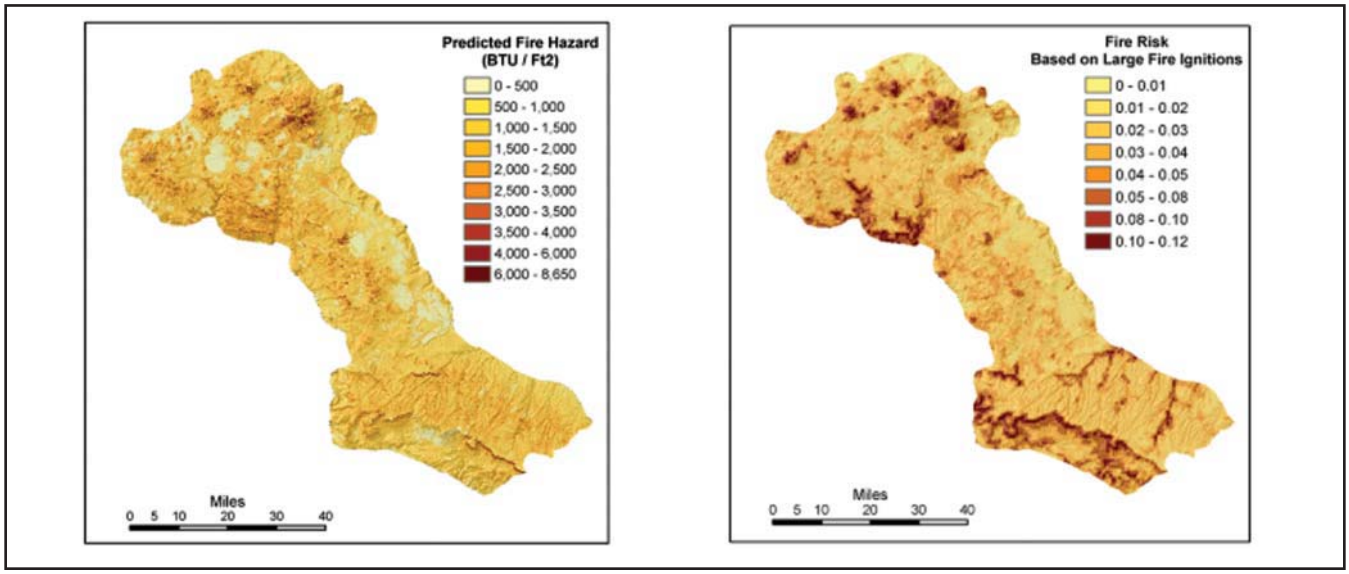


Figure 6. Geographic information system mapping outputs showing predicted fire hazard and fire risk (courtesy of ForestERA, Northern Arizona University, Flagstaff, AZ).

Management Actions

Management actions describe activities necessary to manage the fire until the Periodic Fire Assessment indicates a change in WFIP planning stage and activity is required or until objectives are achieved. Management actions will include monitoring and other actions as appropriate. Monitoring actions are important components of Stage I management actions. Monitoring actions are necessary to track fire movement, fire activity, fire effects, and to provide information vital to completing the Wildland Fire Use Management Assessment (see Periodic Fire Assessment section). Management actions should be designed to safely achieve the wildland fire use objectives as detailed in the fire management plan, and be based upon the fire situation and forecasted weather and fire behavior. Within the forecasted weather section, include an initial discussion of assessment of air quality forecasts/allowable burn days, as applicable for the local area.

Periodic Fire Assessment

For each wildland fire use action, the agency administrator (or delegated individual) is required to initially affirm and periodically reaffirm the capability to manage the fire as a WFU event. This process is intended to document and ensure management accountability throughout the duration of the wildland fire use. The Periodic Fire Assessment process:

- affirms continued management of the fire to meet resource objectives or provides rationale for conversion to a suppression response.
- confirms and documents the decision to establish, remain at, or move up to the next stage of planning.
- validates the minimum planning and implementation qualifications.

The Periodic Fire Assessment accomplishes the above-stated purposes by:

- completing a Decision Criteria Checklist (either by reaffirming the Decision Criteria Checklist completed in the previous stage or through completion of a new one),
- assessing the level of risk the fire presents using the Wildland Fire Relative Risk Assessment process (either by reaffirming the Wildland Fire Risk Assessment completed in the previous stage or through completion of a new one),
- assessing the planning needs of the unit,
- assessing the minimum planning and implementation qualifications for each stage of the WFIP, and
- completing a signature table that affirms the agency administrator's concurrence to manage the fire for resource benefits at a particular stage.

Purpose: To evaluate and document:

- the capability to manage the fire to meet resource benefits;
- relative risk,
- management organization, operational, and personnel qualification needs; and
- the WFIP planning level required to meet identified needs.

The Periodic Fire Assessment is completed on a set schedule in conjunction with all three WFIP stages.

Information Sources: Fire monitoring information, risk assessments results, current fire activity, fire location, fire size, fire danger indicators, time period of fire season, fire behavior and weather forecasts, and agency administrator and staff input.

Estimated Completion Time: ≤ .5 hour.

Periodic Fire Assessment

- ❑ Decision Criteria Checklist
- ❑ Wildland Fire Relative Risk Assessment
- ❑ Wildland Fire Use Management Assessment
  - —Part 1: Planning Needs Assessment
  - —Part 2: Fire Use Manager Decision Chart
- ❑ Signature Page

The initial Periodic Fire Assessment is completed as part of WFIP Stage I. It is then redone on the recurring timeframe set by the assessment frequency.

Decision Criteria Checklist

The Decision Criteria Checklist completed in Stage I or during the most recent Periodic Fire Assessment is reviewed for continued validity. The validity of the checklist is noted on the Periodic Fire Assessment signature page. If the Decision Criteria Checklist is no longer valid, management of the fire for resource benefits can no longer continue. See WFIP Stage I Decision Criteria Checklist procedures for a description of the Decision Criteria Checklist and an example form.

Wildland Fire Relative Risk Assessment

The Wildland Fire Relative Risk Assessment, completed during Stage I or during the most recent Periodic Fire Assessment, is reviewed and updated to remain current and ensure validity. **It is important that this assessment be reviewed and updated as conditions change over time (this review and update is required in the Periodic Fire Assessment).** See WFIP Stage I Wildland Fire Relative Risk Assessment procedures for a description of the Wildland Fire Relative Risk Assessment and example forms.

Wildland Fire Use Management Assessment

The Wildland Fire Use Management Assessment consists of two parts:

- Part 1: Planning Needs Assessment Chart
- Part 2: Fire Use Manager Decision Chart

This section is completed to determine the level of planning and management capability and qualifications commensurate with the fire activity and management capability.

Part 1: Planning Needs Assessment Chart

The Planning Needs Assessment Chart is used as part of the Periodic Fire Assessment to determine or affirm the level of planning commensurate with the relative risk, potential fire duration, and fire activity. The Planning Needs Assessment Chart indicates the need to establish, remain at, or to move up to the next stage of planning and is the principle guide for transition throughout the WFIP process. This chart aids managers in assessing the need to complete detailed, long-term assessment and implementation plans for a particular fire. The chart also guides agency administrators in setting priorities for planning needs for multiple fires and ensuring that those fires having the greatest need have the necessary planning done within the framework of management capabilities and time constraints. It must be noted that agency administrators and staff have the prerogative to move up and complete the next or all WFIP Stage(s) for any or all wildland fires at any time. **When the Planning Needs Assessment Chart indicates progression to a higher level and that stage of the WFIP is completed, the fire will be managed under that WFIP stage either for its duration or until the chart indicates a need to progress to the next higher level.** This chart does not provide guidance to move down or backward through planning stages. Once WFIP Stage III is indicated and completed, the fire will not return to management under Stage I. The Planning Needs Assessment Chart is shown in Figure 7.

To complete the chart in Figure 7, connect the left and right variables with a single line (potential fire duration and relative risk, respectively). Select the appropriate level of fire activity at the top of the chart and follow the line beneath that value down to its intersection with the line connecting the left and right variables. Read the planning need from the background area where the intersection occurs. The relative risk values are those obtained from the Wildland Fire Relative Risk Assessment process described above.

Table 2 shows the minimum interagency qualification requirements for wildland fire use planning at each stage of the WFIP process. This information should be used with the Planning Needs Assessment Chart to determine appropriate levels of planning qualifications. Higher qualified personnel can always be used to complete the various planning levels if desired. Duty officer qualifications are defined in local unit fire management plans.

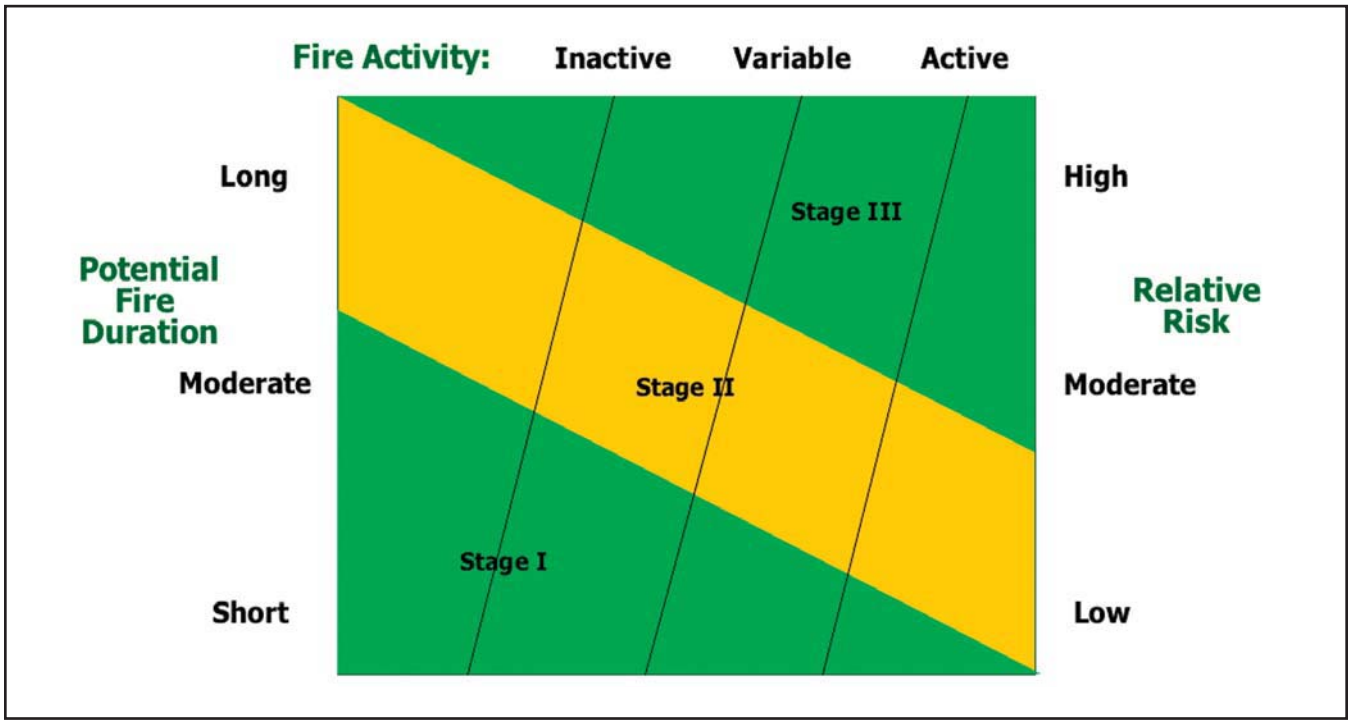


Figure 7. Planning Needs Assessment Chart.

Table 2. WFIP planning minimum qualifications

WFIP Stage	Minimum Planning Qualifications
WFIP Stage I	Unit Duty Officer
WFIP Stage II	Fire Use Manager Type 2 (FUM2)
WFIP Stage III	Fire Use Manager Type 2 (FUM2)

Part 2: Fire Use Manager Decision Chart

The Fire Use Manager Decision Chart is used during each stage as part of the Periodic Fire Assessment. This chart guides the agency administrator in determining the appropriate qualification levels for implementation of management actions. The Fire Use Manager Decision Chart indicates the need to establish, remain at, move up, or move down to a specific level of implementation qualifications and is the principle guide for transition of implementation qualifications throughout the WFIP process (the key difference between this chart and the Planning Needs Assessment Chart is that this chart is used throughout the duration of the fire and provides an indication of remaining at a level, moving up, **or moving down** in implementation qualification requirements). The Fire Use Manager Decision Chart is shown in Figure 8.

To complete the chart in Figure 8, connect the left and right variables with a single line (potential fire duration and relative risk, respectively). Select the appropriate level of fire activity at the top of the chart and follow the line beneath that value down to its intersection with the line connecting the left and right variables. Read the level of fire use manager needed directly from the background area where the intersection occurs. The relative risk values are those obtained from the Wildland Fire Relative Risk Assessment process.

Table 3 shows the **minimum** level of implementation qualifications. During implementation, as fire activity and management needs escalate, implementation qualification needs ascend to a higher level. But as conditions moderate and management needs drop, implementation qualifications can descend to lower levels. Table 3 and Figure 8 are used jointly as fire situations and conditions escalate; when conditions are moderating or lessening, Table 3 and Figure 8 provide the necessary qualification levels for implementation. However, once either Stage II or Stage III is completed, a Fire Use Manager (FUM2 or FUM1) must be assigned for implementation. Qualifications do not descend back to an ICT4 after either Stage II or Stage III has been completed.

Initial information to consider in selecting the value for each variable in Figures 7 and 8 is provided in the following section and after each individual chart in Appendix A. This list is not all inclusive and items on the list can be expected to vary by place and time. Users are expected to exercise their judgment in selecting the values; information is intended to provide both guidance in completion and flexibility in determining exactly what the descriptions mean. Local information can and should be amended to the lists to better reflect site-specific situations.

Table 3. WFIP implementation minimum qualifications

WFIP Stage	**Minimum Implementation Qualifications** (Use Fire Use Manager Decision Chart to determine recommended position)
WFIP Stage I	Incident Commander Type 4 (ICT4) **(Must have local knowledge or prior experience in implementing WFIPs and managing wildland fire use events.)**
WFIP Stage II	Fire Use Manager Type 2 (FUM2)
WFIP Stage III	Fire Use Manager Type 2 (FUM2)

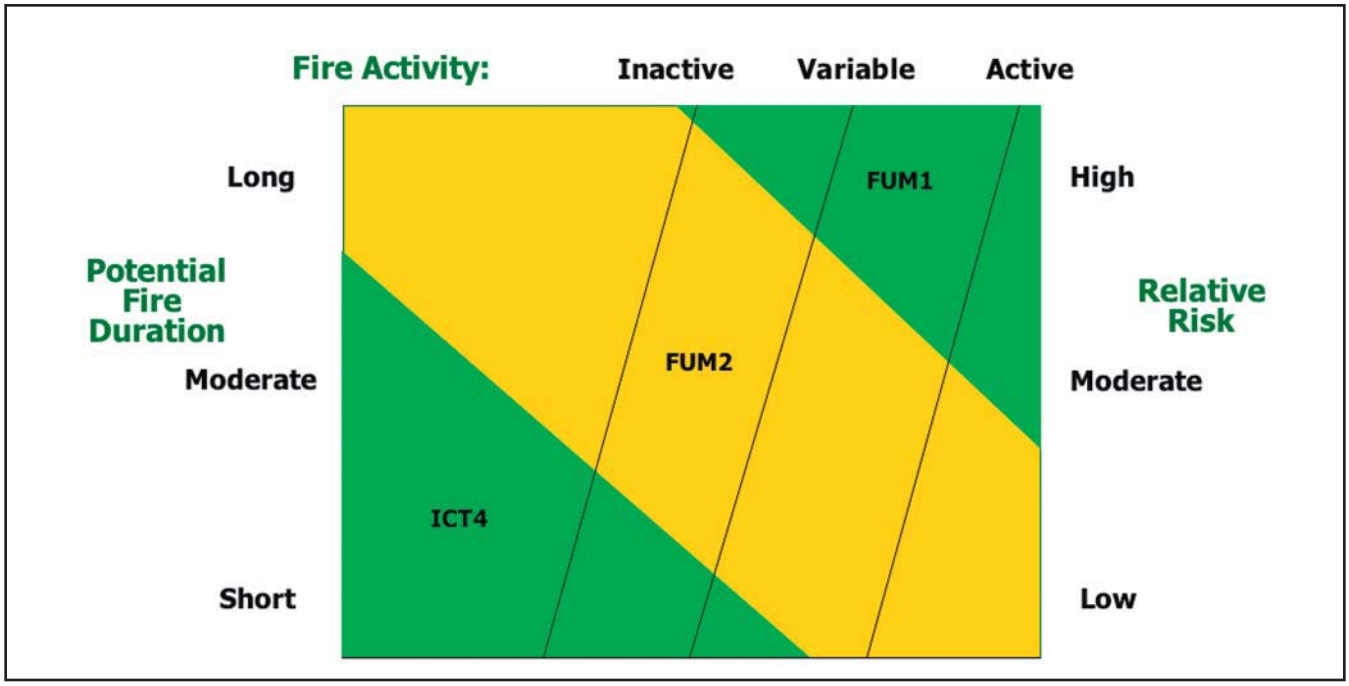


Figure 8. Fire Use Manager Decision Chart.

Guidelines for Planning Needs Assessment Chart and Fire Use Manager Decision Chart (while the charts are different and used for different purposes, the input values are the same and the following information applies to both charts).

Potential Fire Duration – the estimated length of time that the fire may continue to burn in comparison to historical fire durations and amount of fire season available for a given area.

Short	Moderate	Long
Fire is expected to persist for only the shortest time in comparison to historical fire durations. This may be as short as only a few days. Fuels may be limiting, weather may be limiting, or time of fire season may be limiting. Generally, this could be referenced as less than the historical average fire length for a given area.	Fire is expected to last for a time period similar to the historical average length of fires.	Fire is expected to last for a time period longer than the historical average length of fires.

Relative Risk – a measure of the relative risk, determined directly from the Wildland Fire Relative Risk Assessment, so no range of values is listed here.

Fire Activity - the relative activity of the fire in terms of intensity and spread over time.

Inactive	Variable	Active
Fire is burning with very low intensity and little or no spread and little or no increase in burned area. Fire is confined to surface litter and duff layers.	Fire is burning predominantly in surface litter and duff layers, with low intensity and little or no spread but has occasional periods of increased intensity and spread. Growth of burned area is not constant but occurs in response to increased activity. Area increase may be static for moderately long periods and then increase for short periods. Fire size usually increases by less than 50 percent during active periods.	Fire is burning in all fuel strata (litter, surface, and crown) with periods of sustained flaming fronts, perimeter growth, and area increases that can exceed 100 percent at times. Infrequent periods of low activity occur but spread is generally constant.

Signature Table

Local fire staff review and complete the assessments and checklist. Once these forms are completed they are taken to the agency administrator (or his/her designee) and **must be reviewed and confirmed on the specified assessment frequency.**

On the Signature Table, the following must be completed:

- Assessment Frequency,
- Valid Date(s),
- Signatures,
- Date,
- Confirmation of Decision Criteria Checklist,
- Validation of WFIP Planning Stage, and
- Confirmation of Fire Use Manager level.

Assessment Frequency and Valid Dates

The assessment frequency is how often the assessment will be reviewed. This frequency can be daily, but each unit can determine the appropriate assessment frequency. It can be less frequent than a daily requirement.

The frequency for completing the Periodic Fire Assessment is established based on the current and expected fire and weather situation. When units set a monitoring and assessment frequency, they should consider developing a "step-up" frequency based on levels of fire activity, external attention and influences, or other critical concerns. Then, as situational concerns escalate, the monitoring and assessment frequency can correspondingly increase. Conversely, as situational demands lessen, monitoring and assessment can "step down" and become less frequent. **Units must identify standards and rationale for establishing assessment frequency, especially "step-up" and "step-down" actions.**

The valid dates reflect the length of time that the identified assessment frequency will be used. If the assessment frequency is changed, the valid dates must be changed accordingly.

Signatures/Delegation

The agency administrator or designated individual must sign the Periodic Fire Assessment Signature Page in conformance with the specified assessment frequency. The Periodic Fire Assessment signature authority can be redelegated to specific positions as allowed by agency policy.

When redelegation occurs, agency administrators must document, in writing, the revalidation authority to the designated individuals. This permits the delegated individual to validate that management capability is adequate to continue management of the fire for resource benefits. If or when fire conditions or complexity levels escalate, Periodic Fire Assessment signature authority will automatically and immediately revert to the agency administrator who made the initial delegation of authority.

Periodic Fire Assessment

Signature Table

Assessment Frequency _____

Valid Date(s) _____

Name/Title	Date	Decision Criteria Checklist Valid	WFIP Planning Stage Required	Fire Use Manager Level
		Yes/No	I, II, III	I, II, Other

Wildland Fire Implementation Plan - Stage II

WFIP Stage II represents the continuation of management for resource benefits. During this stage, objectives are clearly defined, the fire situation is described, management actions commensurate with the fire situation are established, cost estimates are prepared, and the Periodic Fire Assessment is continued to evaluate the need to remain at Stage II or move to WFIP Stage III.

Components of WFIP Stage II and output products are shown in the box below.

Advancement in the planning process above Stage II is determined by the Periodic Fire Assessment indicating Stage III is needed or the agency administrator directing Stage III to be completed.

WFIP Stage II

- ❑ Objectives
- ❑ Fire Situation
  - —Current and predicted weather
  - —Current and predicted fire behavior
  - —Threats
  - —Safety considerations
  - —Environmental concerns
  - —External concerns
- ❑ Management Actions (include description of action and expected duration)
- ❑ Estimated Costs
- ❑ Periodic Fire Assessment

Purpose: **Documents specific management objectives, describes the fire situation and associated management concerns, identifies management actions, estimated costs, and documents the Periodic Fire Assessment.**

Information Sources: Objectives = developed from staff input and fire management plan.

Fire Situation = information available from monitoring the fire, weather observations and weather forecasts.

Risk Assessment = the minimum risk assessment required is the output from the wildland fire relative risk assessment completed in the Periodic Fire Assessment.

Management Actions = developed from staff input commensurate with predicted fire behavior, risk assessment, fuel types, fuel continuity, overall objectives, and defined management concerns.

Estimated Costs = developed from staff input, based on identified management actions and resources needed.

Completion Time: All elements of WFIP Stage II must be completed within 48 hours of need as indicated from the Periodic Fire Assessment.

Objectives

Land management is the process of making land use decisions for the future, setting objectives, implementing actions to accomplish the objectives, achieving outputs, and performing evaluations which compare results to objectives. In land management programs, objectives are used to establish desired outcomes for management actions. Objectives represent the single most influential factor in land management program implementation. They are fundamental to successful management to achieve desired land use decision conditions.

In wildland fire use, goals and objectives are important. Goals are primary basic products of the long-range management plans commonly referred to as land use decisions. They deal with large areas and long time periods. Land use decisions establish resource condition objectives; allowable, limited, or excluded uses for an area and the term and conditions for such use; and recommend management actions to achieve desired conditions. Objectives, a necessary component of the planning process, provide a bridge between goals and implementation actions. They identify changes resulting from management actions that move from the current situation to a desired situation. Site-specific treatment objectives must be developed to guide project-level operations in wildland fire use. These are very well-defined statements that describe what one or more wildland fires must accomplish to meet resource management objectives, as stated in land and resource management plans.

Objectives defined in WFIP Stage II represent specific statements of accomplishments for wildland fire use and provide a link back to fire management plans and land and resource management plans. These objectives must be specific, measurable, achievable, relevant, and trackable. At the Stage II planning level, more detailed tactical implementation of strategic objectives for wildland fire use activities takes place. At this level, the WFIP Stage II is a site-specific plan to guide implementation of fire management activities on the ground. Objectives are formulated from local unit input, agency administrator direction, fire management plans, and land and resource management plans.

Fire Situation

The fire situation section describes current conditions surrounding the fire and includes the following:

- Current and predicted weather
- Current and predicted fire behavior (predictions are vital to initial implementation actions because they provide):
  - —Estimates of fire size and shape at a given time,
  - —Models of management alternatives,
  - —Determinations of resource needs, production rates, and requirements,
  - —Placement of resources,
  - —Estimates of behavior under different weather patterns,
  - —Estimates of ignition patterns, including spotting,
  - —Modeling for contingency action planning,
  - —Developing prescriptions through historical weather records,
  - —Verifying prediction outputs.
- Threats
- Safety considerations
- Environmental concerns
- External concerns

The sum total of these efforts will be information on those factors affecting the fire and how it will burn and what it may affect. This information will support decisions on management actions, resource needs, and overall strategy and tactics concerning the appropriate management response.

Risk assessment during this stage can be quickly assessed through the Wildland Fire Relative Risk Assessment Chart during the Periodic Fire Assessment. However, if the unit has the capability to complete full long-term risk assessments through the use of the Rare Event Risk Assessment Process (RERAP), Fire Area Simulator (FARSITE), or other quantitative methods, they are encouraged to do so. This will provide the best information available. In the event such quantitative methods cannot be completed in a timely

manner, the Wildland Fire Relative Risk Assessment can be used to obtain a subjective assessment of the risk. The Stage II fire situation can be updated as current and forecasted weather and other situational factors change.

Management Actions

The Stage II planning level represents an escalation of both planning and operational actions over those needed for WFIP Stage I implementation. Management actions in this stage can vary significantly, depending upon specific circumstances of the particular fire. In cases where the fire may be fuel limited—surrounded by sparse fuels or natural barriers with limited spread potential in relation to values at risk—monitoring may be specified as the predominant implementation action. Monitoring is necessary to track fire movement, fire activity, fire effects, and to provide information vital to completing the Wildland Fire Use Management Assessment. In other cases, monitoring plus some form of mitigation actions may be necessary. In still other cases, fuel types in which the fire is burning may require immediate actions to delay, direct, or check the spread of fire on one or more flanks. WFIP Stage II management actions should be designed to safely achieve the wildland fire use objectives as detailed in the fire management plan and be based upon the fire situation and forecasted weather and fire behavior. These actions represent operational activities and resources needed to accomplish those activities until monitoring information or the Periodic Fire Assessment indicates a change in management planning and actions is required.

Estimated Costs

Cost estimates developed in this stage represent projections of expenditures using the resources identified to accomplish the management actions and assume no escalation to Stage III. If the planning needs transition to Stage III, new cost estimates that reflect a new set of management actions and a firefighting resource mix will be prepared.

Periodic Fire Assessment

Once Stage II is completed, the Periodic Fire Assessment must be completed. The process can be continued from Stage I but the signature page must clearly reflect the change in "WFIP Planning Stage Required" from Stage I to Stage II. The agency administrator (or delegated individual) is required to periodically verify the capability to continue management of the fire as a WFU event. This process documents and ensures management accountability throughout the duration of the wildland fire use event.

The Periodic Fire Assessment consists of the same elements as described for WFIP Stage I (See WFIP Stage I Periodic Fire Assessment description for more information). These include:

- Decision Criteria Checklist
- Wildland Fire Relative Risk Assessment
- Wildland Fire Use Management Assessment
  - —Part 1: Planning Needs Assessment
  - —Part 2: Fire Use Manager Decision Chart
- Signature Page

Wildland Fire Implementation Plan - Stage III

This stage represents completion of planning necessary to direct long-term implementation and successfully accomplish the desired objectives. The WFIP has been progressively developed throughout all stages; this represents the final stage. It presents detailed strategic and tactical implementation information and will be attached to information developed in previous stages.

Stage III consists of the information shown in the box on the following page.

This stage details operational activities and documents the planning completed to ensure adequate mitigation actions have been developed to reduce or eliminate threats to values. These actions should reduce the probability that fire behavior or fire effects will exceed acceptable limits.

Objectives

Objectives defined in WFIP Stage III represent site-specific statements of accomplishments for wildland fire use and provide a link back to fire management plans and land use plans. These are very well-defined statements that describe what one or more wildland fires must accomplish to meet resource management objectives. They should be specific, measurable, achievable, related/relevant, and trackable. At the Stage III level, the most detailed tactical implementation of strategic objectives for wildland fire use activities takes place. At this level, WFIP Stage III is a very detailed operational plan to guide implementation of fire management activities on the ground over potentially longer durations than in Stage I or II. Objectives will be formulated from local unit input, agency administrator direction, fire management plans, and land and resource management plans.

Purpose: Document a risk assessment and provide implementation actions necessary for management of a wildland fire to accomplish identified objectives over a potentially long duration.

This stage provides a definition of the acceptable management limits of individual or multiple fires, or fire complexes represented by the maximum manageable area (MMA). It considers long-term fire behavior predictions and risk assessments and supports decisionmaking. It identifies threats from the fire and addresses operational actions to mitigate or eliminate those threats.

Information Sources: Local expertise, experience, knowledge, maps, monitoring data, fire behavior predictions, risk assessment, and operational evaluation and identification of tactics and resources. MMA = staff negotiated and developed from objectives, maps, on-the-ground evaluation, aerial observation, monitoring, or as set by the FMP.

Completion Time: Stage III of the Wildland Fire Implementation Plan must be completed within 7 days from when the Periodic Fire Assessment indicates the need. The agency administrator can direct it to be completed before the Periodic Fire Assessment does.

Maximum Manageable Area (MMA) Determination

All wildland fires being managed under appropriate management response strategies identified in a WFIP Stage III will have a defined MMA. The MMA delineates the geographic limits of the fire area as defined by the capability of management actions to meet resource objectives and mitigate risk for a given wildland fire managed for resource benefits. It represents an important tool in the planning

process and serves as a planning reference and not as a rigid prescription element. It is based primarily on natural defensibility and facilitates identification of threats to a management boundary and threats to values within and adjacent to that boundary. It provides a planning basis for risk assessment analyses. It provides for closely directed fire management application in a specific area defined by resource objectives, fire and weather prescription elements, social concerns, political considerations, and management capability.

WFIP Stage III

- ❑ Objectives and Risk Assessment Considerations
  - —Natural and cultural resource objectives
  - —Constraints
- ❑ Maximum Manageable Area Definition and Maps
- ❑ Weather Conditions and Drought Prognosis
- ❑ Long-term Risk Assessment (describe techniques and outputs, include maps as appropriate)
- ❑ Threats
  - —MMA
  - —Public Use and Firefighter Safety
  - —Smoke Dispersion and Effects
  - —Other Resources
- ❑ Monitoring Actions (actions, frequency, and duration)
- ❑ Mitigation Actions (describe all management actions, management action points that initiate these actions, and key to map if necessary)
- ❑ Resources Needed to Manage the Fire
- ❑ Contingency Actions (describe actions necessary when mitigation actions are unsuccessful)
- ❑ Information Plan
- ❑ Estimated Costs of Long-term Implementation Actions
- ❑ Post-burn Evaluation
- ❑ Signatures and Date
- ❑ Periodic Fire Assessment

Maximum manageable areas have the following attributes:

- MMAs are developed from either predetermined areas identified in the fire management plan or during preparation of Stage III of the Wildland Fire Implementation Plan.
- MMAs define the geographic limits of management capability to meet resource objectives and accommodate the social, political, and resource impacts for all wildland fires managed to meet resource objectives.
- MMAs serve as planning references for developing risk assessment and risk management information and not as a rigid prescription element.
- A fire exceeding the MMA does not require an automatic change to a different strategy. There will be cases where a change in strategy from wildland fire use to wildfire suppression and the formal implementation of the Wildland Fire Situation Analysis (WFSA) process because a wildland fire use event exceeded an established MMA is not prudent or logical. In these situations, experience may indicate that the MMA will be exceeded by the specific wildland fire use on a very small or nonthreatening scale. Management options in this situation include:

  —Constraining the fire spread to the small or nonthreatening overrun of the original acceptable area using whatever resources are available to deal with the situation. Containment must be

accomplished within 48 hours from the end of that burning period, or the fire must be converted to a wildfire accompanied by a WFSA. If containment is successful, management as a WFU fire may continue. If the fire is converted to a wildfire, no further acreage gain may be attributed to wildland fire use.

- In some situations, there may be reasonable justification to change MMA locations. Any proposed change to the MMA must be thoroughly documented and justified by the unit managing the fire. Approval to change the MMA will be provided by the next higher level in the organization. Changes in the MMA are not warranted simply due to the spread of the fire near the boundary. The approving level will review the initial MMA establishment criteria, changes to the situation affecting the need to change the boundary, and local and regional situations before determining if the proposed change is warranted.

- Where adjacent units/agencies have established adjacent MMAs for separate fires, it will be acceptable, given the units'/agencies' agreement, to manage fire spread from one MMA into another without formal change of either MMA boundary.

Weather Conditions and Drought Prognosis

A discussion of current weather conditions and trends in comparison to historical records provides insight into the relative severity of the current situation, reinforces fire danger indicators, and supports decisionmaking. A review of the drought situation provides additional support to fire danger indicators and supports current and future decisions. This information is available from historical weather records, climatological reviews, research information, wildland fire assessment tools, and National Weather Service archives. Information presented here is valuable in further defining the hazard posed by the specific fire(s) being managed. Kinds of information useful for this discussion include, but are not limited to:

- Historical weather trends and patterns,
- General wind patterns,
- Historical wind direction analyses,
- Climatological probabilities,
- Historical length of fire season,
- Severity of the current season and comparison with other significant fire years,
- Seasonal drought outlook, and/or
- Precipitation probability over defined time periods.

Long-term Risk Assessment

Decisionmaking associated with managing wildland fire for resource benefits can have critical impacts. Risks and uncertainties relating to wildland fire use must be understood, analyzed, communicated, and managed as they relate to the cost of either doing or not doing an activity. It is important to make high quality and informed decisions. Decisionmaking is facilitated by factual information and prediction of outcomes or consequences of the decision. Of particular importance is the ability to assess the degree of risk presented by the particular wildland fire.

The importance of risk assessment is reinforced through the "Guiding Principles from the Federal Fire Policy" and affirmed by the 2003 Implementation Strategy that states, "Sound risk management is a foundation for all fire management activities," and "Fire management plans are based on the best available science."

During the most detailed planning stage of the WFIP (Stage III), an assessment of the long-term risk that a particular fire may present is required. This is critical input information to ongoing management activities, development of mitigation

strategies and actions, continuing support for decisions about the fire, and future implementation activities. Technological advances in fire behavior prediction, meteorological analysis, fire spread estimation, fire effects prediction, smoke production and dispersal, rare event assessment, and fire area simulation make it possible to obtain better information, reduce uncertainty, assess potential fire outcomes, evaluate consequences of failure, and determine probabilities of success more effectively than ever before. Using these techniques to gain the type of information necessary for consideration in decisionmaking promotes better management choices and ultimately, more desirable outcomes. As new technology becomes operationally available for application in management situations, it will be utilized to improve operational actions to the greatest degree possible. The Long-term Risk Assessment is also based on the principles of assessing values, hazard, and probability. These three elements are not directly assessed in the risk assessment, but pervade the entire Stage III planning process. The sum total of this information is used by the agency administrator to reduce uncertainty and support management decisions and actions.

Specific assessment outputs useful in evaluating long-term risk include:

- Indications of how the fire may burn; predictions of intensity and severity.
- Fuel conditions, moisture conditions, departures from average conditions.
- Fire dynamics — indicators of potential rapid escalation in fire behavior.
- Analysis and comparison of current fire danger indicators with historical data and trends.
- Fire history reviews, records of past fires in terms of area burned and type of fires (i.e., low to moderate intensity, surface fire, stand replacement, etc.).
- Probability of the fire reaching the planning area boundary (MMA).
- Probability of a season-ending weather event.
- Probability of a fire-slowing weather event.
- Probability of a large spread weather event.
- Indications of where the fire may spread or total area that may be burned by the fire.
- How fast the fire will travel.
- How soon the fire may reach critical sites or the planning area boundary.
- Predictions of the range of potential fire effects on natural and cultural resources.
- Probability of adverse smoke events and dispersal.
- Review of past precipitation history.

An array of decisionmaking support aids is available to support wildland fire assessments. The choice of technique will depend on the information needed and the state of knowledge regarding that subject area. Techniques may range from a subjective, descriptive comparison to a very objective indepth analysis using sophisticated mathematical models and quantitative data as available on the local unit. The Stage III Long-term Risk Assessment provides quantitative information derived from specific analyses which utilize historic weather data, long-term climatological data, fuel moisture data, fuel conditions, fire danger, seasonal severity, satellite imagery, and simulation modeling. Use of technological tools is appropriate when a specific method can give the decision maker information that reduces uncertainty associated with possible outcomes and facilitates the best decision possible.

No mandatory requirements exist for risk assessment. **However, in WFIP Stage III, an assessment must be completed that yields some of the information listed in the output list above.** Units are encouraged to acquire input information and data and to utilize available long-term risk assessment techniques such as the Rare Event Risk Assessment Process (RERAP), Fire Area Simulator

(FARSITE), fire effects indicators such as those gained from the Fire Order Fire Effects Model (FOFEM), and smoke emissions models. Risk assessments will both utilize and affect information contained in the Weather Conditions and Drought Prognosis, Threats to the MMA, Threats to Public Use and Firefighter Safety, Threats to Smoke Dispersion and Effects sections of WFIP Stage III. Assessment outputs will have a direct bearing on information developed and included in the Monitoring Actions, Mitigation Actions, Resources Needed to Manage the Fire, and Contingency Actions sections of WFIP Stage III. As the quality of risk assessment increases, the quality of subsequent decisions and probability of desirable outcomes will increase. Units should strive for the highest quality decisions possible.

Table 4 illustrates some common models useful in assessing wildland fire.

Table 4. Computer applications for assessing wildland fire

Model	Description
BehavePlus	BehavePlus can be used to predict a number of different factors given different fuel loadings, arrangements, and weather that describe fire behavior, in terms of rate of spread, flame length, size of fire, and spotting distances. The BehavePlus fire modeling system is a PC-based program that is a collection of models that describe fire and the fire environment. It is a flexible system that produces tables and graphs and can be used for a multitude of fire management applications. BehavePlus is the successor to the BEHAVE fire behavior prediction and fuel modeling system.
Canadian Forest Fire Danger Rating System (CFFDRS)	The CFFDRS is comprised of two primary subsystems: The FWI, or Fire Weather Index System and the FBP, or Fire Behavior Prediction System. The FWI System depends solely on daily weather measurements, is a good indicator of several aspects of fire activity, and is best used as a measure of general fire danger for administrative purposes. The FBP System allows the user to predict the rate of spread (meters per minute), fuel consumption (kilograms per square meter), and intensity (kilowatts per meter) at the head, back, or flanks of fires that are still accelerating after ignition or have reached a steady-state condition with their environment. A general description of the type of fire is also given (for instance, surface fire or intermittent crowning). A simple elliptical fire growth model is employed in estimating the size and shape of a fire originating from a single ignition source as opposed to an established line of fire.
CONSUME	Consume 2.1 is a personal computer (PC) based interactive fuel consumption model that predicts total and smoldering fuel/biomass consumption during prescribed fires and wildland fires. Predictions are based on weather data, the amount and fuel moisture of fuels, and a number of other factors.
FARSITE (Fire Area Simulator)	A fire growth simulation model that computes fire behavior and spread over a range of time under conditions of heterogeneous terrain, fuels, and weather. This model projects where and how fast a fire may spread and how hot or intense it may burn. It is a fire growth simulation model that uses spatial information on topography and fuels along with weather and wind files. It incorporates the existing models for surface fire, crown fire, spotting, post-frontal combustion, and fire acceleration into a two-dimensional fire growth model.

FFE-FVS (Fire and Fuels Extension – Forest Vegetation Simulator)	A model developed to simulate forest growth and yield but has been adapted to provide information for fuels reduction. It provides expected fire behavior and effects if a wildland fire burns through an area over the simulation period.
FireFamilyPlus	The fire climatology and occurrence program that combines and replaces the PCFIRDAT, PCSEASON, FIRES, and CLIMATOLOGY programs into a single package with a graphical user interface for the PC.
FIREMON	FIREMON is an inventory and fire effects monitoring package that provides fire managers with sampling methods, data storage, and a data analysis package.
FlamMap	A software program that creates geographic information system maps of potential fire behavior characteristics and environmental conditions. It is not a replacement for FARSITE or a fire growth simulation model. There is no temporal component in FlamMap. It uses spatial information on topography and fuels to calculate fire behavior characteristics at one instant.
FEIS (Fire Effects Information System)	The Fire Effects Information System provides up-to-date information on fire effects on plants, animals, and ecosystems.
FOFEM (First Order Fire Effects Model)	A computer program for predicting tree mortality, fuel consumption, smoke production, and soil heating caused by prescribed fire or wildfire. First order fire effects are those that concern the direct, indirect or immediate consequences of fire. First order fire effects form an important basis for prediction of secondary effects such as tree regeneration, plant succession, and changes in site productivity, but these long-term effects generally involve interaction with many variables (for example, weather, animal use, insects, and disease) and are not predicted by this program. Currently, FOFEM provides quantitative fire effects information for tree mortality, fuel consumption, mineral soil exposure, smoke and soil heating.
LANDFIRE	LANDFIRE is a wildland fire, ecosystem, and fuel assessment mapping project designed to generate consistent, comprehensive, landscape-scale maps of vegetation, fire, and fuel characteristics for the United States. LANDFIRE includes a Rapid Assessment, which will map and model Fire Regime Condition Class (FRCC) at a broad-scale resolution for the entire United States by the summer of 2005. The Rapid Assessment is designed to fill data needs before the entire suite of LANDFIRE products is available and to help refine reference vegetation dynamics models for the LANDFIRE project.
NFDRS (National Fire Danger Rating System)	This system combines weather, climate, and fuels information to predict the relative fire danger and potential for wildland fires to occur on a daily basis.
NEXUS	A crown fire hazard analysis software that links separate models of surface and crown fire behavior to compute indices of relative crown fire potential. NEXUS can be used to compare crown fire potential for different stands, and to compare the effects of alternative fuel treatments on crown fire potential. NEXUS includes several visual tools useful in understanding how surface and crown fire models interact.

RERAP (Rare Event Risk Assessment Process)	RERAP determines probabilities that a wildland fire will reach or exceed an MMA or reach an area of concern due to a rare weather event. It also can provide probabilities of a season-ending event and smoke events.
VCIS	The Ventilation Climate Information System (VCIS) allows users to assess risks to values of air quality and visibility from historical patterns of ventilation conditions.
VDDT (Vegetation Dynamics Development Tool)	This model uses state in transition models or box and arrow diagrams to show how vegetation can change over time.
WFAS (Wildland Fire Assessment System)	The Wildland Fire Assessment System is an internet-based information system. The current implementation provides a national view of weather and fire potential, including national fire danger and weather maps and satellite-derived "Greenness" maps.

Threats

Identification of all known and anticipated threats is critical in evaluating values, hazard, and probability for the fire(s). The nature of long-term strategic planning involves anticipating and prediciting where the fire may move, what it may impact, and designing a strategy to minimize or eliminate those impacts. Threats must be defined for the MMA boundary, all sensitive natural and cultural resources inside and immediately outside that boundary, firefighters and the public, air quality, and other concerns as appropriate. Once a threat is defined in this section of Stage III, it must be linked through subsequent sections and appropriate actions (monitoring and mitigation) must be tied to that identified threat.

Monitoring Actions

A monitoring plan of action is necessary to ensure successful accomplishment of the objectives and to continually acquire information relevant to the fire situation. Monitoring is useful for documenting observed fire weather, observed fire behavior, fire movement toward management action points (MAP), fire effects, smoke dispersal and volume, and to aid in validating fire behavior and weather forecasts. Monitoring variables that are important can include, but are not limited to: smoke dispersal, live and dead fuel moistures, daily weather observations, fire perimeter and progression mapping, and observed fire behavior. Monitoring frequency will be based on fire activity and location. All monitoring information will be analyzed, applied as needed, and archived as part of the final documentation package.

Mitigation Actions

Science-based risk assessments, as discussed in the previous section, provide a solid foundation for developing a successful risk management/mitigation strategy. But, it must be clearly understood that risk assessment and risk management are not synonymous. Based on the risk assessment, decision makers decide what to do about managing the risk. Part of WFIP Stage III is a detailed plan that identifies mitigation actions, the activities for mitigating or eliminating risk. Risk can be mitigated or eliminated in three central ways: reduce the hazard, reduce the probability

of the hazardous event occurring, and reduce the value of potential losses that could occur from the risk.

In wildland fire use, the first two risk mitigation types are the most frequently utilized, identified as mitigation actions in the implementation plan, and implemented as needed. Mitigation actions are on-the-ground activities that serve to increase the defensibility of a particular point, area, or line, like a planning area boundary (to reduce the probability of the hazardous event occurring); to check, direct, or delay the spread of fire (reduce the hazard); and to minimize threats to life, property, and resources (reduce value of potential losses or impacts). Mitigation actions serve to mitigate or eliminate identified threats and may include non-fire tasks (such as closures, evacuations, management actions to reduce impacts from smoke, etc.) and specific fire applications.

Management action points are tactical decision points, either geographical points on the ground both inside and outside the MMA or specific points in time where an escalation or alteration of management actions is warranted in response to fire activity, proximity to identified threats, time of season, weather changes, or management decisions. The points are placed on maps that accompany the WFIP. They can be started in Stage II and added to in Stage III for long-range needs. These points must be tied to identified threats in the plan. Each management action point will have one or more corresponding mitigation actions described which will need implementation when the fire reaches it or after a specified time period. This documentation stays with the fire through its management and is amended periodically as new management action points and mitigation actions are developed. As management personnel change over the life of a WFU fire, this documentation provides continuity in direction needed when a fire approaches the management action point.

Resources Needed to Manage the Fire

Based on monitoring and mitigation actions, the information plan, and management oversight and qualifications needed to accomplish the objectives, resources needed to implement the plan and accomplish the objectives must be identified in this section. Resources identified here include those needed for the projected duration of operations as described in Stage III.

Contingency Actions

Contingency actions are actions necessary when mitigation actions are unsuccessful (impacts to values could occur). They are identified for implementation to control the spread of fire into unwanted areas or to prevent it from adversely impacting a sensitive value (reduce hazard and/or probability). For example, if the fire crosses the MMA at any point along the perimeter and mitigation was unsuccessful, onsite firefighting resources will be utilized to achieve control. If control cannot be accomplished, the fire will be converted to a wildfire. All fires that are converted to wildfires will have a Wildland Fire Situation Analysis (WFSA) prepared to select the proper strategic alternative and identify necessary resources. Contingency actions may also include preplanned coordinated actions with air regulatory agencies in the event that forecast or smoke management plans are not accurate.

Information Plan

Among agency staff, cooperators, and affected publics, fire use objectives, risks, and tradeoffs are not always well understood or well accepted. Communication and education of all agency personnel involved with the planning and implementation of wildland fire use is crucial to successful program implementation. An understanding of the guiding principles and objectives by the public and media is essential for full social and political acceptance and endorsement of this program. As a result, it is becoming increasingly

important to establish and maintain an aggressive and efficient communication and education effort for wildland fire use programs and for each wildland fire that is managed. In addition, wildland fire use operational actions are often viewed negatively.

This element of WFIP Stage III provides documentation of the role of information during the wildland fire use event, the messages to be communicated, and operational procedures and processes to ensure that the information reaches all applicable audiences and supports local unit needs.

Estimated Costs

Cost estimates developed in this stage are projections of expenditures expected to be incurred during implementation over the predicted duration of the fire. These estimates will include both costs expended to date and projections from the signed date into the future.

Post-burn Evaluation

Post-burn evaluations will be conducted as dictated by agency policy to evaluate the degree of accomplishment of stated objectives and desired fire effects. Secondly, an evaluation of the total operation is vital to improvement of programmatic efficiency. Specific areas that may be evaluated include, but are not limited to:

- Management and mitigation of safety.
- Use of best available science, including weather and fire behavior forecasts, long-term risk assessments, fire growth simulations if applicable.
- Short-term fire effects.
- Public information and education, notification of individuals, groups, and areas potentially impacted by fires.
- Consistency with land and resource management plans and fire management plans.
- Attention to resource management issues and concerns.

Signatures and Date

WFIP Stage III must be approved by the agency administrator or delegated individual upon completion. This approval is documented by signature and date at the end of Stage III. This approval does not constitute the Periodic Fire Assessment which must be continued on the set frequency after completion of Stage III.

Periodic Fire Assessment

Once Stage III is completed, the Periodic Fire Assessment is completed. The process can be continued from Stage I or II but the signature page must clearly reflect the change in "WFIP Planning Stage Required" to Stage III. The agency administrator (or delegated individual) is required to periodically affirm the capability to continue management of the fire as a WFU event. This process will document and ensure management accountability throughout the duration of the wildland fire use event.

The Periodic Fire Assessment consists of the same elements as described for WFIP Stage I (See WFIP Stage I Periodic Fire Assessment description for more information). These include:

- Decision Criteria Checklist
- Wildland Fire Relative Risk Assessment
- Wildland Fire Use Management Assessment
  —Part 1: Planning Needs Assessment
  —Part 2: Fire Use Manager Decision Chart
- Signature Page

Wildland Fire Use Management Organizations

Organizational Needs

Managing wildland fire for a wide range of objectives across diverse land uses and vegetative complexes subject to a mixture of fire regimes is one of the highest risk and complex programs facing natural resource managers. Organizational needs to complete this management vary significantly with site-specific circumstances. All wildland fires managed for resource benefits (wildland fire use) will have a position commensurate with the fire situation and needs (see "Wildland Fire Use Management Assessment") assigned. Additional personnel necessary to accomplish the objectives and implement the WFIP will be determined for the specific situation locally.

No interagency standards exist for the configuration of teams responsible for preparation of wildland fire implementation plans, the duration of time that they must be in place, and what products they must create. Use of an incident action plan is appropriate for all fires that exceed the first few days when actions must be performed by on-the-ground personnel. This is a safety concern and is necessary to provide clear and concise direction, to document assigned resources and mitigation actions and other safety issues like frequency assignments and emergency medivac procedures. Long-term management of wildland fires includes periods of fire behavior that range from extremely active to inactive. Fire activity will cycle with weather, fuel moisture and availability, and successful implementation of mitigating actions. Having someone with expert fire behavior knowledge in the management organization is advised.

As conditions escalate, management needs will increase; additional personnel can be added to support and assist the Fire Use Manager, and, if conditions extend to the highest difficulty levels, a formal management team can be ordered. These formalized teams may make the most significant contribution in support of local units and management of the fire. These teams may be developed locally from unit and cooperator personnel or be a formal, established fire use management team (FUMT) obtained through the established resource ordering process. A FUMT has a minimum standard of Type II qualified personnel, with the Incident Commander having attended S-580 Advanced Fire Use Applications. The FUMT includes an Incident Commander, Planning Section Chief, Operations Section Chief, Logistics Section Chief, Safety Officer, Information Officer and Long-term Fire Behavior Analyst (LTAN). Normally at least three additional positions are filled which may be different on each assignment and are determined by the Incident Commander and the agency administrator. If a FUMT is assigned, the Fire Use Manager's responsibilities may or may not be fulfilled by the Incident Commander; if these responsibilities are not filled by the Incident Commander, a Fire Use Manager will also be assigned.

The capability to predict fire behavior and assess long-term management considerations is critical and, in most situations, is done by the LTAN who is trained in using fire behavior and risk assessment models and is familiar with information technology. The LTAN is critical in predicting the potential area and extent of burning, assessing long-term risk, and validating the maximum manageable area (MMA). He/she also predicts the potential of a fire to reach certain values that may be threatened over the long term and the potential timing of a fire-ending event. A Fire Behavior Analyst (FBAN) provides tactical fire behavior predictions, obtains weather observations and forecasts, and assesses short-term risk.

Amending the WFIP is important. In Stage I and Stage II levels, the WFIP will require amending as often as the current and forecasted weather expires, which is an element of those stages. This can be expected to happen every 5 to 7 days at a minimum. Stage III may be more encompassing in regard to long-term assessment and mitigation planning but will also require periodic amendments. Normally as the fire season progresses, new mitigation actions are developed and new fires may be authorized in the original MMA. Mapping, weather predictions and seasonal severity assessments will change over the life of the fire which need to be included as updated information becomes available. Agency administrators are required to approve any amendments to the plan as they occur.

References

National Academy of Public Administration. 2001. Managing wildland fire: enhancing capacity to implement the Federal Interagency Policy. Washington, D.C.

National Fire and Aviation Executive Board. 2005a. Three kinds of wildland fire. Briefing Paper #03. National Interagency Fire Center, Boise, ID.

National Fire and Aviation Executive Board. 2005b. Use of wildland fire. Briefing Paper #02. National Interagency Fire Center, Boise, ID.

U.S. General Accounting Office. 2004. Wildland Fires: Forest Service and BLM need better information and a systematic approach for assessing the risks of environmental effects. Washington, D.C. (name changed to U.S. Government Accounting Office).

USDI/USDA/DOE/DOD/DOC/USEPA/FEMA/NASF. 2001. Review and update of the 1995 Federal Wildland Fire Management Policy. Washington, D.C.

USDI/USDA. 1998. Wildland and prescribed fire: implementation procedures reference guide. Boise, ID.

USDA/USDI. 2003. Interagency strategy for the implementation of Federal Wildland Fire Management Policy. Washington, D.C. 62 p.

Appendix A: Wildland Fire Implementation Plan

Standardized, reproducible forms for the WFIP process are included in this appendix. While a standardized format is provided for the WFIP (in Word format) that can be used to prepare the document, an electronic version similar to the WFSA electronic program will be available. Users can choose to prepare a WFIP by using the forms presented in this appendix or by using the electronic version when available.

Specific forms included for the complete WFIP are:

WFIP Stage I

- Strategic Fire Size-Up
- Decision Criteria Checklist
- Relative Risk Rating
  —Wildland Fire Relative Risk Assessment: Step 1: Determining Values
  —Wildland Fire Relative Risk Assessment: Step 2: Determining Hazard
  —Wildland Fire Relative Risk Assessment: Step 3: Determining Probability
  —Wildland Fire Relative Risk Assessment: Step 4: Determining Wildland Fire Relative Risk
- Planning Needs Assessment Chart
- Fire Use Manager Decision Chart

WFIP Stage II

WFIP Stage III

Wildland Fire Implementation Plan

Table of Contents

Fire Name	
Fire Number	
Administrative Unit(s)	

Documentation Product	**Needed**	**Completed**
WFIP Stage I:		
Strategic Fire Size-Up		
Decision Criteria Checklist		
Management Actions		
Periodic Fire Assessment		
WFIP Stage II:		
Objectives		
Fire Situation		
Management Actions		
Estimated Costs		
Periodic Fire Assessment		
WFIP Stage III		
Objectives		
MMA Definition		
Weather Conditions and Drought Prognosis		
Long-term Risk Assessment		
Threats		
Monitoring Actions		
Mitigation Actions		
Resources Needed		
Contingency Plan		
Information Plan		
Estimated Costs		
Post-burn Evaluation		
Signatures and Date		
Periodic Fire Assessment		
Appendix		

WFIP Stage I:

Strategic Fire Size-Up

Fire Name		
Fire Number		
Administrative Unit(s)		
Start Date/Time		
Discovery Date/Time		
Current Date/Time		
Current Size		
Fuel Model		
Current Weather		
Observed Fire Behavior		
Location: Legal Description(s)		
Latitude/Longitude		
Local Description		
FMU (circle appropriate FMU situation)	WFU Approved	WFU Not Approved
Cause (circle fire cause)	Natural Ignition	Human-caused Ignition

Suitability for Wildland Fire Use (circle situation, initials of person preparing, date/time)	**Wildland Fire Use Candidate —** Continue with Decision Criteria Checklist	**Suppression**	**Initials**	**Date/Time**

Decision Criteria Checklist

Decision Element	Yes	No
Is there a threat to life, property, or public and firefighter safety that cannot be mitigated?		
Are potential effects on cultural and natural resources outside the range of acceptable effects?		
Are relative risk indicators and/or risk assessment results unacceptable to the appropriate agency administrator?		
Is there other proximate fire activity that limits or precludes successful management of this fire?		
Are there other agency administrator issues that preclude wildland fire use?		

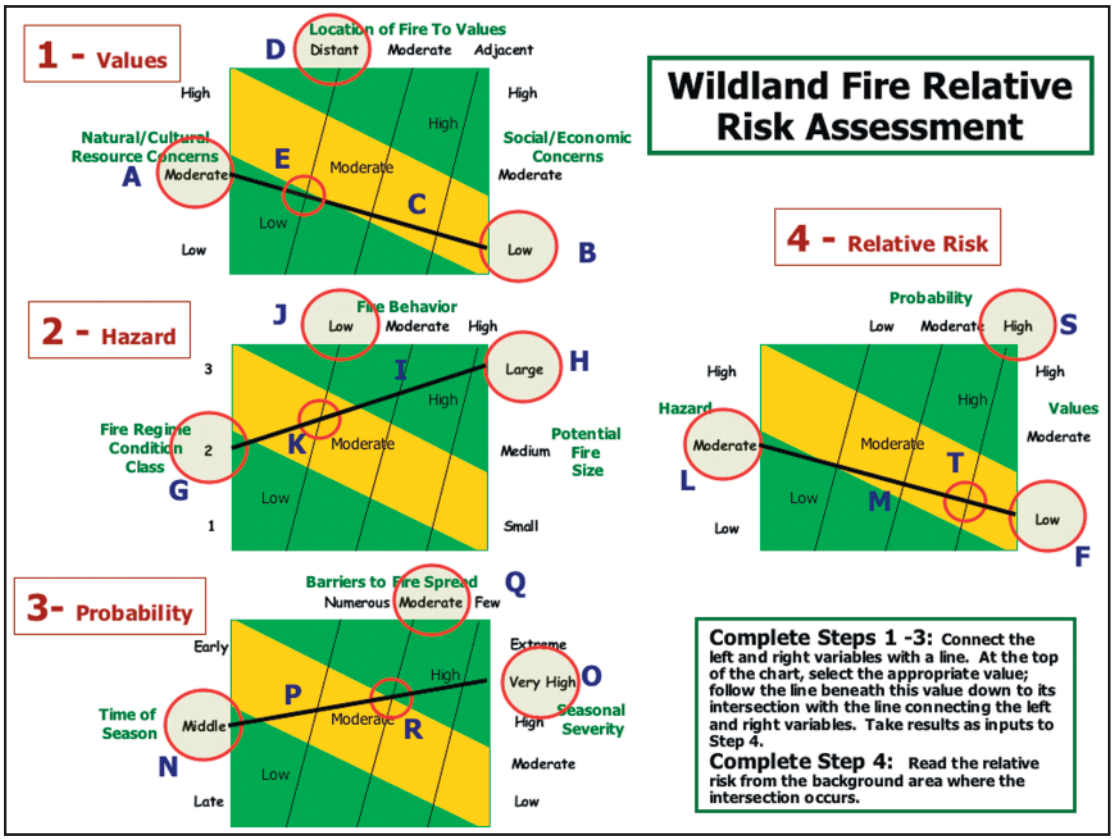
The Decision Criteria Checklist is a process to assess whether or not the situation warrants continued wildland fire use implementation. A "Yes" response to any element on the checklist indicates that the appropriate management response should be suppression-oriented.

Approved Response Action (check one)		Signature/Position	Date
Suppression Response			
Wildland Fire Use Response			

Justification for Suppression Response:

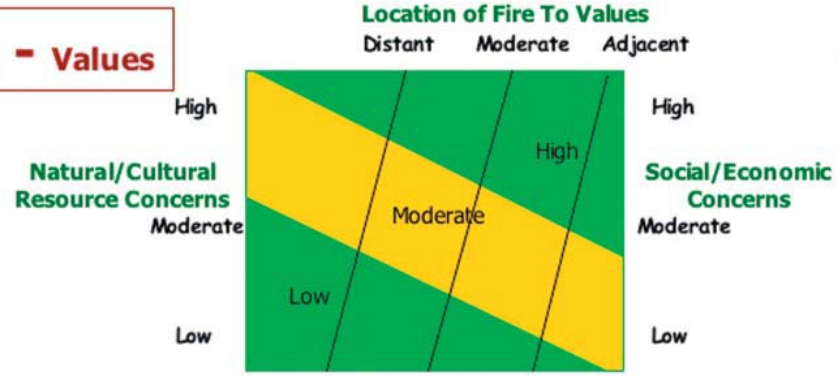
Step-by-Step Instructions for Completing the Wildland Fire Relative Risk Assessment

A	Step 1	Locate Natural/Cultural Resource Concern level
B	Step 1	Locate Social/Economic Concern level
C	Step 1	Draw line connecting left and right variables
D	Step 1	Locate Location of Fire to Values level
E	Step 1	Follow interior line down to intersection with line connecting left and right variables, locate Value Assessment output (Low, Moderate, High)
F	Step 4	Take Step 1 - Value Assessment output to Step 4 as Value input
G	Step 2	Locate Fire Regime Condition Class level
H	Step 2	Locate Potential Fire Size level
I	Step 2	Draw line connecting left and right variables
J	Step 2	Locate Fire Behavior level
K	Step 2	Follow interior line down to intersection with line connecting left and right variables, locate Hazard Assessment output (Low, Moderate, High)
L	Step 4	Take Step 2 - Hazard assessment output to Step 4 as Hazard input
M	Step 4	Draw line connecting Value and Hazard levels
N	Step 3	Locate Time of Season level
O	Step 3	Locate Seasonal Severity level
P	Step 3	Draw line connecting left and right variables
Q	Step 3	Locate Barriers to Fire Spread level
R	Step 3	Follow interior line down to intersection with line connecting left and right variables, locate Probability Assessment output (Low, Moderate, High)
S	Step 4	Take Step 3 – Probability assessment output to Step 4 as Probability input
T	Step 4	Follow interior line down to intersection with line connecting left and right variables, locate Relative Risk Assessment (Low, Moderate, High)

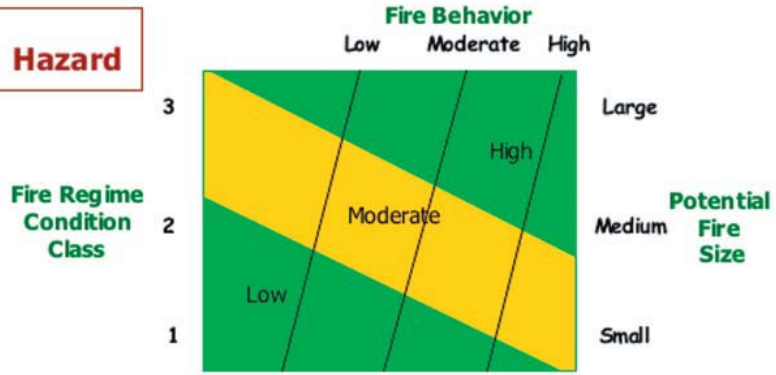


Wildland Fire Relative Risk Assessment

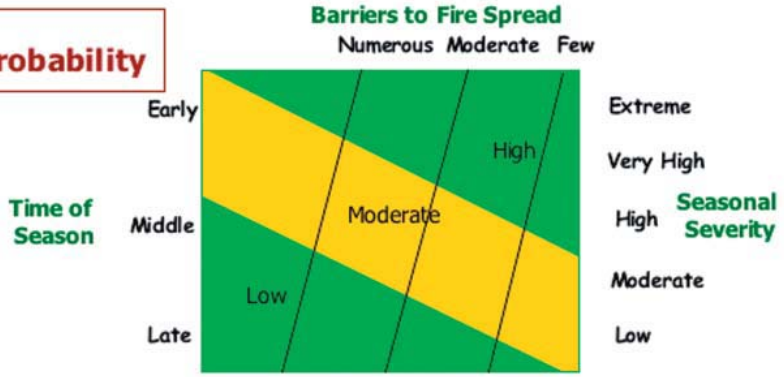
1 - Values



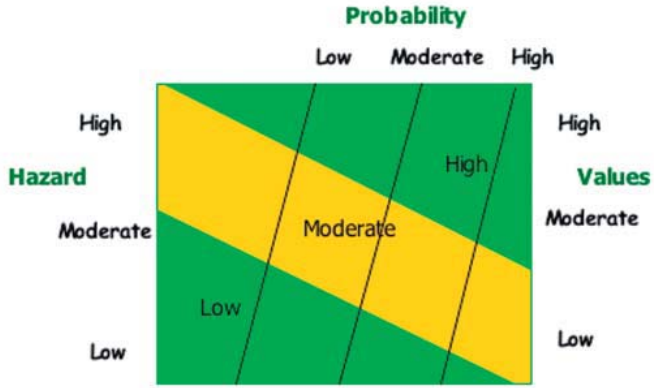
2 - Hazard



3- Probability



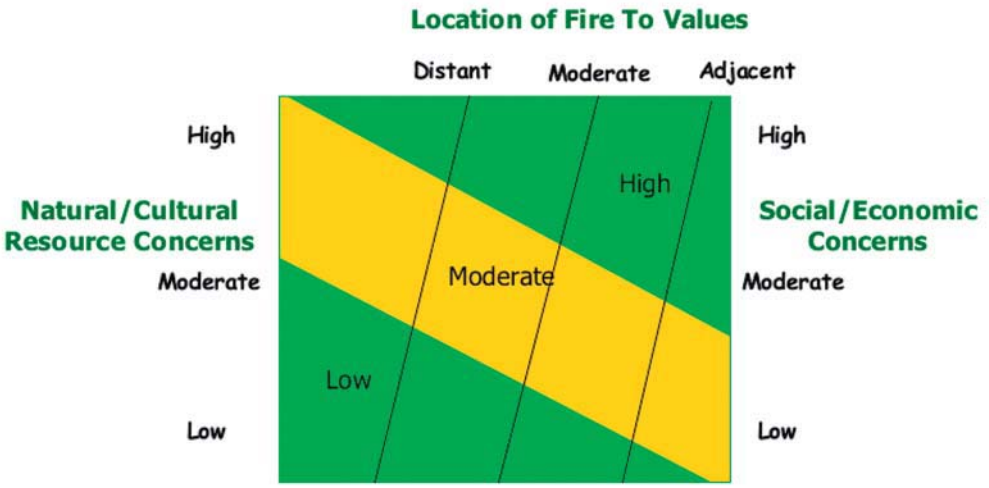
4 - Relative Risk



Complete Steps 1 -3: Connect the left and right variables with a line. At the top of the chart, select the appropriate value; follow the line beneath this value down to its intersection with the line connecting the left and right variables. Take results as inputs to Step 4.

Complete Step 4: Read the relative risk from the background area where the intersection occurs.

Wildland Fire Relative Risk Assessment: Step 1: Determining Values



Connect the left and right values with a line. At the top of the chart, select the appropriate value; follow the line beneath this value down to its intersection with the line connecting the left and right variables. Read the Value Assessment from the background area where the intersection occurs.

Notes:

Part 1: Value Assessment: Values are those ecologic, social, and economic effects that could be lost or damaged because of a fire. Ecologic values consist of vegetation, wildlife species and their habitat, air and water quality, soil productivity, and other ecologic functions. Social effects can include life, cultural and historical resources, natural resources, artifacts, and sacred sites. Economic values make up things like property and infrastructure, economically valuable natural and cultural resources, recreation, and tourism opportunities. This assessment area allows opportunity for the local agency administrator to identify particular local concerns. These concerns may be identified in the fire management plan or other planning documents.

Natural/Cultural Resource Concerns — key resources potentially affected by the fire. Examples include, but are not limited to, habitat or populations of threatened, endangered, or sensitive species, water quality, erosion concerns, and invasive species.

Low	Moderate	High
Resource concerns are few and generally do not conflict with management of the fire. Mitigation measures are effective.	Significant resource concerns exist, but there is little conflict with management of the fire. Mitigation measures are generally effective.	Multiple resource concerns exist, some of which may conflict with management of the fire. The effectiveness of needed mitigation measures is not well established.

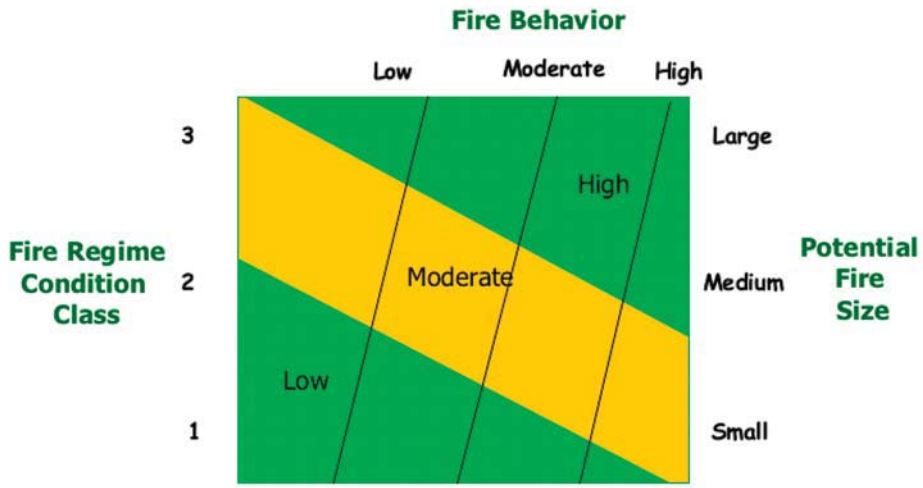
Social/Economic Concerns — the risk of the fire, or effects of the fire, impacting the social or economic concerns of an individual, business, community or other stakeholder involved with or affected by the fire. Social concerns may include degree of support for the wildland fire use program or resulting fire effects, potential consequences to other fire management jurisdictions, impacts to tribal subsistence or gathering of natural resources, air quality regulatory requirements and public tolerance of smoke. Economic concerns may include potential financial impacts to property, business, or infrastructure. Infrastructure impacts may be costs to repair or replace sediment catchments, wildlife guzzlers, corrals, roads, culverts, power lines, domestic water supply intakes, and similar items.

Low	Moderate	High
Local support for wildland fire use is high. The fire should have little or no impact on subsistence or tribal activities involving treaty rights. The fire is expected to remain within a single jurisdiction, or agreements are in place to allow the fire to move across several jurisdictions. Media coverage is favorable. Few structures or business ventures are potentially affected by the fire. There are few impacts to recreation and tourism.	Local support of wildland fire use is clearly divided between supporters and opponents. The fire will have some impacts on subsistence or tribal activities involving treaty rights. The fire is expected to involve more than one jurisdiction, cooperator, or special interest group and agreements need to be developed. Media coverage tends to be a mix of favorable and unfavorable views. Some structures may be threatened by the fire or some business ventures have been affected by the fire.	Local support for wildland fire use is low. The fire will have significant impacts on subsistence activities or tribal activities involving treaty rights. Smoke impacts may become a concern for higher level air quality regulatory agencies. The fire is expected to involve several jurisdictions, cooperators, and special interest groups, and agreements requiring significant negotiation need to be developed. Media coverage tends to be unfavorable. Many structures or private properties could be threatened.

Location of Fire to Values

Distant	Moderate	Adjacent
Fire location is not proximate to values to be protected or fire is located where it is highly unlikely that it would reach the values.	Fire location is moderately proximate to values. Location is such that, based on historical data, fire could potentially reach the values but will take multiple burning periods and sustained fire activity to reach the values.	Fire location is in close proximity to values. Without mitigation actions, fire will be expected to reach the values.

Wildland Fire Relative Risk Assessment: Step 2: Determining Hazard



Connect the left and right values with a line. At the top of the chart, select the appropriate value; follow the line beneath this value down to its intersection with the line connecting the left and right variables. Read the Hazard Assessment from the background area where the intersection occurs.

Notes:

Part 2: Hazard Assessment: The hazard in wildland fire is made up of the conditions under which it occurs and exists, its ability to spread and circulate, the intensity and severity it may present, and its spatial extent.

Current Fire Behavior – the current fire behavior or that most recently observed. Changing fire behavior is addressed through repeated completion of the Periodic Fire Assessment.

Low	Moderate	High
Short duration flaming front with occasional torching. Fuels are uniform and fire behavior can be easily predicted and tactics implemented.	Short range spotting occurring. Moderate rates of spread are expected with mainly surface fire and torching. Fuels and terrain are varied but don't pose significant problems in holding actions.	Long range spotting greater than one-quarter mile. Extreme rates of spread, and crown fire activity are possible. Fuels, elevation, and topography vary throughout the fire area creating high resistance to control.

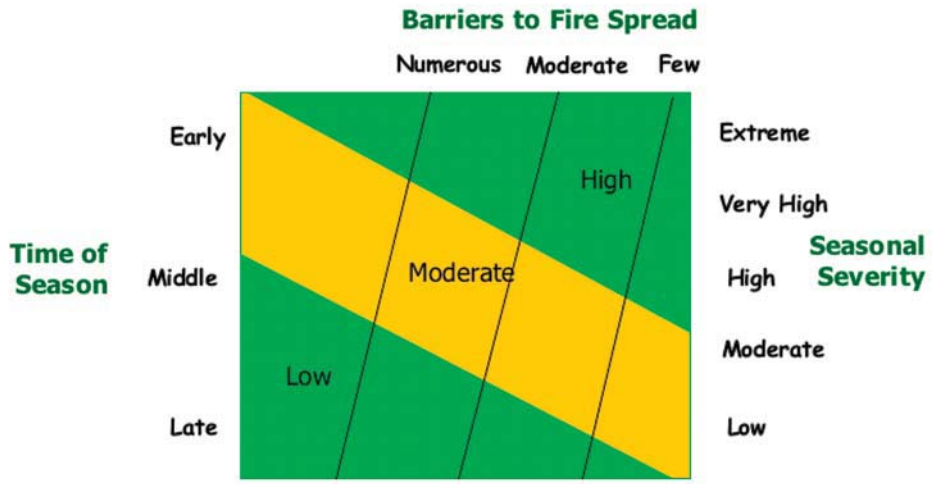
Fire Regime Condition Class – a measure of ecological functions at risk based on changes in vegetation.

1	2	3
Vegetative composition and structure are resilient and key components are at low risk of loss. Few, if any, fire return intervals have been missed and fuel complexes are similar to historic levels.	Both the composition and structure of vegetation has shifted toward conditions that are less resilient and more at risk of loss. Some fire return intervals have been missed, stand structure and composition, and fuel complexes have been altered and present potential for fires of severity and intensity levels in excess of historic levels.	The highly altered composition and structure of the vegetation predisposes the landscape to fire effects well outside the range of historic variability, potentially producing changed fire environments never before measured.

Potential Fire Size – the potential fire size by the end of the season in comparison to historical fire occurrence.

Small	Medium	Large
Fire size is expected to be small for the dominant fuel type involved.	Fire size is expected to be in the mid-range for the dominant fuel type involved.	Fire size is expected to be large for the dominant fuel type involved.

Wildland Fire Relative Risk Assessment: Step 3: Determining Probability



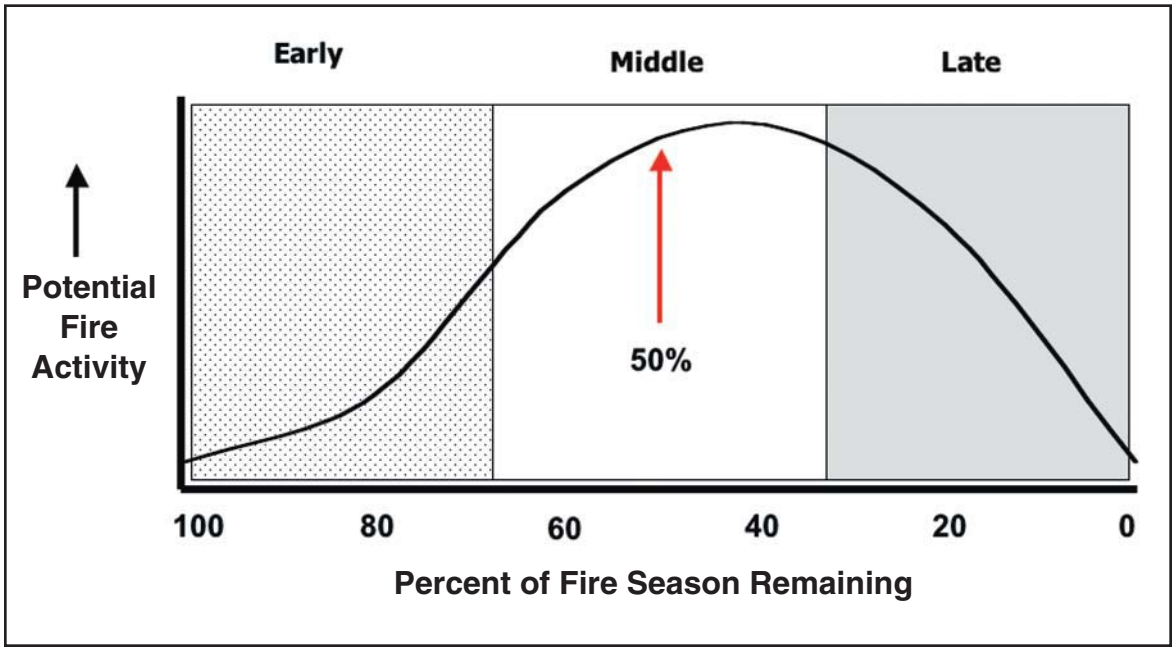
Connect the left and right values with a line. At the top of the chart, select the appropriate value; follow the line beneath this value down to its intersection with the line connecting the left and right variables. Read the Probability Assessment from the background area where the intersection occurs.

Notes:

Part 3: Probability Assessment: Probability refers to the likelihood of a fire becoming an active event having potential to adversely affect values.

Time of Season — the current time in relation to the historical fire season. The chart below the guidelines reinforces the importance of the time of season. During the early part of the fire season, the peak of burning activity is still to come, thus the fire could present substantial variation in behavior and activity. In the middle of the season, the peak of burning activity may or may not have occurred, while in the late part of the season, the peak of fire activity generally has occurred and managers can reasonably expect diminishing fire activity and behavior as time progresses. As the amount of fire season remaining decreases or as the time of season progresses from early to late, management concerns and issues associated with potential fire activity decrease.

Early	Middle	Late
The current date is in the early portion of the historic fire season, at least two-thirds of the established fire season remains and the peak of burning activity is still to come.	The current date is in the middle of the historic fire season, at least one-third of that period has passed and no less than one-third remains. The peak burning activity period either has occurred, is occurring now, or will occur very soon.	The current date is in the latter part of the historic fire season. At least two-thirds of the historic period has passed, the peak burning activity period has occurred, and the probability of a season-ending or fire-ending event is increasing quickly.



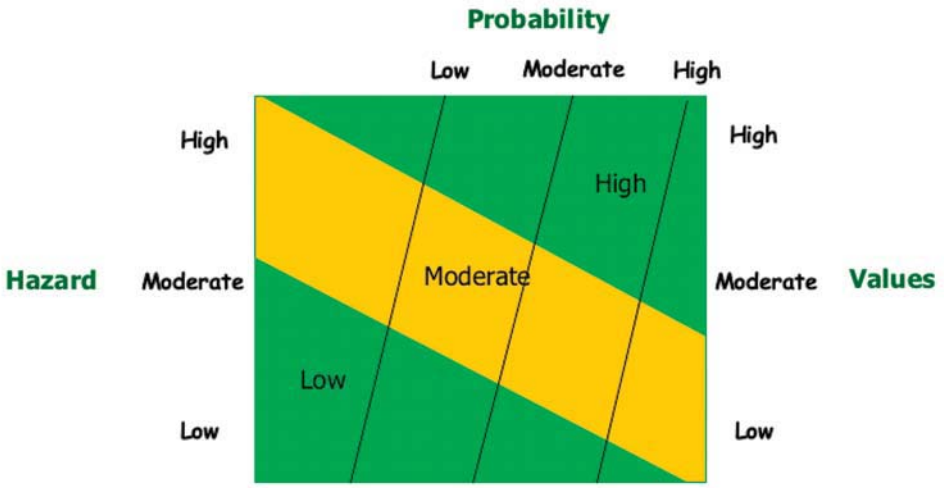
Seasonal Severity — a measure of potential burning conditions as expressed by factors such as energy release component (ERC), drought status, live fuel moistures, dead fuels moistures, soil moisture, stream discharge, and similar types of measures.

Low	High	Extreme
Measures of fire danger are below to somewhat above seasonal averages. Drought status is within seasonal norms with no long-term drought present.	Measures of fire danger are well above seasonal averages but not setting new records. The area is in short-term drought (1 to 2 years of drought) but not considered to be in long-term drought.	Measures of fire danger are setting new records. The area is considered to be in long-term drought (3 or more years of drought).

Barriers to Fire Spread — a measure of the natural defensibility of the fire location and an indication of degree of potential mitigation actions needed.

Numerous	Moderate	Few
The location of the fire and presence of natural barriers and firebreaks limit the horizontal fuel continuity, minimal mitigation actions on the ground will be needed.	The location of the fire and presence of some natural barriers and firebreaks limit the horizontal fuel continuity on some, but not all fire flanks, some mitigation actions on the ground will be needed to protect threats to boundaries and sensitive areas.	The location of the fire and presence of only limited natural barriers and firebreaks will permit fire spread across continuous fuels. Mitigation actions on the ground will be needed but are expected to be effective.

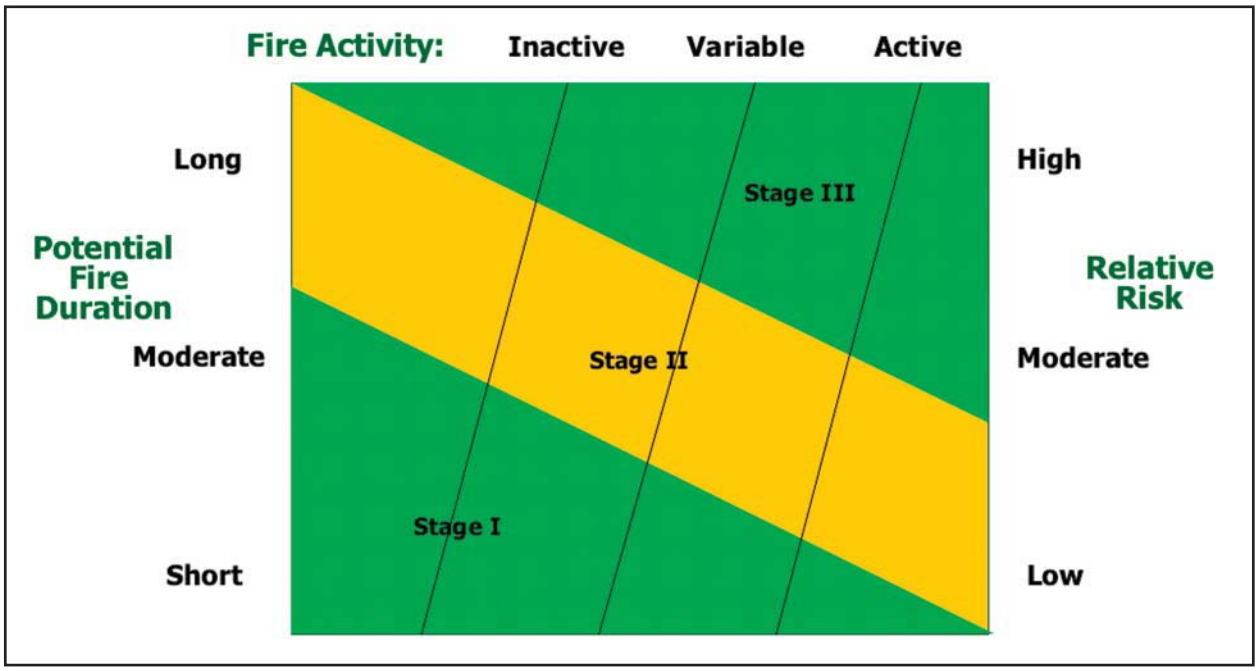
Wildland Fire Relative Risk Assessment: Step 4: Determining Wildland Fire Relative Risk



Connect the left and right values with a line. At the top of the chart, select the appropriate value; follow the line beneath this value down to its intersection with the line connecting the left and right variables. Read the Relative Risk from the background area where the intersection occurs.

Notes:

Planning Needs Assessment Chart



To complete the chart, connect the left and right variables with a single line (potential fire duration and relative risk, respectively). Select the appropriate level of fire activity at the top of the chart and follow the line beneath that value down to its intersection with the line connecting the left and right variables. Read the planning need from the background area where the intersection occurs. The relative risk values are those obtained from the Wildland Fire Relative Risk Assessment process.

Minimum interagency qualification requirements for wildland fire use planning at each stage of the WFIP process. This information should be used with the Planning Needs Assessment Chart to determine appropriate levels of planning qualifications. Higher qualified personnel can always be used to complete the various planning levels if desired. Duty officer qualifications are defined in local unit fire management plans.

Table 5. WFIP minimum planning qualifications

WFIP Stage	Minimum Planning Qualifications
WFIP Stage I	Unit Duty Officer
WFIP Stage II	Fire Use Manager Type 2 (FUM2)
WFIP Stage III	Fire Use Manager Type 2 (FUM2)

Guidelines for Planning Needs Assessment Chart

Potential Fire Duration – the estimated length of time that the fire may continue to burn in comparison to historical fire durations and amount of fire season available for a given area.

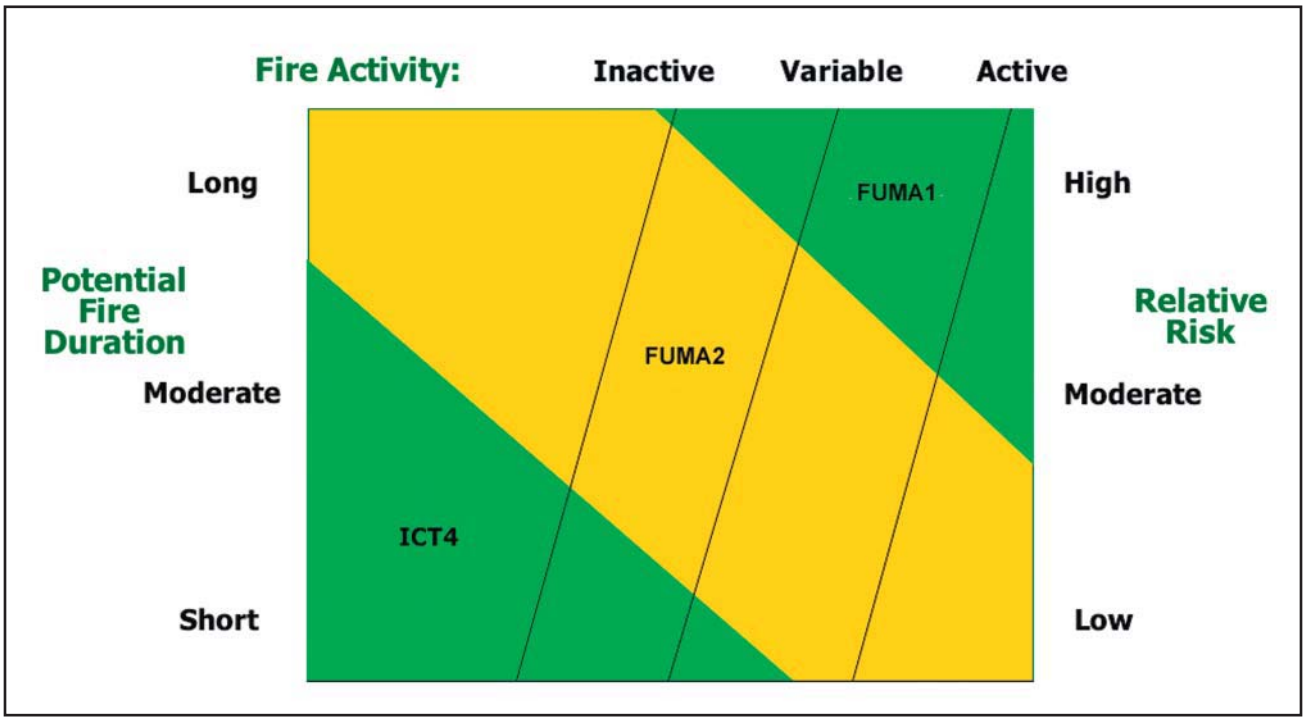
Short	Moderate	Long
Fire is expected to persist for only the shortest time in comparison to historical fire durations. This may be as short as only a few days. Fuels may be limiting, weather may be limiting, or time of fire season may be limiting. Generally, this could be referenced as less than the historical average fire length for a given area.	Fire is expected to last for a time period similar to the historical average length of fires.	Fire is expected to last for a time period longer than the historical average length of fires.

Relative Risk – a measure of the relative risk, determined directly from the Wildland Fire Relative Risk Assessment, so no range of values is listed here.

Fire Activity – the relative activity of the fire in terms of intensity and spread over time.

Inactive	Variable	Active
Fire is burning with very low intensity, little or no spread, and little or no increase in burned area. Fire is confined to surface litter and duff layers.	Fire is burning predominantly in surface litter and duff layers, with low intensity and little or no spread but has occasional periods of increased intensity and spread. Growth of burned area is not constant but occurs in response to increased activity. Area increase may be static for moderately long periods and then increase for short periods. Fire size usually increases by less than 50 percent during active periods.	Fire is burning in all fuel strata (litter, surface, and crown) with periods of sustained flaming fronts, perimeter growth, and area increases that can exceed 100 percent at times. Infrequent periods of low activity occur but spread is generally constant.

Fire Use Manager Decision Chart



To complete the chart, connect the left and right variables with a single line (potential fire duration and relative risk, respectively). Select the appropriate level of fire activity at the top of the chart and follow the line beneath that value down to its intersection with the line connecting the left and right variables. Read the level of fire use manager needed directly from the background area where the intersection occurs. The relative risk values are those obtained from the Wildland Fire Relative Risk Assessment process.

Minimum level of implementation qualifications. During implementation, as fire activity and management needs escalate, implementation qualification needs ascend to a higher level. But as conditions moderate and management needs drop, implementation qualifications can descend to lower levels. Table 3 and Figure 8 are used jointly as fire situations and conditions escalate; when conditions are moderating or lessening, Figure 8 provides the necessary qualification levels for implementation.

Table 6. WFIP minimum implementation qualifications

WFIP Stage	**Minimum Planning Qualifications** (Use Fire Use Manager Decision Chart to determine recommended position)
WFIP Stage I	Incident Commander Type 4 (ICT4) **(Must have local knowledge or prior experience in implementing WFIPs and managing wildland fire use events)**
WFIP Stage II	Fire Use Manager Type 2 (FUM2)
WFIP Stage III	Fire Use Manager Type 2 (FUM2)

Guidelines for Fire Use Manager Decision Chart

Potential Fire Duration – the estimated length of time that the fire may continue to burn in comparison to historical fire durations and amount of fire season available for a given area.

Short	Moderate	Long
Fire is expected to persist for only the shortest time in comparison to historical fire durations. This may be as short as only a few days. Fuels may be limiting, weather may be limiting, or time of fire season may be limiting. Generally, this could be referenced as less than the historical average fire length for a given area.	Fire is expected to last for a time period similar to the historical average length of fires.	Fire is expected to last for a time period longer than the historical average length of fires.

Relative Risk – a measure of the relative risk, determined directly from the Wildland Fire Relative Risk Assessment, so no range of values is listed here.

Fire Activity – the relative activity of the fire in terms of intensity and spread over time.

Inactive	Variable	Active
Fire is burning with very low intensity, little or no spread, and little or no increase in burned area. Fire is confined to surface litter and duff layers.	Fire is burning predominantly in surface litter and duff layers, with low intensity and little or no spread but has occasional periods of increased intensity and spread. Growth of burned area is not constant but occurs in response to increased activity. Area increase may be static for moderately long periods and then increase for short periods. Fire size usually increases by less than 50 percent during active periods.	Fire is burning in all fuel strata (litter, surface, and crown) with periods of sustained flaming fronts, perimeter growth, and area increases that can exceed 100 percent at times. Infrequent periods of low activity occur but spread is generally constant.

Management Actions

Forecasted Weather (Include an initial assessment of air quality forecasts/allowable burn days as applicable)	
Forecasted Fire Behavior	
Hazards and Safety Concerns	
Management Actions	
Availability of Resources	

Periodic Fire Assessment

Insert the following sections, either by completing new versions or by using those already completed as part of WFIP Stage I:

- Decision Criteria Checklist
- Wildland Fire Risk Assessment
  —Part 1: Planning Needs Assessment
  —Part 2: Fire Use Manager Decision Chart
- Signature Page

Periodic Fire Assessment

Signature Table

Assessment Frequency _____

Valid Date(s) _____

Name/Title	Date	Decision Criteria Checklist Valid	WFIP Planning Stage Required	Fire Use Manager Level
		Yes/No	I, II, III	I, II, Other

WFIP Stage II

Attach Stage I information.

Objectives

Objectives	

Fire Situation

Current and Predicted Weather	
Current and Predicted Fire Behavior	
Threats	
Safety Considerations	
Environmental Concerns	
External Concerns	

Management Actions

Management Actions	

Estimated Costs

Estimated Costs	

Periodic Fire Assessment

Insert the following sections, either by completing new versions or by using those already completed as part of WFIP Stage I:

- Decision Criteria Checklist
- Wildland Fire Risk Assessment
  —Part 1: Planning Needs Assessment
  —Part 2: Fire Use Manager Decision Chart
- Signature Page

Periodic Fire Assessment

Signature Table

Assessment Frequency _____

Valid Date(s) _____

Name/Title	Date	Decision Criteria Checklist Valid	WFIP Planning Stage Required	Fire Use Manager Level
		Yes/No	I, II, III	I, II, Other

WFIP Stage III

Attach Stage I and Stage II information. Update and/or revise Stage I and II as necessary.

Objectives

Natural and Cultural Resource Objectives	
Constraints	

Maximum Manageable Area (MMA) — Definition and Maps

Acres in MMA	
Definition of MMA	
Attach Map of MMA	

Weather Conditions and Drought Prognosis

Weather Conditions/ Drought: Discussion and Prognosis	

Long-term Risk Assessment and Map (if applicable)

Risk Assessment (Describe techniques utilized and outputs, include maps as appropriate)	

Threats

Threats to MMA	
Threats to Public Use and Firefighter Safety	
Smoke Dispersion and Effects	
Other Threats	

Monitoring Actions

Describe monitoring actions, frequency, duration	

Mitigation Actions

Describe holding actions and other mitigation actions, and management action points that initiate these actions, and key to map, if necessary.	

Resources Needed to Manage the Fire Under Expected Weather Conditions

Describe resources necessary to accomplish ignition, holding, other mitigation actions, and monitoring actions.	

Contingency Actions

Describe contingency actions, management action points that initiate them, resources needed, etc.	

Information Plan

Describe information plan, contacts, responsibilities, etc.	

Estimated Costs of Managing the Fire

Describe costs in terms of resources needed, projected duration, etc.	

Post-burn Evaluation

Describe post-burn evaluation procedures, resource requirements, costs, duration, etc.	

Signatures

Incude signatures/titles/ dates for preparing, approving, and any concurring individuals.	

Periodic Fire Assessment

Insert the following sections, either by completing new versions or by using those already completed as part of WFIP Stage II:

- Decision Criteria Checklist
- Wildland Fire Risk Assessment
  - —Part 1: Planning Needs Assessment
  - —Part 2: Fire Use Manager Decision Chart
- Signature Page

Periodic Fire Assessment

Signature Table

Assessment Frequency _____

Valid Date(s) _____

Name/Title	Date	Decision Criteria Checklist Valid	WFIP Planning Stage Required	Fire Use Manager Level
		Yes/No	I, II, III	I, II, Other

Appendix B: Preplanning Wildland Fire Implementation Plan Elements

Parts of the WFIP can be planned well in advance of fire season. Preplanning is especially critical in those fuel types where fires develop rapidly and a "long duration" fire is only a few days. In many cases, these elements can be part of the fire management unit information in the fire management plan. The following items from the WFIP can be preplanned:

- **Objectives** – all or most of these should be known in advance and based on the resource objectives in the land use plan and fire management unit objectives.

- **Constraints** – standards and guidelines within the land use plan and fire management unit are the basis for any operational constraints. These constraints typically affect which types of activities may occur where or when.

- **Safety Considerations** – document those safety considerations associated with various aspects of the environment, such as cliffs or mineshafts; with well-known and generally regular weather events, such as foehn winds; and with particular times of the year, such as hunting seasons.

- **Values at Risk** – document those values threatened by either the simple presence of fire, and certain fire intensity, or any appropriate management response actions that may be taken. These values may consist of different types of natural and cultural resources or physical features such as campgrounds or private property.

- **External Concerns** – these consist of concerns known to exist for cooperators, adjacent owners or land managers, communities, regulatory agencies, and other stakeholders (i.e. the critical concerns discussed as part of the relative risk rating). Not all concerns can be known in advance since some are situational and not tied to a particular fire management unit. The objectives and constraints should adequately cover internal concerns.

- **Implementation Actions** – some preliminary implementation actions, or appropriate management responses, can be developed in advance, particularly for Stage I and Stage II. Most often, these will consist of different levels of monitoring to some holding or checking actions. Units that expect to develop Stage III without the aid of a FUMT may develop more detailed descriptions of the allowable responses or a list of response options.

- **Maximum Manageable Area** – preliminary MMAs can be designated based on roads, jurisdictional or land allocation boundaries, watershed boundaries, or similar features. These MMAs are not finalized until a wildland fire use event occurs and management is elevated to Stage III. Preliminary MMAs can include information on which segments are naturally defensible and which are not, as well as what types of actions may be needed to increase the defensibility of those segments. Preplanned MMAs may be the only option for some fire management units.

- **Management Action Points** – preliminary management action points may be identified to address certain types of values at risk or preliminary MMA boundaries. Full development may not happen until the fire occurs since the appropriate management response often depends on fire behavior.

- **Monitoring Plan** – do not confuse the monitoring plan with monitoring as an appropriate management response. The monitoring plan is intended to determine if the fire is meeting or has met management objectives. Since nearly all the management objectives should be known in advance, this plan can also be prepared in advance.

- **Information Plan** – use experience from past fires, both suppression and wildland fire use, to develop many elements of the information plan. Some elements may be more situational or new contacts or contact methods may occur between the development of this preliminary plan and an actual fire.

- **Agreements** – although not technically part of the WFIP, fully implementing a WFIP may require that cross-jurisdiction agreements be in place to allow the fire to move from one jurisdiction to another. These jurisdictions may be other land management agencies; state or local fire protection agencies or districts; or private landowners.

In addition to WFIP elements, several types of data are recommended for advanced development or for addition to the fire management plan as data are developed from different fires. As appropriate, update data each year. The following list is not exhaustive but intended as a tickler:

- Weather Data
  - —NFDRS station catalogs and weather files
  - —Definitions for:
    - . . . Season or fire-ending event
    - . . . Fire-slowing events (event plus number of days the event is effective)
    - . . . Large fire growth events or key weather events that result in large fire growth
- Term files for use in RERAP
- Preliminary RERAP assessments for individual FMUs with assumptions (risk of fire movement over set distances by time of year and general direction)
- FARSITE layers, including changes resulting from the previous year's fires and vegetation management actions
- Structure protection plans
- Potential evacuation needs, routes and responsibilities, which should be shared with the appropriate authority in advance of an ignition.
- Mitigation measures for threatened and endangered species (TES) (i.e. plants, animals, and fish) that have been successful in the past
- Data layers (actual data or location of data)
  - —Fuels
  - —Roads and trails
  - —Streams
  - —Values to be protected (some of this data may be protected)
  - —Land status
  - —Fire history
  - —Fuels treatment history
  - —Vegetation type or dominant species
  - —Vegetation structure
  - —Potential vegetation
  - —Fire regime or fire regime condition class
  - —Smoke sensitive areas