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# 1 INTRODUCTION

## 1.1 Fire Management Plan Requirement

All agencies within the Department of the Interior (DOI) with vegetation capable of sustaining wildland fire are required to prepare fire management plans. The NPS has recognized and acted on this direction in the completion of this plan satisfying the policy requirement outlined in Director's Order 18 (NPS, 2008). This document fulfills the agency requirement. It also functions as an addendum to Grand Teton National Park's General and Resource Management Plans and serves as a detailed program of action, providing specific guidance and procedures for accomplishing wildland fire management objectives.

The purpose of the Wildland Fire Management Plan (FMP) is to provide direction and establish specific procedures to guide all wildland fire program activities within Grand Teton National Park & John D. Rockefeller, Jr. Memorial Parkway. The Grand Teton National Park Division of Ranger Activities is responsible for wildland fire management activities in the adjacent John D. Rockefeller, Jr., Memorial Parkway. This Fire Management Plan addresses both NPS units. Language in this document referring to "Grand Teton National Park", "GTNP" or "the Park" is meant to include both.

## 1.2 Collaborative Planning Process

This plan was developed in a collaborative process utilizing an interdisciplinary team approach consisting of members of Grand Teton National Park, Bridger-Teton National Forest, U.S. Fish and Wildlife Service, Jackson Hole Fire & EMS, public, and the Intermountain Region of the NPS. This plan outlines operational guidelines for implementing the described fire management program. The staff at Grand Teton National Park intends to rely heavily on collaboration with neighboring fire management resources as opportunities exist to collaborate with local, county, and state agencies in meeting the fire and resource objectives.

## 1.3 Federal Policy Implementation

The *Federal Wildland Fire Management Policy (1995, review 2001)* provides the overall framework for agencies to build a program consistent with stated land and resource management goals and objectives while providing for public and firefighter safety. Further guidance can be found in the 2009 *Guidance for Implementation of Federal Wildland Fire Management Policy*. The fuels management component of this plan follows recommendations of the *Cohesive Strategy (USFS 2000)* which established a framework to restore and maintain ecosystem health in the fire-adapted ecosystems of the west, and to protect identified communities at risk. Both it and the *Collaborative Approach 10 year Implementation Plan (2002)* established a collaborative interagency community based approach to address wildland fire and fuels management issues which this plan follows.

The Fire Management Plan fulfills the requirements in Director's Order 18 (DO-18), which dictates National Park Service fire policy. Specific standards or guidelines for developing and implementing the plan are contained in the Reference Manual 18 (RM-18). RM-18 also cites from the U.S. Department of the Interior Manual (910 DM), the authorities for the prevention, preparedness, control, and suppression of fire on or threatening lands under the jurisdiction of the Department of the Interior. It further cites the authorities for the funding of wildland and prescribed fire, and for rendering assistance outside of the Park.

## 1.4 NEPA/NHPA Planning Requirements

The Environmental Assessment (EA) found in Appendix Z describes and analyzes the potential environmental effects of the proposal and two alternatives. The preferred alternative was selected in the Finding of No Significant Impact which also accompanies this plan. The EA was prepared in compliance with the requirements of the National Environmental Policy Act, the National Historical Preservation Act (NHPA), and Section 7 of the Endangered Species Act. Consultation with Bureau of Reclamation, Bureau of Land Management (BLM), U.S. Forest Service, Jackson Hole Fire & EMS, U.S. Fish and Wildlife Service, Wyoming Game and Fish Department, Wyoming State Historic Preservation Office (SHPO), and the general public was conducted concurrent with public review of the Wildland Fire Management Plan Environmental Assessment. A complete listing of contacts can be found in Section 12. Projects implemented under this plan will be evaluated to ensure all NEPA/NHPA requirements have been addressed. If projects outside of the scope of the EA are necessary, additional NEPA/NHPA consultation and documentation will be completed.

## 1.5 Authorities for this Plan

Authority for carrying out a fire management program originates with the Organic Act of the National Park System, August 25, 1916. This established the National Park Service, and states the primary goal of the agency is to preserve and protect the natural and cultural resources found on lands under its management in such manner as will leave them unimpaired for future generations. Related statutory authorities are the Clean Air Act, the Clean Water Act, the Endangered Species Act, the National Environmental Policy Act, National Historic Preservation Act, the Antiquities Act and others. As enacted in Public Law 38, April 25, 1947, lands were "dedicated and set apart as a public park for the benefit and enjoyment of the people," subject to the provision of the Act of August 25, 1916 (39 Stat. 535), entitled an Act to Establish the National Park Service "...which purpose is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

# 2 RELATIONSHIP TO LAND MANAGEMENT PLANNING AND FIRE POLICY

## 2.1 NPS Management Policies

It is the policy of the National Park Service to allow natural processes to occur to the extent practical while meeting unit management objectives. NPS Management Policies (1988) state "Fire is a powerful phenomenon with the potential to drastically alter the vegetative cover of any Park. Fire may contribute to or hinder the achievement of Park objectives. Park fire management programs will be designed around resource management objectives and the various management zones of the Park". Specific guidance on wildland fire is contained in Directors Orders (DO-18) and attendant Reference Manual (RM-18) for the National Park Service, and the "Guidance for Implementation of Federal Wildland Fire Management Policy" (2009)

In a memo from the Federal Fire and Aviation Directors signed January 6, 2003 the National Park Service adopted the "Interagency Standards for Fire and Fire Aviation Operations 2003". The current Interagency Standards for Fire and Aviation Operations will be used for the fire season. The purpose of the document (also known as the Red Book) is to, "state, reference, or supplement" agency fire and fire aviation management policy. It meets specific direction in the Federal Wildland Fire Management Policy reviews of 1995 and 2001 particularly related to improvement of the safety, effectiveness and efficiency of interagency fire and fire aviation operations. Specifically for the National Park Service, the Red Book supplements RM-18 Wildland Fire Management and RM-60 Aviation, and is to be used as agency policy guidance.

## 2.2 Enabling Legislation & Purpose of NPS Unit

Grand Teton National Park was established to protect the area's native plant and animal life and its spectacular scenic values, as characterized by the geologic features of the Teton Range and Jackson Hole. The original Grand Teton National Park (approximately 96,000 acres) was established by Congress on February 19, 1929, "… and dedicated and set apart as a public park or pleasure ground for the benefit and enjoyment of the people of the United States under the name of the Grand Teton National Park of Wyoming." (45 Stat.1314) The park was enlarged to its present size by Congress on September 14, 1950, (Public Law 81-787, 64 Stat. 849) "… for the purpose of including in one national park, for the public benefit and enjoyment, the lands within the present Grand Teton National Park and a portion of the lands within Jackson Hole National Monument."

Currently, 135,680 acres of the Park are recommended for inclusion in the National Wilderness Preservation System. Another 20,320 acres are identified as potential wilderness. The total authorized area of Grand Teton National Park is approximately 310,000 acres.

The John D. Rockefeller, Jr. Memorial Parkway (referred to in this document as the "Parkway") was established on August 25, 1972, "…for the purpose of commemorating the many significant contributions to the cause of conservation in the United States, which have been made by John D. Rockefeller, Jr., and to provide both a symbolic and desirable physical connection between the world's first national park, Yellowstone, and the Grand Teton National Park."

Congressional legislation (Public Law 92-404) designates the Parkway as the 82 miles between West Thumb in Yellowstone National Park and the South entrance of Grand Teton National Park. The management area between the two parks includes 23,777 acres, is 6.2 miles in distance, and is managed by Grand Teton National Park. The 1972 Act specified that the Parkway be administered as a unit of the National Park Service according to the authority contained in the National Park Service Act of 1916. The Parkway is thereby committed to conserving the scenery and natural and historic resources and providing for their use while leaving them unimpaired for future generations.

## 2.3 General Management Plan

This plan implements objectives recommended in the management plans, and the selected Proposed Action contained in the Environmental Assessment found in Appendix Z. The fire management program, guided by resource management goals, should protect and perpetuate natural and cultural resources and their associated natural processes. The Fire Management Plan presents the actions that will integrate fire management with park management goals in a safe and professional manner.

GTNP Master Plan and John D. Rockefeller, Jr. Memorial Parkway General Management Plan

The Master Plan for GTNP (1976) identifies the restoration of natural fire regimes in the Park as a major management initiative. The General Management Plan for the Parkway (1980) identifies several broad, resource management objectives including conserving wildlife and natural habitats; identifying and preserving significant natural and cultural resources; and managing the natural environment to enhance scenic values.

Strategic Plan for Grand Teton National Park and John D. Rockefeller Jr. Memorial Parkway, October 1, 2001-September 30, 2005

Fire Management Plan goals such as managing fire on an ecosystem scale, restoring the natural role of fire to the landscape, using fire as a natural resource management tool, and providing structural protection to historic structures are consistent with the Mission Statement for GTNP that is included in the Park's strategic plan. The Park's mission statement states "Grand Teton National Park is dedicated to the preservation and protection of the Teton Range and its surrounding landscapes, ecosystems, cultural and historic structures. The singular geologic setting makes the area and its features unique on our planet. Human interaction with the landscape and ecosystem has resulted in an area rich in natural, cultural and historic structures that represents the natural processes of the Rocky Mountains and the cultures of the American West."

## 2.4 Resource Management Plan

Resource Management Plans recommend natural-caused fires be allowed to burn within designated areas, except when this would endanger life or property, or would result in unacceptable social, environmental, or economic impacts, or violate air quality regulations. These plans also recommend use of prescribed fires under specific conditions. The current resource management plan will be revised in the next few years to update natural and cultural resource objectives and will be known as the Resource Stewardship Plan.

## 2.5 FMP Support to the General and Resource Management Plans

This plan describes three fire management units and further defines how fire management objectives are tiered to the Park's goals and objectives as outlined in the previously cited documents. Many of the Park's goals and objectives can be affected both positively and negatively by fire. The FMP outlines 1) acceptable fire management strategies for wildland fire within Park lands and 2) those areas where resource protection/enhancement objectives may be met utilizing appropriate fuels reduction techniques (prescribed fire and mechanical fuels manipulation). Further it describes a cooperative approach to wildland fire management realizing that fire does not recognize administrative boundaries and significant program efficiencies will be realized when a cooperative interagency program of fire management is implemented with the adjacent federal, state, county, and local resources.

# 3 FIRE MANAGEMENT STRATEGIES

## 3.1 General Management Considerations

Wildland fire will be managed to enhance resource protection, diminish risk and consequences of undesirable wildland fires and sustain naturally occurring vegetative communities and watersheds.

Goals have been developed based on review and analysis of the National Park Service Organic Act, the 1976 Authorities Act, the enabling legislation of Grand Teton National Park and the John D. Rockefeller Jr. Memorial Parkway, National Park Service Management Policies, the General and Resource Management Plans, the documented research on the natural role of fire in maintaining park ecosystems, and the analysis and public comment contained in the Environmental Assessment.

A community-based approach to wildland fire issues will involve close collaboration and cooperation with neighboring agencies that have a vested interest in areas of wildland fire issues.

DO-18 identifies considerations to be addressed by park fire management programs. These are:

1. Protection of human life, both employee and public;
2. Protection of facilities and cultural resources; and
3. Perpetuation of natural resources and their associated processes.

## 3.2 Fire Management Goals

Grand Teton National Park Fire Management Program goals are designed to achieve desired future conditions related to the natural role of fire; the protection of resources, life, and property; enhancement of interagency cooperation and community involvement; the use of adaptive management for continuous improvement; and the effective management of personnel and resources. Several statements are provided to achieve these five primary program goals:

**1. Implement a fire program that allows the natural process of fire to persist in GTNP.**

- Manage natural fire as a dynamic ecosystem process to the maximum extent feasible.
- Support the Park by providing fire management tools to restore and perpetuate a mosaic of climax, sub-climax and seral vegetation.
- Mimic natural fire regimes as directed by resource management objectives.
- Maintain a natural mosaic of climax, sub-climax, and seral forest vegetation, thereby reducing the probability of disturbances such as disease and insect epidemics or large, high severity fires that are outside the historic range of variability.
- Manage fires using the full range of options to protect, restore, or maintain resources and developments within and adjacent to the Park.
- Manage fire in the wilderness to perpetuate wilderness values and character by following the minimum requirement and tool concept established in the 1964 Wilderness Act.

2. **Protect life, property and other resources from unwanted fire effects.**

   - Ensure that firefighter and public safety is the first priority in every fire management action.
   - Manage an efficient wildland fire preparedness organization according to established plans, protocols, and guidelines to prevent, detect, and take effective management action on each wildland fire.
   - Use pre-treatment and suppression-oriented actions to reduce risk from fire to specially identified resources, private lands, developed areas and infrastructure.
   - Simulate the effects of natural fires and/or reduce fuel loading in areas of the Park where wildland fire is not appropriate and may threaten lives and/or property of employees, visitors and neighbors.

3. **Enhance the interagency fire management program through collaboration and coordination to include public involvement and civic engagement.**

   - Maintain an interagency fire program that provides for safe, cost effective, efficient and ecologically sound fire management addressing resource goals and reducing threats to life, property and other resource values across boundaries.
   - Foster understanding, appreciation and support among visitors and neighbors for the wildland fire, prescribed fire, fuels, and aviation programs through park interpretation, public information, media, and inviting the media, private landowners, public officials, park visitors, etc., to observe fire management operations.
   - Conduct educational outreach programs.
   - Conduct a fire prevention program in cooperation with other agencies to reduce risks to human life, physical facilities and cultural resources; and to decrease modification of park ecosystems by human-caused wildland fires.

4. **Use adaptive management to continually improve the fire management program.**

   - Improve fire prescriptions for prescribed and wildland fire, through fire effects monitoring, that will be safe, capable of restoring and maintaining park ecosystems and meet resource objectives.
   - Improve prescriptions for fuels management activities through monitoring.
   - Ensure fire management program activities are integrated into land and resource management planning alternatives, goals, and objectives to fully complement one another in support of an ecological approach to resource management.
   - Insure the program is responsive to input from interagency partners and the public.

5. **Manage personnel and financial resources effectively.**

   - Implement a safe and objectives-oriented fire management program by identifying fire program skill requirements and responsibilities; actively recruiting, retaining, and training staff; and maintaining qualifications and developing employees through assignments.
   - Effectively manage fire actions commensurate with values at risk and meet incident objectives while employing fiscal responsibility.
   - Minimize fire costs to the park by using the full range of fire management options to protect, enhance, and restore resources and developments within and adjacent to the park.

## 3.3 Fire Management Options

The fire management program at Grand Teton National Park and John D. Rockefeller, Jr., Memorial Parkway will focus on selecting the appropriate management response for all unplanned ignitions based on resources at risk or benefits and likely consequences to firefighter and public safety and welfare, along with the application of prescribed fire and mechanical fuels reduction to restore habitat and reduce risk to resources.

**Wildland Fire**: *a general term describing any non-structure fire that occurs in the wildland.*

- **Wildfire:** (See Section 4.1 – Management of Unplanned Ignitions) *unplanned ignition of a wildland fire (such as caused by lightning, volcanoes, unauthorized and accidental human-caused fires) and escaped prescribed fires.*
- **Unplanned Ignition:** *the initiation of a wildland fire by lightning, volcanoes, unauthorized and accidental human-caused fires.*
- **Use of wildland fire:** (See Section 4.1 – Management of Unplanned Ignitions) *management of either wildfire or prescribed fire to meet resource objectives specified in Land/Resource Management Plans.*
- **Planned Ignition:** *the intentional initiation of a wildland fire by hand-held, mechanical or aerial device where the distance and timing between ignition lines or points and the sequence of igniting them is determined by environmental conditions (weather, fuel, topography), firing technique, and other factors which influence fire behavior and fire effects.*
- **Prescribed Fire:** (See Section 4.3 – Prescribed Fire) *is a wildland fire originating from a planned ignition to meet specific objectives identified in a written, approved prescribed fire plan for which NEPA requirements (where applicable) have been met prior to ignition.*

**Non-Fire Applications:** (See Section 4.5 – Non-Fire Fuels Treatment) *Treatment of fuels using means other than fire. Manipulation or removal of fuels to reduce the fire behavior and risk of loss to life/property or resources that may include cutting, thinning, mowing, chipping, lopping, limbing, or like applications. These treatments may by multi-season, stand alone, or multi-treatment.*

- **Non-Fire Applications:** A management tool to manipulate conditions or to manage hazardous fuels and vegetation. Park areas are required in DO-18 to "reduce, to the extent possible, hazardous fuels in the wildland urban interface."

## 3.4 Wildland Fire Management Strategies by Fire Management Unit

### 3.4.1 Fire Management Unit Description

A fire management unit is any land management area definable by objectives, topographic features, access, values-to-be-protected, political boundaries, fuel types, or major fire regime groups, etc., that sets it apart from management characteristics of an adjacent unit. These units may have dominant management objectives and pre-selected strategies assigned to accomplish these objectives.

In this plan, fire management units were identified according to primary management strategies. There are three units with boundaries determined by fire regime, natural barriers and values to be protected. See attached map for unit boundaries, acreages are calculated excluding most large lakes. Prescribed fire can be used throughout all units within the park to meet specific objectives. These units may change slightly with annual updates, if an interagency plan is written with the Bridger-Teton National Forest or if the new budget analysis tool (Fire Program Analysis FPA) warrants.

The fire management units feature various vegetation types, each with different fuels characteristics, fire regimes, resource concerns and desired future conditions. This fire management plan addresses nine vegetation categories in the park:

| | |
|---|---|
| Sagebrush Steppe | Douglas-Fir |
| Persistent Lodgepole Pine | Aspen |
| Mixed Conifer | High-elevation mixed conifer |
| Wetland / Riparian | Current or Former Agricultural |
| Wildland Urban Interface (includes several types) | |

The vegetation types are summarized in Appendix C – Biotic Characteristics and Affected Environment and a detailed description of each, and their ecological characteristics, is included in the Grand Teton National Park Fuels and Fire Effects Monitoring Plan (Appendix N).

The ecological role of fire in Grand Teton National Park, and its history, frequency, and behavior are important factors that guide decision making in the Fire Management Units. Wherever possible, the desired future conditions for the park's vegetation are aligned with historic conditions. Resource protection and safety priorities dictate objectives of fire management activities.

**Wildland Fire Use Unit FMU 1 - (184,300 acres)** Natural fires are allowed to fulfill their role in the ecosystem, provided they stay within predetermined boundaries, meet prescription objectives, and pose acceptable risk to people or developments.

**Conditional Fire Management Unit FMU 2 - (89,808 acres)** This unit is located in areas where the risk of fire escape beyond park boundaries is higher than in the wildland fire use unit. Management actions attempt to balance restoration and perpetuation of fire dependent ecosystems while protecting life and property within and beyond park boundaries. Prescription parameters are more conservative than in the wildland fire use unit and candidate fires are suppressed if prescription parameters are not met. Mechanical treatments are used to protect values at risk.

**Protection Unit FMU 3 - (29,939 acres)** Private inholdings, developed areas, and visitor use areas are located within the fire Protection Unit. All unwanted wildland fires within this unit receive a prompt, safe, and cost effective suppression response causing the least possible resource damage if they do not meet prescriptive criteria for obtaining resource benefits. Fires will be managed if they meet prescriptive criteria and if objectives can be accomplished in a safe and effective manner. Mechanical treatments and prescribed fire are used to protect values at risk.

### 3.4.2 Wildland Fire Use Unit

Management of natural fire starts within this unit will be considered for resource benefit, safety of personnel, and cost effectiveness. Natural fires will be allowed to fulfill their role in the ecosystem, provided they stay within the predetermined boundaries and pose acceptable risk to people or developments. Natural fire starts will be managed to ensure personnel safety, maintain cost effectiveness, and achieve resource benefits. While human caused unplanned ignitions in this zone are considered unwanted, the duty officer directing a suppression response will consider many factors including: priority of potentially scarce firefighting resources, likelihood of success, risk/exposure to firefighting personnel, and the potential negative impacts of fire management operations. Selected strategies may range from direct perimeter control to confinement of the fire to natural boundaries. Mechanical treatments and prescribed fire may be used to protect values at risk, to reduce fuels, and to maintain vegetative mosaics and wildlife habitats that approximate natural conditions and processes.

The wildland fire use unit comprises approximately 55% of the park's acreage, including most of the backcountry. It consists of nearly 115,000 acres of conifer forest (51%), and within the area but not included in acreage estimates is 83,000 acres of rock, open water, and sparsely vegetated, non-burnable areas (45%). A detailed description of each vegetation type, and their ecological characteristics, is included in the Grand Teton National Park Fuels and Fire Effects Monitoring Plan (Appendix N).

Objectives:

- Manage 60% of natural starts for resource benefits.
- Firefighter safety is considered during all operations to reduce and minimize risk to firefighters.
- Public safety is considered during every management action to minimize the risk to the general public.

Strategies:

- Suppression
- Prescribed Fire
- Use of Wildland Fire
- Mechanical Fuel Reduction

Management Considerations:

- Consider firefighter and public safety on every action.
- Consider impacts to cultural resources or threatened and endangered species and mitigate actions accordingly.
- Ensure air quality requirements are considered in developing implementation plans.
- If a suppression strategy is applied, ensure adherence to management considerations in the Protection Unit.

### 3.4.3 Conditional Unit

The Conditional Unit is located in areas where the risk of fire escape beyond park boundaries is higher than in the Wildland Fire Use Unit. Management actions attempt to balance restoration and perpetuation of fire dependent ecosystems while protecting life and property within and beyond park boundaries. Fires within this unit will be considered for management if the prescriptive criteria are met and objectives can be accomplished in a safe and effective manner, similar to those in the FMU 1. If the objectives cannot be accomplished, the fire will be suppressed as in the Protection Unit. Mechanical treatments and prescribed fire are used to protect values at risk, to reduce fuels, and to maintain vegetative mosaics and wildlife habitats that approximate natural conditions and processes.

Much of the valley floor and eastern foothills are in the conditional fire management unit, which makes up more than 27% of the park. There are nearly 90,000 acres included; of which half have sagebrush vegetation (approximately 47,000 acres). Most of the park's aspen is also in this unit, see vegetation summary below. A detailed description of each vegetation type, and their ecological characteristics, is included in the Grand Teton National Park Fuels and Fire Effects Monitoring Plan (Appendix N).

Objectives:

- Contain 90% of all unwanted wildland fires at less than 10 acres in size within 2 operational periods.
- Manage fires for resource benefits when conditions and fire start location warrant.
- Firefighter safety is considered during all operations to reduce and minimize risk to firefighters.
- Public safety is considered during every management action to minimize the risk to the general public.

Strategies:

- Suppression
- Prescribed Fire
- Use of Wildland Fire
- Mechanical Fuel Reduction

Management Considerations:

- Consider firefighter and public safety on every action.

- Consider impacts to cultural resources or threatened and endangered species and mitigate actions accordingly.
- Ensure air quality requirements are considered in developing implementation plans.
- If a suppression strategy is applied, ensure adherence to management considerations in the Protection Unit.

### 3.4.4 Protection Unit

The Protection Unit designates areas which are close to structures, and where the threat of unwanted fire is greatest to life and property. Private in-holdings, developed areas, and areas of high visitor use are located within the Unit and have relatively easy access for suppression resources and short response times. Fires within this unit will receive a prompt, safe, and cost-effective suppression response causing the least possible resource damage if they do not meet prescriptive criteria for resource benefits. Fires or portions thereof will be managed if they meet prescriptive criteria and if objectives can be accomplished in a safe and effective manner. Mechanical treatments and prescribed fire are used to protect values at risk, to reduce fuels, and to maintain vegetative mosaics and wildlife habitats that approximate natural conditions and processes.

Approximately 30,000 acres of land occur within this unit, or 9% of the park. The vegetation is mainly a mixture of low elevation mixed conifer (almost 7000 acres, 23%); persistent lodgepole pine (roughly 4500 acres, 15%); and sagebrush steppe (approximately 7000 acres, 23%). In close proximity to developed areas these plant communities are considered “wildland urban interface,” and have separate desired future conditions associated with managing hazard fuels. A detailed description of each vegetation type, and their ecological characteristics, is included in the Grand Teton National Park Fuels and Fire Effects Monitoring Plan (Appendix N).

Objectives:

- Contain 90% of all unwanted wildland fires at less than 10 acres in size within 2 operational periods.
- Minimize losses of structures and property during fire events. Maintain site specific hazardous fuel reduction treatments near structures or cultural sites to Park specifications.
- Firefighter safety is considered during all operations to reduce and minimize risk to firefighters.
- Public safety is considered during every management action to minimize the risk to the general public.

Strategies:

- Suppression
- Prescribed Fire
- Use of Wildland Fire
- Mechanical Fuel Reduction

Management Considerations:

- Consider firefighter and public safety on every action.
- Consider impacts to cultural resources or threatened and endangered species and mitigate actions accordingly.
- Ensure air quality requirements are considered in developing implementation plans.
- Ensure mechanical reduction and/or prescribed fire projects are completed to specifications.
- Ensure fire restrictions are implemented.
- Update evacuation pre-plans annually and review with cooperators.
- Multiple fire starts will be prioritized by the duty officer to best meet objectives.
- Ensure socio-political economic impacts, including wildland urban interface (WUI), are considered in developing implementation plans.
- Consider utilization of mechanized equipment (tractors, mowers, skidders, etc) if a decrease in treatment costs while creating effective fuel model changes can be shown.

### 3.4.5 Management Unit Biotic Characteristics and Affected Environment

Detailed information on biotic characteristics and affected environment can be found in Appendix C.

**Vegetation:** The low-lying valley of Jackson Hole consists of a glacial outwash plain that supports mainly sagebrush-dominated communities. Pockets of historical agricultural lands consisting mostly of non-native pasture grasses are also present on the valley floor. The Snake River bisects the valley and riparian communities associated with the river and its tributaries support blue spruce, narrowleaf cottonwood, silver buffaloberry, and various willow species. Hydrology associated with Jackson Lake sustains a large and diverse willow community (Willow Flats) and smaller ones along its perimeter. Aspen communities are located in moist upland areas at lower elevations in the park and are often intermixed with sagebrush steppe and Douglas-fir woodlands. Lower and mid-elevation forests are dominated by lodgepole pine, Douglas-fir, subalpine fir, and Engelmann spruce. Mountain shrub communities (chokecherry, serviceberry, Scouler's willow, etc.) are also common on the foothill slopes of the Teton Range. Where vegetated, the higher elevations of the Tetons consist of timberline forests (subalpine fir, Engelmann spruce, and whitebark pine) and graminoid-, forb-, and shrub-dominated alpine communities.

The integrity of the park's plant communities remains largely intact. However, some communities have been affected by human activities including homesteading, agricultural use, introduction of exotic species, resource utilization and extraction, (i.e., gravel pits, grazing, and browsing) land development, and fire exclusion. Fire was historically a major disturbance event that sustained natural diversity in plant communities and wildlife habitat in the park. However, natural fire regimes have been altered and, in some vegetative communities, the decrease in fire frequency, particularly low severity fires, has reduced age-class, structural, and landscape diversity leaving older, contiguous forests and grasslands, which are more prone to stand-replacing fire events. Vegetation type descriptions can be found in Appendix N – Fire Effects Monitoring Plan. A table summarizing vegetation, desired future conditions, fire regime and condition class, and management constraints can be found in Appendix C.

**Table 3.4.5 Vegetation by Fire Management Unit**

| Fire Management Unit | Total Acres | Vegetation (Approximate Acres / Percent of Unit) |
|---|---|---|
| **Wildland Fire Use Unit** | 184,300<br><br>**55% of Park** | Agricultural (159 acres / 0%)<br>Aspen (1,363 acre / 1%)<br>Douglas-Fir (7,399 acres / 4%)<br>High-Elevation Mixed Conifer (22,215 acres / 12%)<br>Mixed Conifer (27,255 acres / 15%)<br>Persistent Lodgepole Pine (37,601 acres / 20%)<br>Sagebrush (3,085 acres / 2%)<br>Wetland/Riparian (1,903 acres / 1%)<br>Water/Rock/Non classified (83,320 acres / 45%) |
| **Conditional Fire Management Unit** | 89,808<br><br>**27% of Park** | Agricultural (8,565 acres / 10%)<br>Aspen (4,971 acre / 6%)<br>Douglas-Fir (3,406 acres / 4%)<br>Mixed-Conifer (2,152 acres / 2%)<br>Persistent Lodgepole Pine (9,911 acres / 11%)<br>Sagebrush (46,775 acres / 52%)<br>Wetland/Riparian (7,158 acres / 8%)<br>Water/Rock/Non classified (6,870 acres / 8%) |
| **Protection Unit** | 29,939<br>**9% of Park** | Agricultural (2,493 acres / 8%)<br>Aspen (639 acre / 2%)<br>Douglas-Fir (892 acres / 3%)<br>Mixed-Conifer (6,887 acres / 23%)<br>Persistent Lodgepole Pine (4,514 acres / 15%)<br>Sagebrush (6,833 acres / 23%)<br>Wetland/Riparian (2,180 acres / 7%)<br>Water/Rock/Non classified (5,501 acres / 18%) |

**Plant Species of Special Concern:** Based on plant data from the Wyoming Natural Diversity Database (WYNDD), there are 63 plant species of special concern occurring in the Park. This list can be found at http://uwadmnweb.uwyo.edu/wyndd/SOC/2003_WYNDD_SOC.pdf Each of these species has been assigned a global rank from G1-G5 referring to the range-wide probability of extinction for a species as designated by the Nature Conservancy and its network of natural heritage programs. In addition, each also has a state rank from 1-5 referring to the probability of extinction from Wyoming as designated by WYNDD. The following descriptions provide a breakdown of the global and state ranking system scales:

G1/State Critically imperiled because of extreme rarity or because some factor makes it highly vulnerable to extinction.
G2/State Imperiled because of rarity or because of factors making it vulnerable to extinction.
G3/State Rare or local throughout its range or found locally in a restricted range.
G4/State Apparently secure, although it may be quite rare in parts of its range, especially at the periphery.
G5/State Demonstrably secure, although it may be rare in parts of its range, especially at the periphery.

There are no G1 species in GTNP but five G2 and G3 species are present. None of the G2 or G3 species grow in habitats where fire is part of the natural disturbance regime and, therefore, these 5 species are not included as part of the affected environment. G4 and G5 species that are also ranked S1 by the WYNDD and occur in habitats where fire is part of the natural disturbance regime are discussed individually in the Environmental Assessment.

**Wetlands:** National Wetlands Inventory (NWI) mapping was completed in 1990 by the USFWS and is available for the entire park. NWI mapping is the primary wetland tool used by the NPS to provide general locations of and information about wetlands and open water habitats using a wetland classification system developed by Cowardin et al. (1979). Four wetland types are expected to be present within the park and include palustrine emergent, palustrine scrub-shrub, palustrine forested, and open water.

**Water Resources:** Approximately 10% of GTNP is covered by surface water. Much of this coverage is in seven lakes along the eastern front of the Teton Range (Jackson, Jenny, Leigh, String, Two Ocean, Emma Matilda, and Phelps Lakes) and the Snake River. The Wyoming Department of Environmental Quality has designated these waters as Class 1 – Outstanding Resource Water. No further degradation of these waters is allowed, and restrictions for avoiding all point source discharges have been applied. There are approximately 100 alpine lakes above 9,000 feet, most of which are fed by mountain drainages and eventually drain into the main water bodies listed above and ultimately into the Snake River.

**Soils:** A variety of soils exist in GTNP. Combinations of rubble lands and rock outcrops, sometimes intermixed with soil, dominate the project area. These rubble land and rock outcrop units are associated with steeper areas along the western portion of the Teton Mountain Range. Erosion hazard and surface runoff is generally high.

**Wildlife:** GTNP provides habitat for a variety of wildlife species, including 61 mammals, 4 reptiles, 6 amphibians, 19 fish, and 299 birds (NPS 2000). Six native ungulate species are common: elk, moose, mule deer, bison, pronghorn antelope, and bighorn sheep.

GTNP contains 4 vertebrate species and no plant species listed under the Endangered Species Act (ESA) as threatened, endangered, experimental, or candidate species.

The NPS uses the species classification systems generated by the WGFD and the Wyoming Natural Diversity Database (WYNDD) in order to help identify key species to monitor. The WGFD classifies certain non-game animal species as “species of special concern” and categorized these species into a range of priority groups according to their need for special management. This classification system evaluates species’ distribution, population status and trend, habitat stability, and tolerance of human disturbance (WGFD 1996). Plants and animals are considered species of special concern by the WYNDD if they are “vulnerable to extirpation at the global or state level due to inherent rarity, substantial loss of habitat, or sensitivity to human-caused mortality or habitat disturbances” (Fertig

and Beauvais 1999). In addition, many plants listed as “sensitive” by federal land management agencies are considered species of special concern by WYNDD (2002).

**Air Quality:** Air quality in northwestern Wyoming is considered good as a result of little industrial activity and low populations in the region. Industrial activity in Wyoming mainly occurs in eastern and southwestern counties. Major sources of gaseous pollutants and deposition in the GYA are electrical utility power plants, industrial fossil-fuel combustion, and oil and gas processing in southwestern Wyoming and southeastern Idaho. Annual emissions levels of gaseous SO2, NOx and VOC in Wyoming are moderate relative to other states (Peterson et. al. 1998).

GTNP is classified as a Class I air quality area and John D. Rockefeller, Jr. Memorial Parkway is classified as a Class II air quality area. Under NPS policy, both park units are managed as Class I areas and both are in attainment with federal and state ambient air quality standards. Large and small particulate monitoring in Jackson and Cody, Wyoming are well below NAAQS for both the yearly mean and the 24-hour average concentration, which is a level that may not be exceeded on more than one day per year, after compensating for days when monitoring did not occur.

**Wilderness:** GTNP contains recommended and potential wilderness areas, both of which are considered designated wilderness for the purpose of this analysis. GTNP has recommended that Congress include about 122,604 acres of the park’s backcountry in the National Wilderness Preservation System pursuant to Public Law 88-577 (Wilderness Recommendation GTNP 1984). This 122,604 acres is approximately 43% of GTNP and encompasses the Teton Range, several of the lakes at the base of the range, and Two Ocean Lake in the northeastern portion of the park. Another 7% of GTNP is potential wilderness. Potential wilderness is comprised of two parcels that total 20,850 acres, most of which is located in the Potholes, southeast of Jackson Lake. A smaller parcel is located adjacent to recommended wilderness, near Phelps Lake, southwest of Moose. The John D. Rockefeller, Jr., Memorial Parkway also has 20,006 acres of suitable wilderness.

To date, Congress has not enacted legislation to include the recommended wilderness in the National Wilderness Preservation System. However, NPS policy dictates that potential and recommended wilderness areas are treated as wilderness (so as not to preclude eventual designation).

**Archeological Resources:** Although less than 10% of the lands within GTNP have been surveyed, previous archaeological surveys within the park and on adjacent lands suggest a seasonal settlement pattern for the Jackson Hole area. The park’s prehistoric sites represent a wide range of plant, animal, and stone procurement locations, seasonal camps and plant processing features that represent more than 10,000 years of human use in Jackson Hole.

**Historic Structures:** The park landscape includes 34 properties listed in the National Register of Historic Places (two are private inholdings), two properties eligible for listing, and one National Historic Landmark. A second nomination is currently being prepared for the Murie Ranch to become a National Historic Landmark. Nearly all properties owned by the park have been evaluated for eligibility to the National Register.

Eligible or listed historic structures within the park number 322 and include ranches, homesteads, patrol cabins, residences, vacation homes, ranger stations, a church, Civilian Conservation Corp camp buildings, administration buildings, and concession facilities. The properties are associated with the historic contexts of settlement, conservation, park administration and development, dude ranches, and tourism.

**Cultural Landscapes:** In FY1999, the NPS Intermountain Regional Office conducted a Level 0 Cultural Landscape Inventory (CLI) for GTNP. A Level 0 Assessment is a general overview of the whole park involving preliminary identification of landscapes, component landscapes within the park, and identification of immediate threats to cultural landscape resources that helps determine CLI priorities. The SHPO was not consulted on the Level 0 Assessment. The only National Register listed cultural landscape in GTNP is Mormon Row.

**Real Property:** Real property includes highways, backcountry cabins, trailheads, and developments both private and government owned. A summary listing can be found in section 8.3 Affected Environment.

### 3.4.6 Historic Role of Fire

**Ecological Role of Fire**

Fire is one of the primary drivers of vegetation dynamics in the Rocky Mountain region. Direct ecological effects include clearing of forest or shrub canopy, plant mortality, exposure of bare mineral soil, changes in nutrient distribution and availability, regulation of biomass accumulation and effects on major ecosystem processes (Wright and Heinselman 1973, Mutch 1970). The indirect effects of fire include changes in plant species distributions and vegetation structure, which in turn affect insects, parasites, fungi, hydrology, and wildlife habitat availability and distribution.

The ecological effects of fire are a function of fire behavior (i.e., the degree and pattern of disturbance) and the composition and vegetation type (adaptations of the affected area). Both factors are interdependent and highly variable.

The terms *fire intensity* and *burn severity* are used to explain the range of impacts that a fire can create. Fire intensity is the amount and rate of energy (heat/unit area) released by fire. Three major categories of fire intensity are commonly described and each varies in its ecological impacts. *Ground fires* burn slowly through accumulations of duff and organic material; *surface fire* can burn rapidly consuming litter and above-ground portions of forbs, graminoids, shrubs and tree seedlings if present; *crown fires* burn through the crowns of trees and the understory is not always affected. These three types of fire can occur in any combination simultaneously or a fire can begin as one type and transform into another depending on a variety of factors.

Burn severity is a qualitative scale that includes chemical and physical changes in the substrate and changes in vegetation composition, structure, and function. Burn severity classes have been described in terms of “low,” “moderate,” and “severe” (Ryan and Noste 1985, White et al. 1996). Low-severity burns are characterized by very little vegetation mortality or change in composition; usually less than half of the substrate (litter and duff) fuels have been consumed, and trees are lightly scorched. Moderate burns show consumption and mortality of more than 50% of trees and shrubs, and more than half the litter and duff is removed; some understory grasses and forbs resprout, and some pioneer species become established by seed. Severe burns result in mortality and removal of most vegetation; large woody fuels are heavily consumed; bare soil is exposed over much of the area; and revegetation is slower, occurring almost entirely by seed dispersal from unburned areas.

Mixed-severity fires are common in the heterogeneous landscape of GTNP. Large fires that burn through different vegetation types over several days tend to have a complex arrangement of severity, including unburned patches. In GTNP, the burn severity of the Moran, Hechtman, Glade, and Wilcox fires of 2000 was mapped. These large fires were caused by lightning and managed using a suppression-oriented containment strategy similar current policy implementation. Of the 9,455 acres contained within burn perimeters, 16% did not burn, 21% was low severity, 43.6% was moderately burned, and 19% was severely burned. This severity ratio has been found to be typical of wildland fires in intermountain mixed conifer forests.

Many of the plants in GTNP evolved in the presence of fire and exhibit adaptations to fire. These adaptations include vegetative characteristics such as fire-resistant bark of Douglas-fir, spreading rhizomes of fireweed, the ability of aspen to regenerate from root suckers, the serotinous cones of lodgepole pine, and the heat-induced germination of buckbrush (*Ceanothus velutinus*) seeds. The role of fire is evident in the landscape vegetation patches of different ages, composition, and structure reflect a history of disturbances of varying size and severity. Fire, blowdowns, avalanches, and insect-induced mortality are all disturbances that perpetuate the dynamic landscape mosaic present in GTNP.

Vegetation composition changes to a varying degree following fire. Initial occupation of a burned site is often by pioneer or early successional species arriving by seed or resprouting from surviving roots. Early successional species are generally characterized by requiring sunlight penetration to the ground, rapid initial growth, and early maturation. In time, these species may be replaced by more shade-tolerant species with slower initial growth rates. Fire fuel loading also changes over time with fuels typically increasing as the duration of time since the last fire increases. Patchy fires or combinations of fires over the landscape cause temporal and spatial variability in vegetation seral

stages, which in turn create a complex distribution of burnable fuels and change potential fire behavior. The patterns of succession and fuel loading differ between vegetation types, as does the time it takes for a burned area to once again have sufficient fuels to support a fire.

The *historical or natural fire regime* is defined as the frequency and severity typical of fires occurring within a vegetation type prior to the land-use changes of the mid-19th century and prior to the advent of modern fire control methods. Historical fire frequency and acreages vary among vegetation types and geographically within GTNP due primarily to differences in fuel loading, soils, topography, and ignition frequency. The historical and ecological role of fire in the northern Rocky Mountain region, the GYA, and GTNP specifically has been the subject of numerous studies (Heinselman 1970b; Despain 1972, 1983; Habeck and Mutch 1973; Loope and Gruell 1973; Houston 1973; Gruell and Loope 1974; Howe 1975; Arno 1980; Crane 1982; Romme 1982; Knight and Wallace 1989; Romme and Despain 1989; and others). This body of ecological research indicates that naturally occurring wildland fire has played a major role in the formation of vegetation patterns throughout the region for thousands of years. Collectively this research indicates that, prior to the arrival of Europeans to the area, small fires were frequent and widespread in both forested and non-forested vegetation types. Large crown fires occurred in forested types at approximately 100-300 year intervals (Turner et al. 1997, Romme and Despain 1989, Houston 1973, Loope and Gruell 1973), while stand replacing fires in Non-forested types occurred more frequently. Vegetation characteristics and fire frequencies for each of the eight fire-vegetation types in GTNP are described the Fire Effects Monitoring Plan Appendix N.

**Grand Teton National Park Fire History**

Evidence for patterns of fire type, behavior, and history come from fire history research and from fire records kept since 1910. The most extensive local fire history study in GTNP was conducted in the early 1970's (Loope and Gruell 1973). Loope and Gruell's research (1973, 1974) in GTNP indicates that, prior to 1900, numerous small lightning-caused fires occurred in the mountains and canyons of GTNP but large fires were rare, presumably because of the rugged topography and numerous natural fire breaks. Dendrochronology of fire-scarred trees indicate that most areas in Jackson Hole burned sometime in the years between 1850 and 1885. Large fires occurred in various parts of what is now GTNP around 1765, in the early 1840's, around 1856, and in the interval 1878-1883. Many forest stands in the valley experienced stand-replacing fire around 1856 or around 1879. Data from cross-sections of fire-scarred trees correlated with weather records since 1916 suggest that conditions conducive to extreme fire conditions (e.g., hot, dry, windy conditions in drought years) have occurred at infrequent intervals (one to three times per century). These are the conditions in which large acreage stand-replacing fires are likely to occur.

Following the establishment of GTNP in 1929 and until 1972, fire was essentially excluded from park environs. All fires, both man-made and naturally ignited, were suppressed if possible. In 1963 the Leopold Committee was convened to review wildlife management issues in National Parks, including but not limited to the GYA. The resulting Leopold Report (Leopold et al, 1963) recommended modification of the NPS policy of total fire suppression. Ecological studies in the 1960's and 1970's indicated that fire exclusion might have slow-paced effects on natural vegetation dynamics and diversity. Taylor (1973) evaluated the impacts of a long history of fire suppression in Yellowstone National Park and stated that "elimination of forest fires will limit ecological diversity within the Park by reducing or eliminating certain plants and animals that are present only in the successional communities present before closure of the forest canopy." He went on to add "all evidence indicates that with control of forest fires, the younger seral stages …will be reduced and in many cases eliminated, thus making for greater uniformity…." The recognition of the importance of fire in maintaining natural vegetation dynamics, wildlife habitat, and landscape diversity resulted in the modification of NPS fire management policy in 1968 and the establishment of prescriptions under which certain naturally caused fires might be allowed to burn within specified parameters.

**Fire Frequency and Behavior in GTNP**

The history of fire starts in GTNP from 1930 to present is well documented. The record from 1970 to present is much more complete with aerial detection of fires during this time contributing to the recognition of smaller fires and higher elevation fires. Data on fires allowed to burn, many of which remained small and naturally extinguished without suppression efforts, can be used to assess the role

of small acreage and non-stand-replacing fires in GTNP. While these data supplement the forest fire history that has been reconstructed from fire-scarred trees, they also provide valuable information on the frequency and potential acreage of naturally occurring shrubland and grassland fires.

The number of natural fire starts expected in the park in any one year is difficult to predict as it is dependent on summer weather patterns and fuel moisture. The park fire history from 1970-2003 indicates an average of six natural fire starts per year in the park. As many as 21 lightning-caused fires have begun in a single year (1994) and up to 17 human-caused fires have occurred in a single season (1981). Most fires occur from June 15 to September 30. Although use of wildland fire has been permitted since 1970 and is considered desirable for the maintenance of ecological processes, only about 30% of natural ignitions have been managed as such. The largest natural fires allowed to burn in GTNP were the 3,672-acre Waterfalls Canyon Fire (WCF) in 1974 and the 2,000-acre Mystic fire in 1981. The WCF burned in the mixed conifer fire vegetation type, comprised of spruce, subalpine fir and lodgepole pine; the Mystic Fire burned in persistent lodgepole pine vegetation.

The majority of acreage burned in GTNP since the park was established has burned during hot, dry, windy conditions, and under a suppression-oriented fire management strategy. The role of weather conditions in determining fire starts, behavior, and burned acreage is substantive. The importance of long-term climate variations have also been shown in a 17,000-year fire-climate reconstructive history from Cygnet Lake area in Yellowstone National Park's plateau region which indicates a strong connection between changes in climate and variations in fire frequency on millennial time scales (Millspaugh et al. 2000).

**Table 3.4.6 Fire Management Strategies by Vegetation Type**

**Grand Teton National Park and John D. Rockefeller Jr. Memorial Parkway - 1970-2003**

| | Vegetation Types | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Fires** | Sagebrush | Persistent Lodgepole | Mixed Conifer | Douglas-fir | High Elev. Mixed Conifer | Aspen | Agric. Land | Wetland/ Riparian | Not Classified |
| **Natural Ignition** | | | | | | | | | |
| Wildland Fire Use | | | | | | | | | |
| Number | 0 | 7 | 13 | 3 | 11 | 2 | 1 | 2 | 12 |
| Total Acres | | 2013.0 | 3785.0 | 25.1 | 15.2 | 0.2 | 0.1 | 0.4 | 451.0 |
| Acres/Fire | | 287.0 | 291.0 | 8.4 | 1.4 | 0.1 | 0.1 | 0.2 | 37.5 |
| Contained Fires | | | | | | | | | |
| Number | 0 | 1 | 3 | 0 | 2 | 0 | 0 | 0 | 1 |
| Total Acres | | 2350.0 | 6530.0 | | 661.0 | | | | 0.5 |
| Acres/Fire | | 2350.0 | 2177.0 | | 331.0 | | | | 0.5 |
| Suppression Fires | | | | | | | | | |
| Number | 25 | 37 | 15 | 13 | 8 | 7 | 2 | 13 | 17 |
| Total Acres | 4993 | 2481 | 3.7 | 7.35 | 4.6 | 2.9 | 0.6 | 4.6 | 96.8 |
| Acres/Fire | 199 | 67 | 0.25 | 0.56 | 0.57 | 0.42 | 0.3 | 0.35 | 5.7 |
| Natural Outs | 1 | 4 | 4 | 1 | 1 | 0 | 2 | 0 | 5 |
| Total Ignitions | 26 | 49 | 35 | 17 | 22 | 9 | 5 | 15 | 35 |
| Total Acres | 4993 | 6844 | 10318.7 | 32.45 | 680.8 | 3.1 | 0.7 | 5 | 548.3 |
| **Human Ignitions** | | | | | | | | | |
| Prescribed Fires | 17 | 15 | 7 | 2 | 0 | 3 | 2 | 2 | 6 |
| Total Acres | 8776 | 329 | 108 | 1446 | | 1720 | 500 | 1335 | 728 |
| Acres/Fire | 516 | 22 | 15.4 | 723 | | 573 | 250 | 445 | 145.6 |
| Suppression Fires | 28 | 70 | 29 | 17 | 3 | 6 | 4 | 5 | 24 |
| Total Acres | 346 | 25.7 | 98.8 | 18.6 | 0.3 | 0.6 | 7.7 | 0.5 | 2.4 |
| Acres/Fire | 12 | 0.36 | 3.4 | 1.09 | 0.1 | 0.1 | 1.9 | 0.1 | 0.1 |
| Contained Fires | 0 | 1 (2611) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Ignitions | 45 | 86 | 36 | 19 | 3 | 9 | 6 | 7 | 30 |
| Total Acres | 9122 | 2965.7 | 206.8 | 1464.6 | 0.3 | 1720.6 | 507.7 | 1335.5 | 730.4 |
| **Total Acres** | 56700 | 52000 | 36300 | 11700 | 22200 | 7000 | 11200 | 11250 | N/A |
| **Total Burned (ac)** | 14115 | 9809.7 | 10525.5 | 1497.05 | 681.1 | 1723.7 | 508.4 | 1340.5 | 1278.7 |
| **% Burned** | 24.9% | 18.9% | 29.0% | 12.8% | 3.1% | 24.6% | 4.5% | 11.9% | N/A |

NOTE 1: Confine/Contain fires are categorized as suppression actions but are managed with strategies similar to resource benefit fires.

NOTE 2: Fire perimeters often include unburned acres and a range of burn severity. The total burned acres reflect a range of fire effects within that vegetation type.

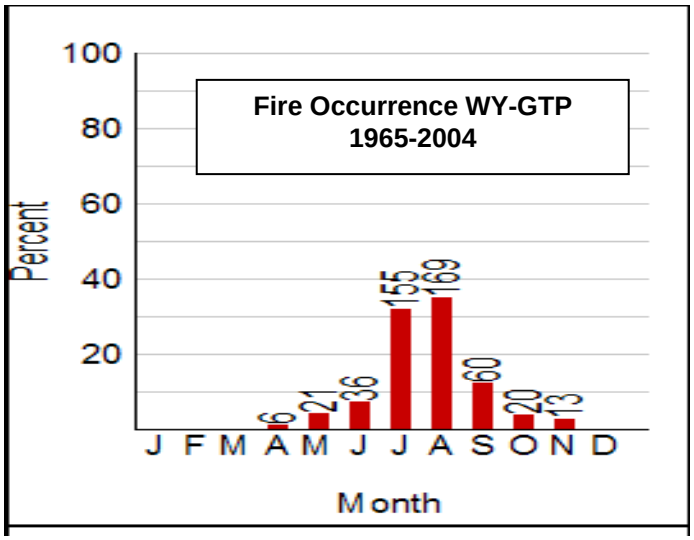
## 3.4.7 Wildland Fire Situation

### 3.4.7.1 Historic Weather Analysis

Fuel moistures are at their maximums for live woody and herbaceous plants during the spring when plants are actively growing. Dead fuel moistures in large size classes reach minimum values during the mid to late summer and fall months. Indicators of fire danger as computed through the National Fire Danger Rating System (NFDRS) show that fire danger is highest when fuel moistures are lowest and when plants are not actively growing. Grand Teton National Park uses a remote automated weather station located near Timbered Island for fire danger predictions. Fire weather observations for the Teton Station (NWS #480708) are archived by the Teton Interagency Dispatch Center daily and utilized in determining or adjusting local staffing levels through the fire season. Additional information and indices can be found in Section 4.3.1.5 – NFDRS.

### 3.4.7.2 Fire Season

The fire season at Grand Teton National Park is generally the period from June through October with the official fire season June 15th to October 15th. This is the period during which most fires have occurred. This period represents the situation from spring green-up until after curing has occurred. During this time climatic conditions are most favorable for ignition. The majority of annual rainfall is received during the winter months, November to February but severe thunderstorms can occur in July and August which are responsible for lightning caused fires in the region. Occasionally winters are dry, and fires have occurred earlier in the spring.




### 3.4.7.3 Fuel Characteristics

The wildland fuels in the Park are quite varied, as are vegetation and topography. Many factors influence the distribution and characteristics of these fuels, including plant community, fire history, seasonality, snowpack, weather, animal and human activities. The table below describes the general correlation between identified vegetation types and published fuel models. Note that it is an oversimplification to assign a single fuel model or fire regime group to a given vegetation type.

**Table 3.4.7.3 Fuel Models and Vegetation Types in Grand Teton National Park**

| Fire Management Vegetation Type | Primary Carrier of Fire | Fire Behavior Fuel Model(s) | NFDRS Fuel Model(s) | Main Fire Regime Group |
|---|---|---|---|---|
| Sagebrush Steppe | Live and dead shrubs, grass | 2, 5 | T | FRG II 0-35 year frequency, replacement severity |
| Persistent Lodgepole Pine | Timber litter, grass | 8, 10 | G | FRG V 200+ year frequency, replacement severity |
| Douglas Fir | Timber litter | 8, 10 | G, H | FRG III 35-100+ year frequency, mixed – low severity |

| | | | | |
|---|---|---|---|---|
| Aspen | Grass, timber litter | 2, 5, 8 | H | FRG III 35-100+ year frequency, replacement severity |
| Mixed Conifer | Timber litter, grass, slash | 2, 8, 10 | G | FRG V 200+ year frequency, replacement severity |
| High Elevation Mixed Conifer | Timber litter, slash | 8, 10, 11 | G | FRG V 200+ year frequency, replacement severity |
| Wetland / Riparian | Grass, live and dead shrubs, timber litter | 2, 3, 5, 6, 8 | N/A | FRG III 35-100+ year frequency, mixed – low severity |
| Current or Former Agricultural | Grass | 1, 2, 3 | A | FRG I 0 – 35 year frequency, low severity |

At high elevations, fuels are sparse and the environment is often cold and moist. Lightning strikes frequently ignite fires, however they usually are short-lived and small, often involving only a single tree. Stand-replacing events occasionally occur during extreme droughts. Shrub and grass vegetation carries fire when live and dead fuels are sufficiently dry and abundant. In some cases, when grass production is high, fuels are dry, and winds are sufficiently strong, these fuels are highly volatile and fires spread very rapidly.

Forested areas in the park are generally characterized by fairly sparse understory fuels and thin deposits of litter and duff. They burn under a mixed severity regime, with creeping and torching fire behavior that results in pockets of varying degrees of stand disturbance. These forests are also well adapted for large stand-replacement events, such as crown fires, which occur during extended drought periods when large diameter fuels have become dry. Fire spread during both crown and ground fires are often accelerated by windblown firebrands.

#### 3.4.7.4 Fire Regime Alteration

The *historical or natural fire regime* is defined as the frequency and severity typical of fires occurring within a vegetation type prior to the land-use changes of the mid-19$^{th}$ century and prior to the advent of modern fire control methods. Historical fire frequency and acreages vary among vegetation types and geographically within GTNP due primarily to differences in fuel loading, soils, topography, and ignition frequency. This body of ecological research indicates that naturally occurring wildland fire has played a major role in the formation of vegetation patterns throughout the region for thousands of years. Collectively this research indicates that, prior to the arrival of Europeans to the area, small fires were frequent and widespread in both forested and non-forested vegetation types. Large crown fires occurred in forested types at approximately 100-300 year intervals (Turner et al. 1997, Romme and Despain 1989, Houston 1973, Loope and Gruell 1973), while stand replacing fires in non-forested types occurred more frequently. Since only 30% of the natural fire starts between 1970 and 2003 were permitted to burn, we suspect that park lands have experiences less fire than would have been normal, causing some disruption in the natural fire regime. Vegetation characteristics and fire frequencies for each of the eight fire-vegetation types in GTNP are described the Fuels and Fire Effects Monitoring Plan Appendix N.

#### 3.4.7.5 Control Problems and Dominant Topographic Features

Control problems can be expected on fires burning during the peak of the fire season. When continuous fuels and warm, dry, windy environmental conditions are encountered, high fire intensities and rapid spread rates can occur within a short periods of time. In these situations, firefighter safety may dictate use of indirect attack suppression methods.

Fires within sage and grass stands can move rapidly following fuels and topographic features such as gently rolling hills. Under higher fire danger conditions and wind events, these fires can be very unpredictable. In timber stands, dependents upon weather conditions and slope, fire behavior will range from high severity, slow moving fires on the ground to wind driven fires in the crowns. Steep, inaccessible cliffs and chutes in the Tetons create specific fire behavior and safety problems.

Additionally, significant features such as the Teton Range, large water bodies, and the Snake River have major influences on fire behavior. Suppression activities in such areas must be carefully planned and executed. Often there are natural and “man made” breaks on the landscape that can be used to take suppression action. Burn out of adjacent fuels under less severe conditions is to be given serious tactical consideration when spread rates are high, direction of spread is being driven by gusty erratic winds and/or slope and flam lengths are such that direct attack is not expected to be safe or effective. Planning for burn out activities should consider times during the day when temperatures are cooler and fire behavior is such that control is not an issue.

#### 3.4.7.6 Other Elements Affecting Fire Management

Developed areas, including the Jackson Hole Airport, large concession operations, and private inholdings within the Park will be protected to the greatest extent feasible during wildland fire operations.

Coordination between land management agencies is guided by local and state operating agreements. Of utmost importance is the coordination between Grand Teton National Park, the Bridger-Teton National Forest, the National Elk Refuge, and Jackson Hole Fire & EMS. Because the current program is staffed, managed, and in the future will be budgeted an interagency basis with the Bridger-Teton National Forest and the National Elk Refuge, consideration will be given to writing a joint fire management plan. Additionally the park will coordinate closely with Yellowstone National Park on fires within the John D. Rockefeller, Jr., Memorial Parkway as well as the Caribou-Targhee National Forest on fires on there and on the western side of the park.

Insert Vegetation Map Here

# 4 FIRE MANAGEMENT OPERATIONAL GUIDANCE

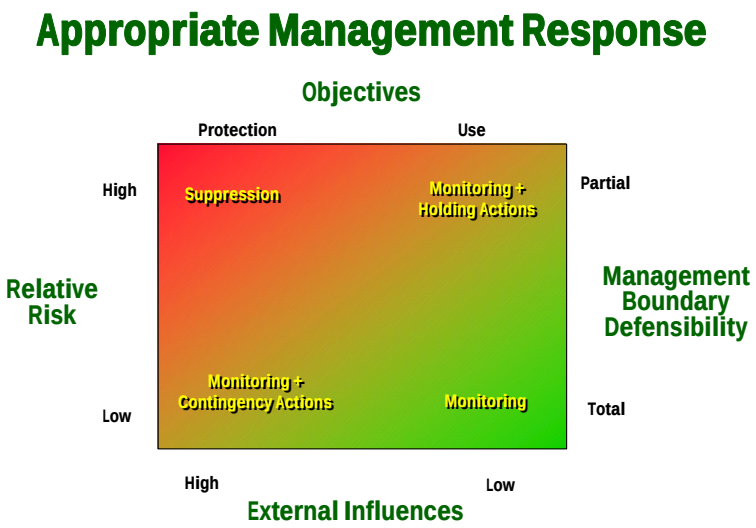
Wildland fire will be managed to enhance resource protection, diminish risk and consequences of severe wildfires and, to sustain naturally occurring vegetative communities and watersheds. A significant goal of the fire management program at Grand Teton National Park is to allow natural fire to achieve its role in the ecosystem while striving to protect life, property, and other resources from unwanted fire effects.

## 4.1 Management of Unplanned Ignitions

The Park will employ a strategy of appropriate management response to all wildland fire starts. The response to wildland fire will be based on ecological, social, and legal consequences of the fire, considering public and firefighter safety as the first priority. Tactics will consider values at risk as well as the effects on park resources of selected actions.

The initial assessment of any wildland fire will include a thorough fire size-up (Appendix I) describing the fire situation and providing information to support the initial response. This initial size up information will be input in to the Wildland Fire Decision Support System (WFDSS) for use in developing further management plans as needed. Initial action on human-caused wildfires will be to suppress the fire at the lowest cost with the fewest negative consequences with respect to firefighter and public safety.

The concept of appropriate management response is integral to this plan. Management responses are planned to accept resource management needs and constraints, reflect a commitment to safety, to be cost effective, and accomplish desired objectives while maintaining the versatility to vary in intensity as conditions change. The appropriate management response is defined as the specific actions taken in response to an unplanned ignition to implement protection and/or resource benefit objectives. It allows managers to utilize a full range of responses. It does not lock tactical options to fire type designations. As conditions change, the particular tactics can change to accomplish the same objectives.




Management actions applied to a fire can consist of suppression, ranging from aggressive initial attack to a combination of strategies to achieve confinement, or can exclusively deal with managing fire for resource benefits. There may be periodic fire occurrences that warrant a combination of tactics that result in stopping fire spread on a portion of the fire, confining it within another area, and allowing it to burn in yet another.

Any wildland fire can be suppressed, and any naturally ignited fire can, if it meets specific decision criteria, be managed for resource benefits. These responses are based on objectives, and must have sound rationale that clearly demonstrates the validity of the response. Managing fires when feasible maximizes the beneficial presence of fire on the landscape. The management of unplanned ignitions is especially essential in those areas located within the Fire Use and Conditional Fire Management Units. A great percentage of this area lies adjacent to similarly managed FMU's in adjoining agencies/units (Jedediah Smith and Winegar Hole Wilderness Areas, Caribou-Targhee NF, Teton Wilderness, Bridger-Teton NF, and Yellowstone NP).

All fires which exceed any prescription parameters must be suppressed using an appropriate suppression action. In the park, this includes:

1. All unplanned human-caused fires, regardless of location.
2. Any unplanned fire that has exceeded its prescription parameters.
3. Any prescribed fire that exceeds the unit boundary or prescription as defined in the prescribed burn plan.

### 4.1.1 Preparedness

#### 4.1.1.1 Coordination

Grand Teton National Park, the Bridger-Teton National Forest, and Jackson Hole Fire & EMS have a very close working relationship. Local coordination meetings are held regularly and cover local training needs and scheduling, assessment and prioritization of wildland urban interface treatments, communications issues, staffing, and incident management. The park and forest routinely utilize county resources for both initial attack response and extended staffing on large fires. The use of county resources is in accordance with an established statewide agreement outlining mutual aid commitments and contracting for services beyond initial assistance. Beyond the initial attack period fire resources provided by Teton County will meet NWCG standards for training, experience, and physical fitness and be clearly documented as such by Teton County or the Wyoming State Forestry Division.

Collaboration in the form of pre- and post-season meetings, and monthly/weekly conference calls during each fire season ensures cooperation and information sharing at all phases of fire management. Specific collaborative activities are identified in the Greater Yellowstone Area Interagency Coordination Guide (Green Book).

Interagency agreements are in place, particularly through the Greater Yellowstone Area, to allow for wildland fire across agency boundaries in those cases where similar management objectives are shared on adjacent lands. For Grand Teton National Park this is especially important along shared boundaries with the Targhee and Bridger-Teton NF's as well as Yellowstone NP, all of which manage significant wildland fire programs. In those instances where a candidate fire is being considered for management and have the potential to effect or burn into an adjoining unit(s), all affected parties are participants in the development of a management plan and selection of the appropriate long-term management strategy.

#### 4.1.1.2 Annual Training Activities

The training and development of park staff in the skills necessary for safe and effective implementation of this fire management program are key to its success. All personnel taking part in the fire program will meet current agency and NWCG standards (National Interagency Incident Management System, Wildland and Prescribed Fire Qualification System Guide, PMS 310-1) for training and job qualification. All line-going personnel will have a current Interagency Incident Qualification and Certification Card rated at the appropriate physical fitness level and job skills for the position they are fulfilling on the incident. The qualification system sets required prerequisite training and job experience for each identified ICS position, along with an associated physical fitness requirement. All arduous duty red carded employees will meet the Federal Interagency Wildland Firefighter Medical Qualifications Standards.

This plan outlines specific duties and responsibilities of fire program staff for fire program management as well as target incident management qualifications necessary for fire management actions. An integral component to staffing for typical fire activity in Grand Teton National Park is the ability to utilize both non-fire management park employees as well as locally based qualified staff from our cooperators, most importantly the Bridger-Teton NF and Jackson Hole Fire & EMS. Employee development actions (training needs assessments, coordination, presentation, etc.) will consider this in planning annual activities.

Typical annual activities include a training needs assessment considering all levels of NWCG courses (100-600 level), continuing education topics, NPS essential competencies, etc. Assessments will look at all park staff and be coordinated locally with other cooperators. A local training schedule will be developed to meet the identified needs. Training needs for courses not presented locally can usually be met through nominations to other area training providers (WY Fire Academy 200-300 level courses, E Idaho Training Center 100-300 level, Great Basin Training Center 300-400 level, etc.). Grand Teton National Park participates in the East Idaho Training Cooperative to coordinate and prioritize training needs and nominations forward to the Great Basin Training Center and on to other geographic areas or national training academies and centers.

At a minimum training presented locally will meet the needs required to maintain NWCG incident qualifications. Annual fire safety refreshers will be taught according to current agency guidelines for timeliness and content. Local course instruction will adhere to NWCG standards as outlined in the "Field Managers Course Guide". It is the responsibility of the Training Coordinator (AFMO) to coordinate these activities annually.

Individual employee training and qualifications records will be maintained by the Fire Management Office utilizing the current agency standards. Interagency Qualifications Cards will be issued by the Fire Management Office and certified by the FMO or their designee. Training development will proceed according to NWCG standards outlined in the "Wildland and Prescribed Fire Qualifications System Guide, PMS 310-1". Assignment of trainees will follow current guidelines in regards to prerequisite required training and experience, and issuance/completion of a position taskbook. The FMO, or AFMO in the their absence, will issue and certify all taskbooks ensuring the trainee has met all identified needs and shall be considered qualified for the new position.

The following qualifications list provides a park-wide minimum staffing that will support the average annual on-park fire workload. The list does not include career development, out of area support, or special assignments. Many positions will be held by the same personnel such as an ICT3 may also be a Strategic Operations Planner (SOPL).

**Table 4.1.1.1 Minimum Qualifications List**

| Command & General Staff | |
|---|---|
| **Need** | **Qualification** |
| 3 | Incident Commander Type 3 (ICT3) * |
| 4 | Incident Commander Type 4 (ICT4) |
| 8 | Incident Commander Type 5 (ICT5) |
| 1 | Fire Use Manager Type 1 (FUM1) |
| 2 | Fire Use Manager Type 2 (FUM2) |
| 1 | Prescribed Fire Burn Boss Type 1 (RXB1) |
| 3 | Prescribed Fire Burn Boss Type 2 (RXB2) |
| 5 | Prescribed Fire Burn Boss Type 3 (RXB3) |
| 2 | Safety Officer, Line (SOFR) |
| 1 | Public Information Officer, Type 2 (PIO2) |
| 2 | Public Information Officer (PIOF) |
| **Operations** | |
| **Need** | **Qualification** |
| 2 | Division/Group Supervisor (DIVS) * |
| 3 | Task Force Leader (TFLD) |
| 0 | Strike Team Ldr Crews (STCR) |
| 2 | Strike Team Ldr Engines (STEN) |
| 0 | Strike Team Ldr Dozer (STDZ) |
| 4 | Engine Boss (ENGB) |
| 4 | Engine Operator (ENOP) |
| 1 | Water Tender Operator (WTOP) |
| 0 | Dozer Boss (DOZB) |
| 3 | Crew Boss (CRWB) |
| 10 | Squad Boss (FFT1) |
| 2 | Faller C (FALC) |
| 12 | Faller B (FALB) |
| 4 | Firing Boss (FIRB) |
| 0 | Air Tactical Group Supervisor (ATGS) |
| 0 | Helibase Manager, Type 2 (HEB2) |
| 2 | Helicopter Manager (HMGB) |
| 6 | Helicopter Crewmember (HECM) |
| 1 | Plastic Sphere Disp. Operator (PLDO) |
| 1 | Heli-Rappeller (HRAP) |
| 1 | Helicopter Rappel Spotter (HERS) |
| 0 | Helitorch Manager (HTMG) |
| 0 | Helitorch Mixmaster (HTMM) |
| 1 | Helitorch Parking Tender (HTPT) |
| 4 | Helicopter Long-Line (HELR) |

| Finance | |
|---|---|
| **Need** | **Qualification** |
| 1 | Time Unit Leader (TIME) ** |
| 1 | Procurement Unit Leader (PROC) ** |
| 1 | Cost Unit Leader (COST) ** |
| 1 | Equipment Time Recorder (EQTR) |
| 4 | Personnel Time Recorder (PTRC) |
| 1 | Incident Business Advisor, Type 2 (IBA2) |
| **Planning** | |
| **Need** | **Qualification** |
| 0 | Situation Unit Leader (SITL) ** |
| 1 | Resources Unit Leader (RESL) ** |
| 2 | Status/Check-In Recorder (SCKN) |
| 1 | Long Term Fire Analyst (LTAN) |
| 1 | Fire Behavior Analyst (FBAN) |
| 4 | Fire Effects Monitor (FEMO) |
| 1 | Field Observer (FOBS) |
| **Logistics** | |
| **Need** | **Qualification** |
| 1 | Facilities Unit Leader (FACL) ** |
| 2 | Base Camp Manager (BCMG) ** |
| 0 | Supply Unit Leader (SPUL) ** |
| 0 | Ordering Manager (ORDM) |
| 0 | Receiving & Distribution Manager (RCDM) |
| 6 | EMT Basic, fireline qualified (EMTB) |
| **Dispatch** | |
| **Need** | **Qualification** |
| 5 | Initial Attack Dispatcher (IADP) |
| 5 | Aircraft Dispatcher (ACDP) |
| 5 | Dispatch Recorder (EDRC) |
| 3 | Support Dispatcher (EDSD) |
| 2 | Supervisory Dispatcher (EDSP) |
| **Other** | |
| **Need** | **Qualification** |
| 2 | Wildland Fire Investigator (INVF) |
| 2 | Aerial Observer (AERO) |
| 2 | Security Specialist, Type 2 (SEC2) |
| 1 | GIS Specialist (GISS) |
| 2 | Resource Adviser (READ) |
| | |

*tied to Duty Officer requirements

**may be utilized for local T3 team configuration

| Training Target | |
|---|---|
| **Target** | **Personnel Targeted:** |
| Instructor: B-3 Basic Aviation Safety Training<br>Instructor: M-3 Aviation Management for Supervisors | Lead Helitack, Assistant Fire Management Officer, Helicopter Manager, |
| Fireline Leadership | Park Superintendent, Deputy Superintendent, Chief Park Ranger, Chief Science & Resource Management |
| Fire & Ecosystem Management | Chief Park Ranger, Chief Science & Resource Management |
| Fire Program Management | Fire Management Officer<br>Assistant Fire Management Officer |
| WFDSS Training | Park Superintendent, Deputy Superintendent, Chief Park Ranger, Chief Science & Resource Management, Resource Advisors, FMO/AFMO, Duty Officers |
| Instructors: fire/aviation topics<br>Subject Matter Experts (SME) plus M-410 Facilitative Instructor | All Permanent Fire Staffs |
| NFDRS – S491 | TIDC Center Mgr, Assist. Center Mgr, Lead Dispatchers |

#### 4.1.1.3 Annual Fire Readiness

Annual activities take place to prepare the park for fire season. A list of these activities can be found in Appendix F – Annual Fire Readiness Checklist.

Early in the season, the Fire Management Officer and/or Assistant Fire Management Officer conduct a fire preparedness review using the latest Interagency Fire Preparedness checklists. The review looks at management oversight, fire program management oversight, dispatch, aviation, and suppression resources. Drills and skills testing of modules are also included. A report of findings is filed in the Fire Management Office and sent to the Fire Management Officer in the Intermountain Regional Office.

#### 4.1.1.4 Step-Up Staffing Plan

The plan identifies staffing of initial attack resources, duty officer coverage and additional command positions necessary to manage anticipated events. It also outlines patrol/detection actions, implementation of fire restrictions, and increased interagency coordination responsibilities. Generally actions identified for park resources up to Staffing Level III are programmed in regular preparedness funding. All staffing actions targeted in the approved Preparedness Plan will be funded through the use of preparedness funds. As stated in RM-18 emergency preparedness funds are authorized for those activities in PL's 4 & 5 identified in an approved park Preparedness Plan. This would include additional staffing needs, extensions of tours of duty for initial attack (IA) personnel, contracting aviation resources for air patrol detection flights, and overtime to fund duty officers, IA staffing over lieu days, etc. See Appendix J – Preparedness Plan & Staffing Guide.

#### 4.1.1.5 Pre-Attack Plan

In addition to annual preparedness activities, essential fire management information is compiled in a pre-attack plan, see Appendix H. This plan will be reviewed and updated annually, prior to fire season.

#### 4.1.1.6 Records and Reports

Fire reporting follows guidelines established by NPS policy, DO-18 and the associated RM-18. All park units are required to prepare a written report. The basic report for documenting a wildland fire and prescribed fire activity is the *NPS Wildland Fire Report Form*. The report provides a valuable historical record of the fires. As such, it is important that all fires that occur within the boundaries be documented using, at a minimum, this form and includes fires that go out on their own when the location can be documented. Incidents known as Support Actions and Mutual Aide where personnel respond to fires outside their boundary will also be reported on this form. An individual fire report also provides documentation of fire personnel responding.

The latest version of the Fire Report will be used to document fire starts and responses within 10 days of the fire being declared out. The IC is responsible for completing the report and submitting it to the Assistant Fire Management Officer for review who then forwards the report to the Chief Park Ranger for signature and approval. The report is delivered to the fire program management assistant who enters information into the Wildland Fire Management Information System (WFMI). The WFMI system maintains statistical data on wildland fire occurrence and the use of prescribed fire, and also supports a wide variety of queries and batch reports for data analysis.

A complete fire report will include the following attachments as they pertain to the given fire:

- Situation Map
    - Fire location, perimeter, progression, and tactical maps
- Personnel lists
- Accident reports
- All weather data reports and records
- Additional items documented to file:
    - Any written policies, guidelines & authority statements signed by the Superintendent.

    - Wildland Fire Decision Support System (WFDSS) documentation
        - all response level documents
        - periodic assessments and validation signatures
        - any other approved planning documents (IAP's, maps etc.)
    - Copies of equipment/supplies purchased
    - Press release clippings
    - Documentation of financial charges made against the fire account
    - Rehabilitation plan.
- WY-DEQ project/fire registration and reporting documents
- Monitoring reports and summaries (see Appendix N)
- Detailed cost accounting spreadsheet, showing actual project costs as well as base costs absorbed through other accounts
- Photo archive and log
- Strategic Operations Planner / IC narrative report, and any unit logs.

Additional documentation information generated in longer duration and more complex incidents will be included in a thorough incident documentation package to be maintained at the Fire Management Office.

In addition to fire reporting, fire activity is reported daily to the Great Basin Geographic Area Coordination Center through the Teton Interagency Dispatch Center. Fire information is processed and shared with all fire agencies so that commitments of firefighters and equipment within the region and the nation are coordinated.

An Incident Status Summary (ICS 209) form will be completed by the IC no later than 1800 each day for large fires classified as 100 acres or larger in timber fuel types, 300 acres or larger in grass fuel types or when a Type 1 or 2 Incident Management Team is assigned. All fires being managed for resource or ecological benefit will require either a complete or abbreviate ICS-209. Updates to these fires will be required as the incident changes or it meets the above mentioned requirements. These will be radioed, faxed or emailed immediately to the Teton Interagency Dispatch Center to be reported to Eastern Great Basin Coordination Center.

The National Fire Plan Operations and Reporting System (NFPORS) database will be used for tracking and reporting fuels management activities and accomplishments.

#### 4.1.1.7 Potential Range of Fire Behavior

The range of fuel and weather conditions found in Grand Teton National Park during the historical record of fire seasons is great and varied. Potential fire behavior ranges from conditions too cold, fuels too damp, and days too short to support combustion and sustain free-moving fire to conditions of strong dry cold fronts moving through on late summer afternoons after periods of extended drought which turn active ground fire into sustained crown fire runs through thousands of acres of timber fuels.

In some cases, the effects of fire exclusion can be seen in the buildup of dead and down woody fuels, natural succession of aspen stands to shrub or conifer dominated stands, or the proliferation of older class, even-aged stands of shrublands. In some of these areas fire behavior may be experienced beyond what is typically thought of as the expected range, and with fire effects being more severe than is desired. In particular, large stands of even-aged sagebrush steppe or coniferous forests with extensive buildup of dead and down heavy fuels can produce rates of spread and fireline intensity at a scale beyond what has been witnessed historically or that is desirable. Vegetation and fuels mapping efforts attempt to identify areas in these conditions and help to predict where such fire behavior may occur. The application of prescribed fire, mechanical fuels treatments and management of natural fires are all attempts at precluding the proliferation of such areas and treating fuels to lessen these conditions.

The Cover Type Description found in the Environmental Assessment and the Appendix N – Fire Effects Monitoring Plan describes the expected range of fire behavior by vegetation type across the park.

#### 4.1.1.8 Fire Weather and Fire Danger

Fire danger ratings are issued daily for Grand Teton National Park through the Teton Interagency Dispatch Center based on the Teton Special Interest Group (SIG) which weighs the Grand Teton, Half Moon, and Snider Basin RAWS equally. Weather observations are maintained daily by Teton Interagency Dispatch with oversight and management support provided by the Park FMO or AFMO. The Energy Release Component (ERC) has been selected as the fire danger component for preparedness planning and staffing. While Burning Index has previously been used, ERC provides managers with a smoother index that normally does not change drastically on a day-to day basis. Fire managers need to understand that ERC does not consider the short-term effects of wind on daily fire danger and may need to adjust staffing accordingly.

Fire weather is currently forecast for Park lands by the National Weather Service, Riverton, WY Forecast Office. Fire weather forecasts are produced twice daily during fire season, approx April1 – October 31, and spot weather forecasts are available for federal land managers 24 hours a day, 365 days a year from the Forecast Office. Grand Teton National Park is in Forecast Zone 415 according to the Fire Weather Operating Plan of the Riverton Fire Weather Forecast Office.

Forecast products are available on the NWS - Riverton website: http://www.crh.noaa.gov/riw/fire.htm

#### 4.1.1.9 Weather Stations

Grand Teton National Park maintains one automated weather station to standards outlined in the "Weather Station Handbook – an Interagency Guide for Wildland Managers", the Grand Teton RAWS (Station #480708). The station is located in sagebrush steppe just east of the Timbered Island moraine (43° 43' 25" N Lat, 110° 42' 37" W Long) at an elevation of 6740 ft. The station catalog is maintained in the Weather information Management System (WIMS) and daily observations are archived throughout the fire season (April- October).

A manual NWS Cooperative station is located at park headquarters in Moose, approx 4 ½ miles due south of the Timbered Island site. Observations from that station were utilized prior to the establishment of the RAWS in 1990.

As per fire danger guidance the Grand Teton RAWS was located in fuels and site conditions thought to be representative of an area where problem fires would likely occur. While this open sage flat in the relatively low elevation valley bottom is hotter and drier than most sites in the park, the fire danger outputs particularly those related to the forest fuels, (ERC, 1000 hour fuel moisture) are utilized for many decisions.

**Table 4.1.1.9 Weather Station Fuel Models**

| 1978 NFDRS | Fuel Model | Slope Class | Herb. Fuel Type | Climate Class |
|---|---|---|---|---|
| Primary | G – Short needle conifer | 2 – 26-40% | P - Perennial | 3- Humid |
| Secondary | T- Sagebrush steppe | 1- 0-25% | P- Perennial | 3- Sub-Humid |

#### 4.1.1.10 NFDRS

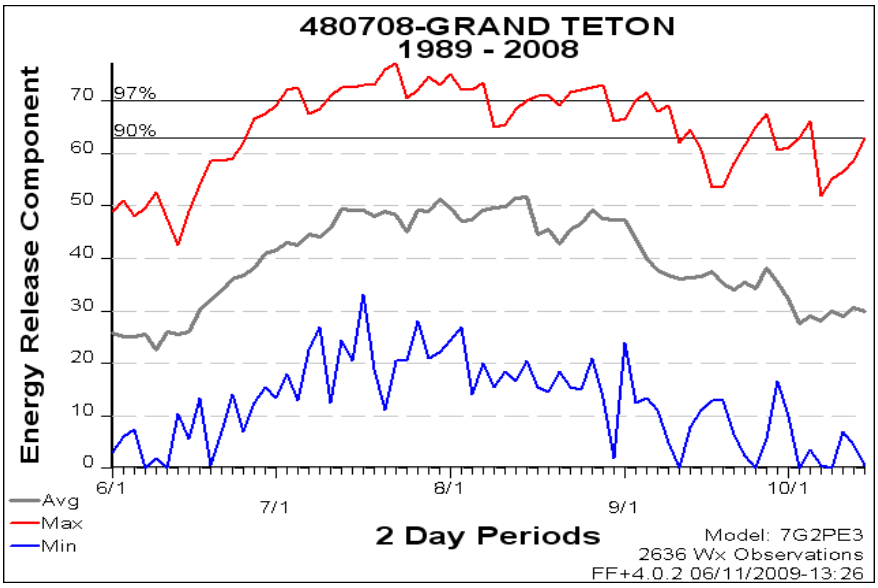
Using the archived fire weather observation NFDRS indices are calculated and forecast for each day during fire season. Key indices and calculated fuel conditions tracked include the Energy Release Component (ERC), Burning Index (BI), woody and herbaceous fuel moistures, and 1000- hr fuel moisture. The ERC and BI are included in the daily fire management report to field personnel along with the day's fire weather forecast. This report is available through the park e-mail system, IT network, and is broadcast daily over the park repeater frequency. Fire Danger Pocket Cards are generated for Grand Teton using the Teton SIG historical analysis of the ERC compared to memorable fire activity. Key local thresholds are described to assist local and out-of-area resources understand indicators of increasing fire behavior.

The ERC trend is utilized to assist managers in making staffing level decisions. The ERC along with fire activity indicators are utilized by fire managers to affirmatively set local Preparedness Levels (PL). The Preparedness Plan for Grand Teton National Park and the Bridger-Teton National Forest

(Appendix J) identifies staffing levels associated with each PL along with required tours of duty, and additional preparedness actions authorized. The following fire danger index thresholds have been identified for the Grand Teton RAWS, based on a 5 class staffing matrix. The fire danger thresholds for the SIG can be found in Appendix J.

**Table 4.1.1.10 Fire Danger Index Thresholds**

| | ERC | Staffing Class | Adjective Fire Danger | Percentile Values |
|---|---|---|---|---|
| **Grand Teton RAWS Fuel Model G** | 0 – 15 | I | Low | |
| | 16 – 30 | II | Moderate | $90^{th}$ – 62 |
| | 31 – 62 | III | High | |
| | 63 – 68 | IV | Very High | $97^{th}$ – 69 |
| | 69+ | V | Extreme | |
| | **ERC** | **Staffing Class** | **Adjective Fire Danger** | **Percentile Values** |
| **Teton SIG Fuel Model G** | 0 – 15 | I | Low | |
| | 16 – 30 | II | Moderate | $90^{th}$ – 59 |
| | 31 – 58 | III | High | |
| | 59 – 66 | IV | Very High | $97^{th}$ – 66 |
| | 66+ | V | Extreme | |




### 4.1.1.11 Fire Prevention Activities

Fire prevention activities are coordinated jointly with other land management agencies and integrated into regular education and information activities and materials.

Grand Teton National Park, through the Wyoming Interagency Fire Restriction Plan (IA Agreement # H1249070030) participates in coordinated implementation and rescinding of area and activity restrictions as fire danger varies. Common terminology, fire danger thresholds and activity restrictions are applied to industry and public regardless of agency land ownership in areas of common fuels and terrain. Initiating and rescinding restrictions is done in a coordinated manner with other area districts and zones.

The plan describes “Partial” and “Full” fire restrictions. Due to other park regulations, partial fire restrictions impose no additional restrictions on the general public. In those cases additional fire danger information is posted at public areas throughout the Park. When “Full” restrictions are implemented the following additional activities are affected:

- All outdoor fires are prohibited.
- Smoking shall be restricted to inside vehicles or buildings, and

- The use of motorized equipment or tools shall be restricted to cleared areas ten feet in radius.

See the Wyoming Fire Restriction Plan, Appendix K, for full description of restrictions and definitions.

An effort by the staff will be made to raise public awareness of fire concerns, including fire prevention messages. Fire management messages will be incorporated into interpretive programs as appropriate. The Park will participate in fire prevention and education activities in the community in conjunction with neighboring fire departments and agencies. Media access to fire scenes will be facilitated when it is safe to do so. When interest is warranted, the Public Affairs Office is designated as the contact for all information requests. They will coordinate interest and media requests with the Chief Park Ranger. See Section 9 – Public Information and Education.

#### 4.1.1.12 Air Quality and Smoke Management

GTNP is classified as a Class I air quality area and John D. Rockefeller, Jr. Memorial Parkway is classified as a Class II air quality area. Under NPS policy, both park units are managed as Class I areas and both are in attainment with federal and state ambient air quality standards. Large and small particulate monitoring in Jackson and Cody, Wyoming are well below NAAQS for both the yearly mean and the 24-hour average concentration, which is a level that may not be exceeded on more than one day per year, after compensating for days when monitoring did not occur.

**Regulatory Overview**

Air pollution sources within national parks must comply with all federal, state, and local regulations. The Clean Air Act (CAA) established National Ambient Air Quality Standards (NAAQS) to protect the public health and welfare from air pollution. To date, the EPA has set standards for 6 criteria pollutants: carbon monoxide (CO), nitrogen oxides (NOx), sulfur dioxide, ($SO_2$), ozone ($O_3$), lead (Pb), and particulate matter less than 2.5 ($PM_{2.5}$) and less than 10 ($PM_{10)}$ microns in diameter.

The NPS has developed guidance for air quality and smoke management related to wildland and prescribed fires (NPS 1999a). This is supplemented by guidance and policies from the EPA (i.e., Interim Air Quality Policy on Wildland and Prescribed Fires, Federal Wildland Fire Management Policy, and PM10 Natural Events Policy). In 1998, the EPA developed an interim policy for addressing impacts of managed wildland fires and prescribed fires on public health and welfare. Ambient air quality below the national ambient air quality standards for $PM_{2.5}$ and PM10 is used as the principal indicator of adverse impacts to public health. Poor visibility is used as the principal indicator of adverse impacts to public welfare. This policy complements the Natural Events Policy, which addresses public health impacts from wildland fires.

The EPA has also developed regional haze regulations to improve visibility or visual air quality in national parks and wilderness areas across the country (EPA 1999). In developing these rules, the EPA recognized that fires of all kinds, including prescribed fire and wildland fires, contribute to regional haze and that there is a complex relationship between what is considered a natural source of fire versus a human-caused source of fire. Given that in many instances the purpose of prescribed fires is to restore the natural fire regime to forest ecosystems, the EPA is working with states and federal land managers to support development of enhanced smoke management plans to minimize the effects of fire emissions on public health and welfare.

Wyoming Department of Environmental Quality (WDEQ) is the governing authority for regulating air pollution from stationary sources in the state. Wyoming recently completed the codification of new smoke management regulations that recognize both the importance of protecting air quality and the role of fire (Wyoming Air Quality Standards and Regulations, Section 10). A comprehensive Smoke Management Plan (SMP), which meets the requirements of the Regional Haze Rule and the Clean Air Act, includes burn activity reporting, smoke reductions techniques, and alternatives to burning. Generally, the agency planning a prescribed fire must notify WDEQ, provide burning location, acreage, vegetation type, fuel conditions, schedule, location of sensitive receptors, and other information.

Prescribed fire projects implemented under this plan will meet the requirements of the state's project registration. The NPS will coordinate with Wyoming's Department of Environmental Quality in order to determine effects on the airshed or public health prior to project implementation. Project registration will include documentation of any alternatives to burning that were considered and emission reduction techniques that are being implemented. The managers will work closely with DEQ to mitigate any identified concerns. Mitigation measures may include burning under different atmospheric conditions for better smoke dispersal, limiting the acres treated in any one burn period to reduce smoke production, burning under different fuel conditions to minimize smoldering and incomplete combustion, etc.

#### 4.1.1.13 Wilderness

The park contains significant areas either recommended for wilderness protection or defined as potential wilderness. NPS policy dictates that potential and recommended wilderness areas are treated as wilderness (so as not to preclude eventual designation). When evaluating the management of wilderness in GTNP, three types of values (biophysical, experiential, and symbolic) associated with wilderness character are considered. Management activities are considered in relationship to detrimental effects they may have on the character of wilderness. Section 4(c) of the Wilderness Act generally prohibits motorized equipment (including vehicles and boats and other forms of mechanical transport), aircraft landings, installations, roads, and commercial enterprise. These prohibited activities may be allowed if they are necessary to meet minimum requirements for the administration of the area, including emergency measures to protect human health and safety. In order to manage these decisions the park utilizes the minimum requirement concept as identified in DO# 41, Wilderness Preservation and Management. This concept is a two-step process, which uses an appropriate level of NEPA documentation:

- To determine if a proposed management action is appropriate or necessary for the administration of the areas as wilderness, and does not pose a significant impact to the wilderness resource and character.
- To select, for appropriate or necessary projects in wilderness, the management method (tool) that causes the least amount of impact to the physical resources and character of wilderness

Site-specific planned fire management activities in wilderness areas are subject to the minimum requirement analysis. The analysis makes use of the least intrusive tool, equipment, device, force, regulation, or practice that will achieve the wilderness management objective. Minimum requirement analyses will be completed annually for aircraft use and expected suppression activities and included in Appendix D. This analysis will be reviewed by the Wilderness Committee and recommended to the Superintendent for approval. Additionally the concept of Minimum Impact Suppression Tactics, described in 4.1.7 and practiced throughout the park, adopts the principle of utilizing the minimum tool necessary to safely and effectively complete the job at hand, while minimizing impacts to the natural and cultural resources.

Under ideal conditions, natural fire should be considered as a fundamental component of the wilderness environment. Fire management activities conducted in wilderness areas will conform to the basic purposes of wilderness. The parks' fire management and wilderness plans together will identify the natural and historic roles of fire in the wilderness and will provide a prescription for response to natural and human caused wildland fires. Actions taken to suppress wildfires will use the minimum tool requirement concept and will be conducted in such a way as to protect natural and cultural features and to minimize the lasting impacts of the suppression actions and the fires themselves.

### 4.1.2 Incident Management

Consistent with GMP/RMP direction, consideration will be given to management of wildland fires for resource benefit where feasible while the use of the most appropriate suppression response may be used where initial attack is determined to be best management strategy. The goal is to utilize tactics commensurate with values to be protected and appropriate for the setting in which they are applied. Multiple objectives may be met on any incident and may change as the fire progresses across the

landscape. There may be fires that that warrant a combination of strategies to meet multiple objectives (firefighter safety, minimize cost, maximize utilization of scarce suppression resources, or avoiding detrimental effects of aggressive direct suppression actions). These situations will be closely managed and appropriate decision documents articulating selected strategies will be developed.

As discussed further in the plan, Minimum Impact Suppression Tactics or MIST is an interagency guideline adopted and endorsed by the National Park Service and to be utilized in Grand Teton National Park.

#### 4.1.2.1 Typical Fire Response Times

Response times for initial attack resources will vary based on fire season and respective fire danger rating and local preparedness levels. Tours of duty typically start and end the year based upon normal business hours to accommodate office centered work tasks. As training is completed and preparedness levels increase schedules are adjusted to cover resources seven days a week and tours of duty shift to cover initial attack needs through the burn period.

Identified initial attack resources shall maintain response times as follows

| Preparedness Level | Response Time |
|---|---|
| I – II | 30 minutes |
| III | 15 minutes |
| III – V | 10 minutes |

Crew callouts during periods after duty hours shall strive to meet a 30-minute response time, taking into consideration the duty station location in relation to employee housing.

Engine contract employees or helicopter pilots under exclusive use will follow the guidelines identified in the contract for after duty hours.

#### 4.1.2.2 Response to Fires

**Initial Attack:**
All unwanted wildfires will receive prompt, safe, and cost-effective suppression actions to extinguish or limit the growth of the fire, regardless of strategies and tactics chosen. Initial attack is an aggressive suppression action consistent with firefighter and public safety and values to be protected. This strategy may be applied to any fire within Grand Teton National Park based on several considerations including, values at risk, resources present, location of fire start, time of season, cause, current/predicted weather and fire behavior.

In those cases where initial actions taken on a wildland fire are unsuccessful a management plan will be developed utilizing the Wildland Fire Decision Support System (WFDSS). This plan will describe strategic and incident objectives, assess relative risk, describe implementation actions, and include an analysis of incident complexity. See Section 4.1.2.9 Decision Support Planning Requirements.

**Resource Driven Responses:**
As with any wildland fire, the number and types of personnel needed to manage a long term incident will vary depending upon the complexity of the incident. According to policy all fires will have someone assigned in the command function which on these fires will be a Strategic Operations Planner (SOPL) or an appropriate incident commander. Personnel assigned may range from a minimum of an assigned ICT4 and periodic monitoring staff to a full Incident Management Team.

Since many fires are generally of long duration, it is to be expected that staffing will increase and decrease throughout the life of the fire based on planning and operational needs and current and predicted fire behavior. Even low-complexity fires may have an initial period of increased staffing in order to complete a thorough risk assessment and detailed implementation plan. Ideally this planning

phase will include input from members of the Fire Management Committee as well as additional resource management specialists appropriate to the identified resources at risk.

The Pre-Planned Dispatch Plan and associated Preparedness Plan for Grand Teton National Park and Bridger-Teton National Forest identifies initial fire responses and minimum staffing levels, including Strategic Operations Specialists, by park/forest based upon local preparedness levels (PL). Given the fact that many wildland fire benefits may only occur under dry and windy conditions (and therefore higher preparedness levels) in many of our high elevation vegetation types, consideration must be given to staffing needs of candidate fires even at the highest PL's. Additional area, regional, and national consultation will occur on fire managed for resource/ecological benefits according to agency policy during national PL's IV and V.

In many low complexity wildland fire actions, operational assignments are infrequent and require little command oversight. In these instances an assigned incident commander may easily manage multiple fires and continue with simple collateral duties. The assigned manager and the agency representative (Chief Ranger) must be diligent in assuring that required attention is being paid to the incident and span of control is maintained. No collateral duties will be assumed when one or more of the wildland fires is active or predicted to become active in the next burning period. In those incidents where operational activities are of such complexity or frequency that an Incident Action Plan is written for the day's operational period or multiple resources are working on the fire line, the assigned SOPL should have no significant collateral duties. If the complexity of the incident is such as to require an assigned Strategic Operations Planner, there should be very few instances where collateral duties are also assigned.

On the ground fire monitoring efforts should be led by a qualified Fire Effects Monitor (FEMO). In lieu of a FEMO, a qualified Field Observer (FOBS) may lead a monitoring crew. In any operational assignment, (monitoring, holding action, burnout, etc.) crew safety and leadership must be considered paramount and qualifications of the leadership need to be commensurate with the tasks assigned to them. In cases where fire behavior is active, significant fire growth is expected and/or multiple operational tasks are being implemented in proximity to the fire, a qualified Incident Commander, Type 4 (or more complex operations qualification) may be assigned to manage the on the ground operations for the period.

Fires managed for resource or ecological benefit will have a plan developed utilizing the Wildland Fire Decision Support System (WFDSS). This plan will describe strategic and incident objectives, assess relative risk, describe implementation actions, and include an analysis of incident complexity. See Section 4.1.2.9 Decision Support Planning Requirements.

#### 4.1.2.3 Initial Fire Report & Mobilization

**Initial Fire Report**

All fires at or near the park should be reported immediately to the Teton Interagency Dispatch Center (TIDC) to initiate a response. If a report is received via telephone, the reporting party should be transferred to the dispatch center. If reporting a fire, an attempt should be made to obtain as much information as possible to complete a thorough Fire Size Up, Appendix I, then report to TIDC.

**Mobilization of Resources:**
Teton Interagency Dispatch Center will dispatch the closest available resources to the fire location. Responding resources, whether NPS or a cooperating agency will meet NWGC standards for training, physical fitness, and currency. Fire dispatch support must be maintained while resources are engaged with the fire.

**Response Procedures:**
- The Teton Interagency Dispatch Center initiates the response of resources based on the Preplanned Dispatch Plan.
- The TIDC will notify the park duty officer of a fire.
- A complete fire size-up (Appendix I) will be broadcast on the radio system when a qualified IC arrives on scene.

- Cause determination and protection of the origin will be incumbent upon the responding resources. If human caused, law enforcement personnel will be called in to investigate.
- If the fire appears to be a natural start and within the prescription parameters for resource benefit strategy, notification will be made to the Duty Officer and appropriate action taken.
- Every fire will have an assigned incident commander (IC). The incident commander will be appropriate for the complexity of the incident. The IC will be made known to all resources assigned to the fire and to the dispatch center and operate under the Incident Command System.
- If the fire is located near the boundaries and there is potential for the fire to encroach onto adjacent lands, the appropriate land owner/management agency will be notified (Appendix M – Interagency Contacts).
- Additional resources will be requested by the IC through the radio system.
- If the fire exceeds or is likely to exceed the qualifications of the IC, they or the Duty Officer will request additional command resources through Teton Interagency Dispatch Center. Changes in command staff will be broadcast on the radio at the time of transition.
- A spot weather forecast will be requested through the TIDC for all fires which exceed initial attack capabilities or have the potential to extend attack past the first operational period.
- The IC is responsible for the fire until relieved by a more qualified IC or until the fire is declared out.
- Declared out status shall be designated at least 24 hours after the last smoke has been identified.

**Fire Location Outside the Park's Boundaries:**
If park personnel are requested to assist with fires outside the area, it is paramount that all qualification requirements are met prior to responding. All engines responding out of the local initial attack zone must be staffed with a qualified Engine Boss.

#### 4.1.2.4 Initial Attack Priorities

The Pre-Planned Dispatch Plan for Grand Teton National Park and the Bridger-Teton National Forest identifies resources to be dispatched upon fire discovery based upon location within an FMU and the current local preparedness level. Beyond drawdown of those identified initial resources, it is the role of the park Duty Officer to establish priorities for committing fire management resources. Information that will be utilized to assist in setting initial attack priorities are:

Imminent threat to firefighter or public safety

Threats to private property and improvements

Wildland urban interface zones

FMP Desired future conditions

Cultural/Archaeological resource sites

Wildlife habitat (T&E species sites)

Length and type of resource commitment

Initial attack resources between the Park and Forest are shared, in particular between the North Zone BTF and the park. In cases of multiple fire starts between jurisdictions and initial attack resources being overwhelmed, close coordination will occur initially between the park duty officer and the N Zone BTF duty officer. In the event of forest wide resources being involved and other zone activity placing demands on unit-wide resources (aviation, crews, overhead, etc.) the park and forest duty officers will coordinate these resource demands. In any case the preceding factors together with those identified in the BTF FMP will guide initial attack priority setting and resource allocation. ***In no case will firefighter or public safety be compromised or considered a lower priority!***

#### 4.1.2.5 Restrictions and Special Concerns

The park was established in part, "to protect the area's native plant and animal life and its spectacular scenic values". It is the goal of the fire management program to manage fire operations so as to

support this enabling legislation. Mitigations can be found in Section 10 – Protection of Sensitive Resource and Appendix X – Fire Management Mitigation Measures.

A significant portion of the park and parkway has been studied for suitability as designated "wilderness". Consideration of wilderness values will be weighed against selection of suppression tactics or fire management operations used in managing fires in these study areas. Specifically the use of motorized equipment (chainsaws, portable pumps, etc.) and aircraft (fixed wing observation, helicopter delivery of personnel) will be assessed using a Minimum Requirements Analysis which can be found in Appendix D.

The park will provide a Resource Advisor (READ) to incoming Incident Management Teams or local incidents extending beyond initial attack. The READ shall have knowledge of local T&E species concerns and habitat considerations, Interagency Grizzly Bear Guidelines, and exotic invasive plants. In addition the READ or Park Archaeologist should be available to brief incident personnel on cultural and historical sites in the fire vicinity. Emergency consultation under Section 7 of the Endangered Species Act will occur on extended attack fires with the assistance of the assigned READ.

Care will be taken to ensure fire management actions do not contribute to the spread of noxious weeds through the carrying of seed on personnel, equipment, apparatus, etc., or the delivery of aquatic diseases and pests (i.e. whirling disease, New Zealand mud snails) during water delivery operations. Helicopter dip sites, engine draft locations, and portable pumps will avoid known infected areas identified through consultation with resource management specialists and special concern will be applied to limit transportation of water from one drainage to another.

#### 4.1.2.6 Potential Impacts

Successful management of wildland fires across the landscape of varying scale, duration, and intensity will benefit the ecosystem and meet park and fire program goals. Managing fires based on resource benefits and associated resources at risk across agency/unit boundaries will meet federal fire policy guidance and begin to manage natural processes in a more reasonable scale than previous unit-specific limits.

Fire activities may affect visitor use opportunities during discrete timeframes of high fire activity. Just as controls on human activity (campfires, smoking, etc.) are enacted during periods of high to extreme fire danger, controls (access) may be implemented in the vicinity of fire activities to ensure public safety. The potential for significant impacts to the visitors, community and local economies are among those elements considered in the development of a management plan. If mitigation of significant effects cannot be effectively implemented, the Park Superintendent may preclude management of the incident based on these factors.

Off-site impacts are likely to be greatest in the realm of smoke generated by a large, long duration fire and the effects on air quality and/or visibility. The state of Wyoming has implemented Smoke Management Regulations under the authority of the Clean Air Act. Grand Teton National Park will work closely with the WY-DEQ to ensure compliance with the regulations and discussion and development of meaningful mitigation actions. Further discussion on smoke is in Section 4.1.1.13

#### 4.1.2.7 Minimum Impact Suppression Tactics

Minimum Impact Suppression Tactics or MIST is an adopted principle of the NWCG. It is the policy of the NPS to apply MIST in all fire management activities on park lands. MIST is not intended to represent a separate or distinct classification of firefighting tactics but rather a mindset how to manage a s while minimizing the long-term effects of the management action. MIST is the concept of using the minimum tool to safely and effectively accomplish the task while minimizing impacts to natural and cultural resources. MIST should be considered for application on all fires in all types of land management.

Suppression forces will determine methods and equipment commensurate with suppression needs and choose a strategy which least alters the landscape or disturbs park resources. This policy is an

attempt to take the national park agency goals into account in firefighting practices; it is not a reason to relax normal safe firefighting practices.

While MIST emphasizes managing wildland fire with the least impact to the land, actual fire conditions and good judgment will dictate the actions taken. Firefighters must primarily consider what is necessary to halt fire spread and provide containment within the fireline or designated perimeter boundary, while safely managing the incident.

*Use of MIST **will not** compromise firefighter safety or the effectiveness of suppression efforts!*

Appendix E contains full MIST guidelines for Grand Teton National Park.

#### 4.1.2.8 Extended Attack and Large Fire Suppression

Throughout the federal land management agencies, initial actions on wildland fires have historically been successful 95% of the time. The National Park Service budget analysis has established a similar threshold as one of the agencies programmatic performance targets (95% success in initial attack suppression actions in the "normal year", with the normal defined as the third highest fire occurrence year in the past ten years).

The escalation in complexity of a wildland fire has historically been one of the potentially most hazardous situations we face and most difficult to clearly define. Multiple interagency checklists and guidelines have been employed to attempt to assist initial attack incident commanders with assessing fire complexity. The initial attack resources in Grand Teton National Park will utilize the most current interagency format available for incident complexity assessments, such as the checklists in the Incident Response Pocket Guide, and the Teton Interagency Incident Organizer.

Factors to consider include:

Span of control

Number and types of operational resources committed

Expected time to control/contain the fire

Number of geographic divisions established

Other Command & General Staff positions filled or needed

As soon as qualified personnel arrive on a fire, an assessment begins utilizing interagency guidelines and checklists. A key part of the initial and ongoing assessment is the completion of an incident complexity analysis. The incident commander must continually review success in meeting incident objectives and the increase or decrease in incident complexity.

**Initial Attack vs. Extended Attack**

In general terms it can be stated that a fire has exceeded initial attack when the fire has not been contained by initial resources dispatched to the fire ***and***

- An alternative strategy is applied to the control efforts, *or*
- The fire exceeds management capabilities assigned to the fire, *or*
- Has not been contained within the first 48 hours ***and*** there is no reasonable estimate of containment or control

The determination of a fire transitioning from initial to extended attack will be made by the Duty Officer in coordination with the incident commander and the Line Officer. These guidelines should be referred to when considering whether or not an RL2/RL3 WFDSS analysis should be prepared for the continued management of the fire. Imperative in any incident complexity analysis is the realization that when the complexity of the fire is escalating it is typically one of the most dangerous periods of incident management.

A fire will be considered extended attack if the initial action is unsuccessful. The initial action may take more than one burning period to be successfully completed, and control of the fire may not be

declared initially, however if the initial action is not meeting suppression objectives and there is no reasonable estimate of containment within two burn periods the fire will be considered in extended attack.

The Pre-Planned Dispatch Plan and Preparedness Plan identify initial attack resources as well as command positions necessary to manage the typical fire season fire load. Included in this matrix of resources are Duty Officers, Incident Commanders (ICT5, ICT4, and ICT3), and Strategic Operations Planners (SOPL). The number and distribution of these resources are identified by Preparedness Levels, with authority to order out-of-area resources to meet these needs should local resources be exhausted.

***The assignment of an Incident Commander, Type 3, in and of itself will not determine that an incident has transitioned to extended attack.***

#### 4.1.2.9 Decision Support and Planning Requirements

All fires will be documented in the Wildland Fire Decision Support System (WFDSS). Upon size up, Teton Interagency Dispatch will input the initial information. An author, typically the FMO or Duty Officer, will then accept ownership of that fire and document decisions made on the fire. WFDSS will be used to describe the situation, evaluate the expected effects, establish objectives and constraints for management of the incident and describe strategies. Ideally much information describing typical effects, unit objectives and expected costs can be pre-identified for use in this process.

Based on the complexity of the incident, three response levels have been identified to describe the level of analysis needed.

> **RL1** –fires that are managed with preplanned actions. Documentation of the decision process will be noted at this level within the document. Fires that are managed for resource or ecological benefit always required a decision process and cannot remain at RL1.
>
> **RL2** – fires that exceed preplanned response or resource/ecological benefits are planned. These fires typically require documentation of objectives and requirements but may not require usage of the full range of WFDSS tools. These fires generally pose low to moderate risk.
>
> **RL3** – fires that are typically higher risk and/or of long duration. These fires require more intensive documentation of decisions and my pose control problems over an extended period. They will include analysis of the fire with some of the tools provided within WFDSS.

The use of an interdisciplinary team in developing the selected alternatives will greatly enhance the usefulness of the process. The team typically would be made up of fire management personnel, Science and Resource Management Personnel and the Chief Ranger. The Superintendent will recruit team members, such as resource specialists, as needed to complete the process.

Consideration of location of the fire start in relation to the fire management units, values currently in the vicinity or expected to be affected, hazards, time of year and fire behavior must be made in determining the response to a fire.

All fires will be documented at RL 1 at a minimum. If a decision is made to take suppression action on a naturally ignited wildland fire, a justification for this action must be written and documented.

For each wildland fire managed for resource benefit, the Superintendent or their designee is required to initially affirm and periodically reaffirm the capability to manage the fire. The Fire Management Committee, made up of park staff, as defined in section 5.3, after reviewing the fire and RL1/2 documentation, provides a recommendation to the Park Superintendent regarding the decision to manage the fire for resource benefit or initiate a suppression action or both. The input from these members addresses many of the concerns identified and ultimately approved by the Superintendent. Many of these fires will not go beyond RL2 in the planning process. Appendix R describes specific procedures for using the WFDSS process.

- Within 8 hours of a confirmed fire detection and fire size up the initial decision must be made as to whether to move forward with managing the fire. This is typically proposed by the FMO or Duty Officer to the Chief Park Ranger, who confers with the Superintendent's Office then gives permission to proceed or not. (RL1 documentation should be complete indicating initial "go" process. Begin work on RL2 for presentation to the Fire Management Committee and long term support.)
- Within 24 hours the Wildland Fire Management Committee is convened and a long term decision to manage the fire will be determined. At this time consideration of objectives, issues with management of the fire, and concerns must be identified so the author can move forward with documentation of the fire. Discussion of RL3 needs will also take place.
- The course of action must be validated upon finalizing a decision on a course of action, including rationale, and signed by the decision Approver (Park Superintendent or their designee).
- A periodic fire assessment timeline will be set as determined at the time of a "go" decision. This should be completed by the Approver or their designee. Typically the timeline is 3-7 days depending upon fire behavior and will be shortened with increased activity so the Park Superintendent is well informed.

If at any time the Park Superintendent determines that the fire cannot continue to be managed within its original approved boundary either due to concerns identified during the revalidation or in the case of the fire exceeding the project area alternate strategies will be determined.

A suppression oriented response that exceeds initial action requires an extended analysis of strategic alternatives similar to the process described above. In accordance with the Interagency Standards for Fire and Fire Aviation Operations the Park Superintendent has approval authority up to $2,000,000, certification of the WFDSS falls to the Regional Director between $2,000,000 – 5,000,000, and cost thresholds over $5,000,000 are certified by the Director of the National Park Service.

#### 4.1.2.10 Incident Complexity and Management Transition

The complexity of an incident is continually being analyzed by the incident commander. Complexity analyses have been formalized and are in use throughout the federal fire agencies. Specific threshold indicators are identified to assist incident commanders and duty officers to realize when an incident's complexity exceeds current management capability. This transition of complexity must be carefully managed in order to ensure the safety of the public and engaged personnel. An extended attack complexity analysis will be completed using either the Incident Response Pocket Guide or the "Red Book" standards as a guide.

The NWCG has established five levels of complexity for wildland fire incidents, I-V. with V being the lowest complexity and I being the highest. The following table describes some key characteristics of typical incidents at each complexity level.

**Table 4.1.2.11 – Key Characteristics of Typical Incidents**

| Type V | Characteristics |
|---|---|
| • Command and General Staff (C&GS) positions are not activated. IC filled at the ICT5 level.<br>• Resources may vary from 1-5 firefighters<br>• The fire is normally contained rapidly during initial action in the first operational period.<br>• A written action plan is not required. | |
| Type IV | Characteristics |
| • C&GS positions not activated. ICT4 may be IC.<br>• Resources may vary from a single firefighter to several single resources or a single task force or strike team.<br>• The fire is normally limited to one operational period in the control phase; mop-up may extend into additional periods.<br>• A written action plan is not required. | |

| Type III | Characteristics |
|---|---|
| • Some C&GS positions may be activated, usually filled at the Division/Group Supervisor (DIVS) and Unit Leader levels. ICT3 / SOPL<br>• Resources may vary from several single resources to several Task Forces/Strike Teams<br>• The fire may be separated into Divisions for geographic ease, but usually does not meet the DIVS position for complexity or span of control<br>• The fire may require multiple operational periods prior to control, and requires a written action plan.<br>• Staging areas and a base camp may be utilized. | |
| Type II | Characteristics |
| • Most or all C&GS positions are filled. ICT2<br>• Base camps/ICP is established<br>• The fire extends into multiple operational periods.<br>• A written action plan is required.<br>• Many of the functional units are staffed.<br>• Operations personnel *generally* do not exceed 200 per operational shift, and total incident personnel do not exceed 500.<br>• Divisions are usually established to facilitate work assignments, a DIVS is required on all active divisions. | |
| Type I | Characteristics |
| • All C&GS positions are filled. ICT1<br>• Operations personnel often exceed 500 per operational period, total incident personnel may exceed 1000.<br>• The implementation of branches may be required, and all active divisions require a DIVS. | |

As stated previously the Incident Commander is continually assessing changing conditions on the fire. As an incident increases in complexity risks to personnel may increase as well. Certain key considerations must be kept in mind.

- ✓ Increasing complexity requires additional support in the areas of command, planning, and logistics as well as the need for managing the operational assignments.
- ✓ FMO, Duty Officer, and the Dispatch Center are key players in assisting the IC in assembling an effective incident organization.
- ✓ There may be significant delays in establishing incident organizations of higher complexity and filling needed organization positions.

During transition periods assigned resources will still manage the fire until such time a transfer of command to an incoming IC or IMT can safely be affected. Typically this should occur at the start of a new operational period.

In any case, a thorough operational briefing needs to occur between outgoing and incoming resources. Clear lines of authority need to be established quickly in order to minimize confusion, maintain operational control, and ensure firefighter safety. As a fire moves into extended attack, consideration must be made by the park duty officer as to which resources will remain committed to the incident and which will be released and made available to meet the ongoing initial attack workload.

#### 4.1.2.11 Delegation of Authority for Incident Commander

Annually a Delegation of Authority and memo outlining Agency Administrator expectations is provided to local Incident Commanders (ICT5, ICT4, ICT3), duty officers, and the Park FMO. (Appendix G) When an Incident Management Team (Type 1 or Type 2) is ordered a written Delegation of Authority will be prepared for the incoming Incident Commander (Appendix G). The Park Superintendent will retain ultimate responsibility for the fire, but delegates management of the incident to the IC. The delegation establishes a clear chain of command and communicates incident objectives and management considerations to the incoming resources. The Delegation may identify key park

personnel assigned to the incident, including but not limited to Agency Representatives (AREP) and Resource Advisors (READ).

The procedure and a briefing document for managing the transition between the Park and an Incident Management Team can be found in Chapter 11 – Incident Management in the Red Book. The transfer of responsibility for suppression actions on the fire will be done officially ONLY through the execution of a Delegation of Authority by the Superintendent or designated acting alternate. The Park Superintendent is responsible for: leading a team in-briefing, direct supervision of the IMT, participating in team meetings as needed, evaluating team performance, and providing an out-briefing upon the team's release from the incident.

## 4.2 Burned Area Rehabilitation

Planning and implementation of post-fire emergency rehabilitation and restoration will follow guidelines set forth in the Interagency Burned Area Emergency Stabilization and Rehabilitation Handbook as well as RM-18 Section 12 Burned Area Emergency Rehabilitation. "No-year" funding is available to allow parks to take immediate or short-term actions to prevent unacceptable resource damage and to minimize threats to life and property resulting from a wildfire.

The Park will use the least intrusive BAER actions to mitigate actual or potential damage caused by a wildfire. The preferred action will be natural recovery of native plant species, except in rare circumstances. BAER actions for prescribed fire are inappropriate and will not be utilized.

Every effort will be made to prevent human-caused impacts during a suppression effort through careful planning and supervision, individual education and commitment and the use of minimum impact suppression techniques.

When rehabilitation is necessary, efforts will be initiated by the Incident Commander throughout fire suppression until it is declared out. If performed after the incident, the park will designate an employee to organize and direct rehab efforts following Burned Area Emergency Rehabilitation (BAER) standards directed toward minimizing or eliminating the adverse effects of the suppression effort with a special emphasis at preventing unacceptable soil erosion. If re-vegetation or seeding is required, only native plant species will be utilized.

Rehabilitation planning for each fire will be the responsibility of the Incident Commander in consultation with the resource advisor. Rehabilitation should be performed prior to complete demobilization. Only under unusual situation should rehabilitation be put off until the following spring.

## 4.3 Prescribed Fire

Prescribed fire is used as a management tool to achieve specific resource objectives or manage hazardous fuels. NPS units are required in DO-18 to "reduce, to the extent possible, hazardous fuels in the wildland urban interface". In many cases similar resource management objectives will be in place on tracts of lands inside and outside the Park's lands. This plan will emphasize cooperation with adjacent land managers, when management objectives coincide, on the implementation of landscape scale fuels and vegetation management projects. The most current prescribed fire burn plan template found in RM-18 will be utilized for all prescribed fire projects.

Hazardous fuels will be assessed in areas of proximity to developments and high visitor use. Prescribed fire alone or in conjunction with mechanical fuel reduction may be used to reduce the risk of loss of these resources during a wildland fire event. Fuels reduction projects will be developed under this plan and receive review as appropriate for compliance with all applicable laws and regulations (NEPA, ESA, NHPA, etc.).

### 4.3.1 Planning and Documentation

#### 4.3.1.1 Annual Activities

Planning for prescribed fire projects is a collaborative process involving all park disciplines for project prioritization, education, design, goal and objective development, implementation, and monitoring. A specific planning/decision process for describing projects from planning to implementation is described in Figure 11.1, and includes required feedback from park planners, resource staff, and fire management staff. This process outlines a project from introduction through implementation and monitoring. The process works around current funding strategies for the Fire Management Branch.

Implementation of prescribed fire projects is completed cooperative with all local cooperators. Scheduling is an important as the same limited resources may be necessary for concurring burn projects. It may be necessary to request out-of-area resources when many agencies are attempting simultaneous project implementation. Coordination with the State of Wyoming Department of Environmental Quality-Air Quality Division is necessary before broadcast or pile burning can occur, see section 4.1.4.

The following list outlines annual activities that must be accomplished in order to successfully complete prescribed burn projects. Additional, site-specific activities are included in the Burn Plan and further explained in the daily Incident Action Plan.

- Update five-year fuels management plan for prescribed fire treatments and submit to Resource Council for approval.
- Coordinate wildland urban interface projects, priorities, and standards for current and future community protection initiatives with all cooperating agencies and affected members of the public.
- Coordinate fire-severity mapping projects with local and regional cooperators.
- Schedule and attend annual interagency fuels and fire effects coordination meeting with interagency cooperators and schedule work crews for project implementation.
- Program annual budget to authorized amounts and management priorities. Request out year budget.
- Provide resources management staff with the updated prioritized project compliance list and maps for proposed summer season contract work.
- Conduct field orientation trips with resource management specialists to further define project areas, goals, and objectives.
- Complete and present fire effects burn unit reports to fire managers, cooperators, resource management, and interested publics.
- Prepare prescribed burn plans and project proposals for review and signature.
- Submit smoke permit requests for all projects through the Wyoming Department of Environmental Quality.
- Complete hiring and training of all seasonal staff.
- Complete annual updates for plans and agreements including the Fire Management Plan, Crew Standard Operating Procedures (SOP's), monitoring plans, and burn plans.
- Procure all field equipment for upcoming season.
- Document completion reports in files and update NFPORS.

#### 4.3.1.2 Long-term prescribed fire strategy.

The prescribed fire strategy for the Park will be to utilize fire to accomplish both resource and fuels management objectives. Fuels treatment in areas adjacent to park developments and boundaries will be prioritized to reduce risk of loss of the resources due to unwanted fire. Prescribed fire will also be

used to target vegetative communities determined to be most significantly affected by the previous policy of fire exclusion. Each of the three fire management units includes opportunities for prescribed fire.

**Wildland Fire Use Unit:** Prescribed fire is used to accomplish both resource and fuels management objectives. Since most of these areas are managed as wilderness, internal review of the specific objectives of the proposed project is critical. Examples of prescribed burns in this FMU would include treatments to restore aspen stand size and vigor, address nonnative insect and disease issues in whitebark pine stands, control noxious weeds, and establish fuel reduction zones around backcountry developments.

**Conditional Unit:** Prescribed fire plays an important role in the conditional unit, primarily in creating fuel reduction zones around developments. Resource management goals are also addressed in the conditional unit with many of the same objectives as the Wildland Fire Use Unit. Prescribed burns create defensible space, break up fuel continuity, create mosaics of uneven aged vegetation, and reduce fuel loadings. These effects may increase comfort levels of decision makers in evaluating natural starts for considerations to obtain resource or ecological benefits.

**Protection Unit:** Prescribed fire combined with mechanical fuel reduction is used primarily as a hazard fuel reduction tool, particularly immediately adjacent to and inside developed areas. Burn units are usually smaller in scale than those in the Conditional Unit and Wildland Fire Use Unit and are focused on specific site improvement objectives. These projects are designed to modify fire behavior to give suppression resources more time and better conditions to protect life and property in the event of a wildfire moving into the area.

The attached 5-year treatment plan (Appendix O) identifies proposed treatment areas and will be updated annually.

#### 4.3.1.3 Personnel Requirements

Prescribed burn planning involves project identification, scouting, objective setting, compliance (Sec. 7 of the Endangered Species Act and sections 106 and 110 of the National Historic Preservation Act), inter- and intra-agency coordination and burn plan writing. Project planning involves an interdisciplinary team and follows the procedures defined in the adaptive management strategy as outlined in Section 11. The following list includes estimated personnel commitments for planning.

- Science and Resource Management: Section 7 of the Endangered Species Act (if the project is not covered by emergency consultation or the programmatic Biological Assessment), other sensitive wildlife, vegetation, air and water quality, and Section 107 compliance consultation and coordination. This includes but is not limited to field trips, planning meetings, research, writing and consultation and coordination.
- Fire Management Office: Complete project proposals, scouting, mapping, park level coordination, public information, and plan writing.

Prescribed burn site preparation involves physical work necessary to implement the project including construction of holding lines, fuel reduction (line preparation and powerline preparation), mitigations for sensitive resources including nesting birds, cultural or archeological sites, historic structures, and park administrative facilities and infrastructure. The following list includes estimated personnel commitments for preparation.

- Science and Resource Management: Resource advisor role including field trips and consultation.
- Fire Management Office: Identification and implementation of preparation needs to include Individuals for completion of work.

Burn implementation involves the physical work of carrying out the planned event including public information, ignitions, holding actions, patrol, and mop-up.

- Science and Resource Management: Resource advisor role including operations observation and consultation.

- Fire Management Office: Individuals to coordinate (burn boss), ignite, hold, monitor, patrol, and mop-up prescribed fire operations depending upon the complexity of the project. Prescribed fire qualification requirements are typically a burn boss type II (RXB2) and at times require an RXB1. Most instances a task force leader can be used as a holding specialist but a division supervisor may be necessary for more complex projects.

Project evaluation involves pre and post burn monitoring plot installation and re-reads which occur from 1-2 years pre-burn to 5+ years post burn.

- Science and Resource Management: Feedback on results of cultural and natural resource monitoring compared to objectives and may include research and consultation.
- Fire Management Office: Installation and rereads of vegetation monitoring plots, fire behavior observation monitoring, data analysis, and presentation of data. Includes the various pre and post fire work involved in producing and presenting high quality monitoring data. A FEMO will be assigned to all prescribed fires.

#### 4.3.1.4 Monitoring

All projects will have identified project objectives tiered from park resource or management plan goals and objectives. In accordance with current policy, assigned resources will monitor fuels, weather, fire behavior, and smoke concerns during project implementation. This data will be documented and included in the project file. The implementation plan will identify the strategies for monitoring and evaluation of project success as discussed in Section 6.

#### 4.3.1.5 Critiques of Prescribed Fire Projects.

Documentation of prescribed fire implementation will include a narrative summary report compiled by the Burn Boss with input from various project resources (holding, ignition, monitoring, etc.). This will be included in the project file. Section 11 specifies program and project level critiques required under NPS policy. All units conducting prescribed fire and fuels treatment will conduct at a minimum a local level critique of project accomplishments each year that projects are implemented.

#### 4.3.1.6 Reporting and Documentation Requirements.

Project reporting and documentation is specified in the project implementation plan, including responsible parties and required timeframes. A complete project file will include the following:

- A completed and signed burn plan, including any amendments and signed copies of both the Agency Administrator GO/NO GO Checklist and the Operations GO/NO GO checklist
- Completed and signed Individual Fire Report, including project map (completed within 10 days of the prescribed fire being declared out). See the reporting procedures in Section 4.1.2.
- Digitized project map
- WY-DEQ burn registration and reporting documents
- Fire monitoring narrative report
- Detailed cost accounting spreadsheet, showing actual project costs as well as base costs absorbed through other accounts
- Burn Boss narrative report, and any unit logs. Completed prescribed fire projects will have a prescribed fire project summary written by the burn boss within 30 days of the completion of the project. This report will include baseline information useful in describing the initial impressions of the burn boss in the projects effectiveness in meeting objectives, effectiveness of prescriptions, and effectiveness of operations.
- Update to NFPORS database showing costs and accomplishments

Prescribed fires that exceed unit boundaries and cannot be contained within 1 burning period using on-site holding resources will be declared a wildfire and must be managed through strategies determined by the Wildland Fire Situation Analysis (WFSA) process (RM-18 Ch 10). This process will serve as the official documentation of the escape and subsequent management responses. An Individual Fire Report will be completed for both the prescribed fire and the wildland fire.

#### 4.3.1.7 Historic Fuel Treatment

Prescribed burning in Grand Teton National Park includes broadcast burning for hazardous fuels reduction and resource management objectives, and pile burning to remove slash produced from mechanical or manual fuel reduction projects. Prescribed burning in Grand Teton National Park has occurred since the early 1990's and in the Teton Interagency area since the 1970's. Primarily prescribed burns have been focused on fuel reduction objectives, however; it is acknowledged that some projects also targeted secondary objectives for habitat restoration. (Lower Spread Creek 1997, Blacktail South 1998, Cow Lake 1999). A GIS database is available for projects implemented in the park and surrounding area.

#### 4.3.1.8 Prescribed Fire Burn Plan

Prescribed fire burn plans are required for every prescribed fire application. The currently approved template for a prescribed fire is included in RM-18, Section 10, Fuels Management. In the case of an interagency project an approved plan will include all required elements described in NPS policy and require review and approval by agency administrator(s). All burn plans will be technically reviewed by an appropriate burn boss.

### 4.3.2 Exceeding Existing Prescribed Fire Burn Plan.

Every prescribed fire plan will include a section describing actions required if the fire should exceed project boundaries or prescriptive criteria. In many cases these conditions will be temporary and short in nature and will not cause the fire to be declared a wildfire.

RM-18 Section 10, Fuels Management states that in the case of a prescribed fire exceeding project boundaries that cannot be controlled within one burn period utilizing project resources, that prescribed fire will be converted to wildfire status. Upon conversion, suppression actions should be initiated, an incident commander assigned, and selection of a new management strategy will be selected as described in a Wildland Fire Situation Analysis. To the extent possible, pre-identification of resource needs, incident commander, and fire transition, including responsible parties for WFSA planning should be made in the prescribed fire plan.

## 4.4 Non-Fire Fuels Treatment Applications

Planning for fuels projects is a collaborative process involving all park disciplines for project prioritization, education, design, goal and objective development, implementation, and monitoring. Once a project is proposed an interdisciplinary group will devise an implementation strategy to meet the project objectives including fuels treatment objectives, project prescription, project boundaries, timing, areas of special concern, and monitoring and evaluation.

Since legislation was passed implementing the National Fire Plan, reducing fire risk to identified wildland/urban interface communities is a special emphasis area within prescribed fire and fuels management. A collaborative process has been underway between state, tribal, and local government officials with adjacent federal land managers to identify communities at risk and prioritize those areas for fire and fuels treatment. In Wyoming the State Forestry Division has published a list of communities at risk developed by federal land managers and their respective county representatives. This collaborative process is intended to be an ongoing effort with periodic reviews of completed projects and re-assessments of residential and infrastructure developments in and around federal lands.

Non-fire fuel treatments activities include:

- Mechanical cutting and piling of forest vegetation and debris by handcrews utilizing chainsaws, handsaws, loppers, and axes.
- Mechanical cutting and scattering of sagebrush/steppe vegetation by handcrews using chainsaws, brush cutters, and hand tools.
- Mechanical cutting and scattering of sagebrush steppe vegetation by tractor powered flail or rotary type mowers, lawn mowers, and weed eaters.

### 4.4.1 Mechanical Treatment and Other Applications

#### 4.4.1.1 Annual Activities

The following list outlines annual activities that must be accomplished in order to successfully complete mechanical treatment projects.

- Update five-year fuels management plan for mechanical treatments as submission to Resource Council for approval.
- Coordinate wildland urban interface projects, priorities, and standards for current and future community protection initiatives with all cooperating agencies.
- Coordinate fire severity mapping projects with local and regional cooperators.
- Schedule and attend annual interagency fuels and fire effects coordination meeting with interagency cooperators and schedule work crews for project implementation.
- Program annual budget to authorized amounts and management priorities. Request out year budget
- Provide resource management staffs (especially biologists and archeologists) with the updated prioritized project compliance list and maps for proposed summer season contract work.
- Complete and present mechanical treatment reports to fire managers, cooperators, resource management, and interested publics.
- Prepare project proposals for review and signature.
- Submit smoke permit requests for all projects through the Wyoming Department of Environmental Quality. (For pile burning following mechanical reduction)
- Complete hiring and train seasonal staff.
- Complete annual updates for plans and agreements including the Fire Management Plan, Crew SOPs, Monitoring Plans, and project descriptions.
- Procure all field equipment for upcoming season.
- Conduct field orientation trips with resource management staff to further define project areas, goals and objectives.
- Document completion reports in files and update NFPORS.

#### 4.4.1.2 Equipment and Seasonal Use Restrictions

All projects will have identified project objectives tiered from park resource or management plan goals and objectives. Applicable equipment and season use restrictions previously described also apply to fuels reduction projects. See section specific restrictions found in Section 4.1.7 Minimum Impact Suppression Techniques, and Section 10 Protection of Sensitive Resource. A minimum requirement analysis will be completed for all projects proposed in the wilderness or proposed wilderness portions of the park.

#### 4.4.1.3 Monitoring

All projects will have identified project objectives tiered from park resource or management plan goals and objectives. In accordance with current policy, assigned resources will monitor project implementation. This data will be documented and included in the project file. Included in the implementation plan will be the strategies for monitoring and evaluation of project success. This program of monitoring is discussed further in Section 6.

#### 4.4.1.4 Critiques of Non-fire Fuels Treatments

Documentation of project implementation will include a narrative summary report compiled by the project lead. This will be included in the project file. Section 11 specifies program and project level critiques required under NPS policy. All units conducting fuels treatment will conduct at a minimum a local level critique of project accomplishments each year that projects are implemented.

#### 4.4.1.5 Reporting and Documentation Requirements

Project reporting and documentation is specified in the project implementation plan, including responsible parties and required timeframes. A complete project file will include the following

- A completed implementation plan.
- Digitized project map
- WY-DEQ burn registration and reporting documents (if applicable)
- Monitoring narrative report
- Detailed cost accounting spreadsheet, showing actual project costs as well as base costs absorbed through other accounts
- Any unit logs
- Update to NFPORS database showing costs and accomplishments

#### 4.4.1.6 Annual Planned Project List

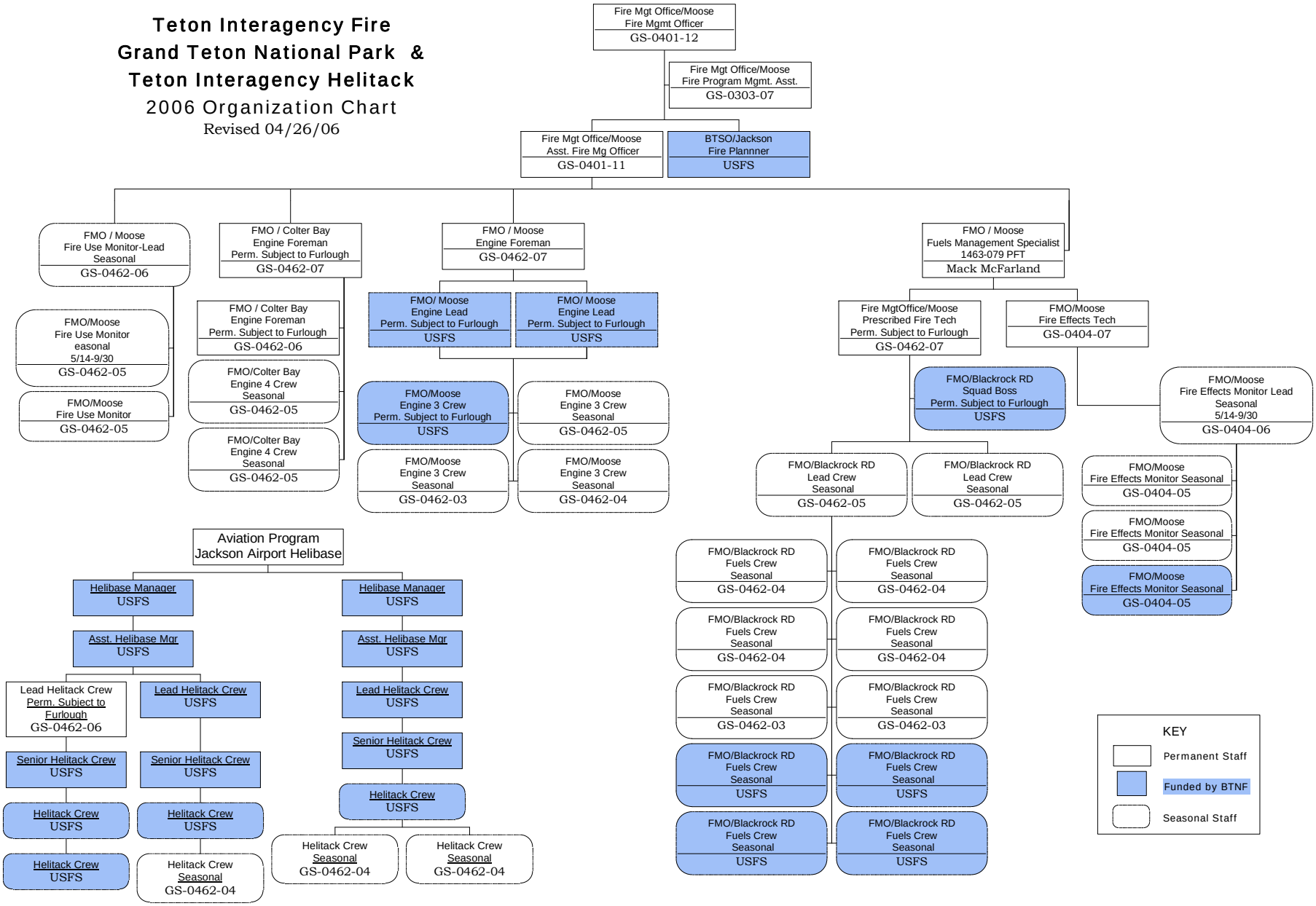
The five-year project plan, Appendix O, will be updated annually showing accomplishments, adding new projects to the list as necessary and following the adaptive management process. Planning for fuels projects is a collaborative process involving all park disciplines for project prioritization, education, design, goal and objective development, implementation, and monitoring. Once a project is proposed an interdisciplinary group will devise an implementation strategy to meet the project objectives including fire management and/or fuels treatment objectives, project boundaries, timing, areas of special concern, and monitoring and evaluation.

# 5 ORGANIZATIONAL AND BUDGETARY PARAMETERS

## 5.1 Organizational Structure

This section discusses areas of responsibility for implementation of the fire management program by specific Park personnel. The purpose of this section is to clearly define areas of responsibility, provide clear direction and accountability, and further the development of a responsive fire management program. Additionally delegated roles and the limits to such delegations are clearly defined. Not all positions within the fire management organization have responsibilities identified below. Key program elements and responsibilities are outlined at least to a work group and responsible party. The full fire management program organization chart, including shared positions with the Bridger-Teton National Forest is detailed in Table 5.1.

**Figure 5.1 – Fire Management Organization**



**Superintendent**

Fire management at Grand Teton National Park is the responsibility of the Superintendent, with technical duties and accompanying responsibilities delegated to staff members. The Superintendent will be responsible for management of the program within Departmental and National Park Service policy, Director's Order 18 Wildland Fire Management (DO-18), and all relevant laws and regulations, including performance standards outlined in "Interagency Standards for Fire and Fire Aviation Operations, *Red Book*". As such, the Superintendent:

- Ensures that a comprehensive fire management program is adequately planned, staffed, and implemented and that the Fire Management Plan is reviewed annually and revised as necessary.
- Secures funds and personnel needed to meet the objectives of the park's fire management program through annual budget submission.
- Ensures all park divisions support the team effort to maintain a fire management program.
- Approves the park Fire Management Plan.
- Approves the park Aviation Management Plan.
- Approves prescribed fire plans and Individual Fire Reports. (Delegated to Chief Park Ranger)
- Maintains and facilitates public and media relations pertaining to fire and fuels activities.
- Approves Wildland Fire Decision Support System (WFDSS) as needed for fires commensurate with financial authority to $2,000,000.
- Provides written Delegation of Authority to Fire Management Officer annually outlining operational authority.
- Provides written Agency Administrator Expectations for all IC's and firefighters.
- Delegates limited authority to Incident Commanders and Prescribed Fire Burn Bosses for implementation of approved plans and emergency actions associated with fire activities as allowed by NPS policy.
- Approves use of off road, tracked firefighting resources, this may include dozers, graders, and the like.
- Ensures appropriate reviews, critiques, and investigations are conducted.

**Acting Superintendent**

The Acting Superintendent is delegated full decision authority and program oversight in lieu of the Superintendent. Should both the Superintendent and Deputy Superintendent be absent from the park, delegated decision authority for fire management operations will fall to a management team member meeting the minimum competencies identified in the Interagency Fire Program Management standards (attendance at Local Fire Management Leadership class) and preferably attendance at the Fire in Ecosystem Management class as well. Annually those management team members meeting this standard will be identified for the upcoming season. It is expected that these above listed duties will typically be limited to the Chief Ranger and/or the Chief, Science & Resources Management.

**Chief Park Ranger**

The Chief Park Ranger has overall responsibility for integration of fire management activities with other regular park operations and emergency incident operations. Specifically, this position

- Recommends approval of the Fire Management Plan to the Superintendent.
- Responsible for overall coordination, direction, and supervision of wildland fire activities, prevention and preparedness, prescribed fire and fuels management and aviation.
- Is delegated the authority from the Superintendent to review and approve all Individual Fire Reports.
- Briefs the Superintendent on current and predicted fire management activity and gives initial go decision on fires being managed long term.
- Serves as chair of the Fire Management Committee. Presents approved committee recommendations to the Superintendent for decision.
- Recommends prescribed fire burn plans to the Superintendent for approval.
- Directly supervises the Fire Management Officer, and second line supervision of the Teton Interagency Dispatch Center, Center Manager.

**Chief, Science & Resources Management**

The Science & Resource Management Chief has responsibility to integrate resource management objectives and concerns into fire management operations. This position

- Participates on the Fire Management Committee.
- Ensures active involvement from S&RM staff in development and/or pre-planning of Wildland Fire Decision Support System to ensure resource concerns are identified and articulated.
- Provides professional opinion and interpretation of the pertinent ecological research in fire history, fire ecology, and its relationship to the park's natural and cultural resources.
- Works with fire management staff to identify and facilitate necessary fire-related research.
- Ensures qualified Resource Advisors are on staff and available for local fire assignments.
- Ensures participation of appropriate resource management staff in Resource Council review and recommendations regarding planned activities (prescribed fire and fuels management projects, etc.).
- Completes coordination and consultation with the U. S. Fish & Wildlife Service and the Wyoming Historic Preservation Office on planned and unplanned (emergency consultation) fire management activities.

**Fire Management Officer**

The Fire Management Officer is the identified position within the organization that is responsible and accountable for providing leadership for the fire and fire aviation management program. Specifically, the FMO

- Is responsible for day-to-day fire management program activities. Implements operational aspects of the Fire Management Plan (FMP) and the annual budget.
- Ensures implementation and execution of all aspects of the Fire Management Program.
- Is responsible for reviewing the FMP annually and revising as needed.

- Serves as park Aviation Officer and implements the park's approved Interagency Aviation Management Plan (AMP).
- Reviews the AMP annually and updates as necessary.
- Is responsible for completing the prevention analysis to determine the level and type of prevention effort required by the park.
- Completes annual budget analysis and submission for base and project funding, including supplemental requests for capital equipment, facilities, and/or special projects.
- Coordinates the implementation of this plan with other governmental agencies administering adjacent lands and with local landowners. Develops and implements cooperative fire management agreements with other federal, state, and local agencies and with the local landowners.
- Maintains liaison with interagency cooperators through annual meetings to review agreements.
- Ensures that both a briefing statement and delegation of authority are prepared for incoming Incident Management Teams.
- Works with Science and Resource Management to coordinate fire research efforts, and assures the assignment of a resource advisor for project fires or prescribed fires.
- Serves on the Operations Group Chair of the Board of Directors for the Teton Interagency Dispatch Center (TIDC).
- Provides fire management oversight and guidance to the following Wyoming Area parks that have no dedicated fire management staff (Bighorn Canyon National Recreation Area, Fort Laramie National Historic Site, and Fossil Butte National Monument). May provide additional staff support as needed during fire management actions at these units.
- Approves all Incident Qualifications Cards "Red Cards" as delegated by the Superintendent.
- Issues and certifies all position task books in the Incident Qualifications and Certification System.
- Ensures completion of an annual Preparedness Review for all fire management program components and area parks.
- Serves as a member of the Fire Management Committee. Prepares necessary evaluation information for each fire, provides timely update of current and predicted fire behavior, and provides technical advice and recommendations to the committee.
- Coordinates fire information releases and updates with park Public Affairs staff.
- Manages information dissemination regarding fire program through news releases, website updates, and public meetings.

**Assistant Fire Management Officer (AFMO)**

The AFMO is responsible for day to day implementation of fire management operations in the park. The AFMO oversees initial attack resources (suppression, fire monitoring), cache management, and the fuels management program. The AFMO may also function as Acting Fire Management or Aviation Officer during periods of the FMO's absence. (The AFMO supervises the Prescribed Fire & Fuels Specialist, the Engine Foremen, Fire Monitoring crew, and the park-funded Lead Helitack Crew position.) The AFMO is

- Responsible for initial attack resources and implementation of appropriate management response to wildland fires.
- Ensures appropriate tactics are implemented on fire management operations and fire control and fireline rehabilitation standards are understood and adhered to.
- Responsible for the oversight of safe operations on all wildland and prescribed fires.

- Ensures adequate inventory of equipment and supplies to efficiently implement the fire management program.
- Responsible for completion of and timely updates to current fire weather trends, fire danger, and fire potential outlooks throughout the fire season.
- Assesses current conditions and completes fire severity requests when appropriate.
- Assures resources are at hand to meet day-to-day initial attack needs, including ordering out-of-area resources to meet pre-identified IA operational and command requirements.
- Coordinates the management of shared park/forest operational resources (helitack, engines, fire monitors, and fuels crew) with appropriate forest personnel.
- Assures adequate fire-training opportunities are available to Park personnel to maintain predetermined fire qualification skills in critical positions.
- Functions as Fire Training Coordinator, coordinates local training needs analysis, local training presentation schedule, and submits nominations to higher level training offered in the geographic area and national training centers for all incident qualified park staff.

**Prescribed Fire & Fuels Specialist**

The Prescribed Fire & Fuels Specialist is responsible for implementation of the long-term prescribed fire and fuels management strategy outlined in this Plan. (The RX Fire & Fuels Specialist supervises the Prescribed Fire Technician, Fuels Management Crew, and Fire Ecologist and crew.) Additionally, they,

- Maintains the multi-year fuels and prescribed fire treatment plan; completes project scouting, coordinates project design, completes implementation plans, implements projects, and ensures appropriate monitoring and evaluation occur.
- Ensures the preparation of individual prescribed fire plans in accordance with RM-18, including plan review and recommendation and submits each prescribed fire plan to the Superintendent through the Chief Park Ranger for approval prior to implementation schedule.
- Implements the annual prescribed fire program, including implementing approved prescribed fires as Burn Boss or other qualified skills.
- Ensures that adequate personnel are available as required to implement prescribed fire plans and are available and committed to project implementation.
- Identifies key qualifications and program deficiencies in implementing prescribed fire and fuels program.
- Ensures safe work practices in the implementation of prescribed fire and fuels projects.
- Completes periodic project inspections to ensure completion to identified specifications and timeframes.
- Coordinates fuels management workload with Bridger-Teton NF fuels personnel in the use of shared fuels management personnel (fuels and fire effects crews).
- Functions as Contracting Officer's Technical Representative in the management of contract resources implementing fuels management projects.
- Maintain open communications with S&RM staff to facilitate project design and implementation to both meet resource objectives and mitigate resource concerns.

**Fire Ecologist**

The Fire Ecologist leads a program of acquiring and interpreting monitoring data related to the effectiveness of fuels management activities. (The Fire Effects Specialist supervises one Permanent Fire Effects monitor and a crew of seasonal Biological Technicians, fire effects crew.) Specifically they will

- Schedule and coordinate the seasonal workload to meet plot installation and re-visit needs.
- Coordinate workload across park and forest fuels management activities.
- In coordination with fuels specialists, devise monitoring protocols to measure project effectiveness.
- Oversee fire severity mapping efforts for large-scale wildland fires in the park and forest, including ground-truthing data derived from remotely sensed images.
- Provide professional opinion and data interpretation in the fields of fire ecology and monitoring program design and effectiveness to fire management staff.
- Maintain open communications with S&RM staff to facilitate project design and implementation to both meet resource objectives and mitigate resource concerns.
- Coordinate with park interpretive staff to ensure accurate fire ecology messages are included in park visitor programs.

**Fire Planner / GIS Specialist**

The Fire Planner / GIS Specialist provides interagency fire planning support for the budgetary process, Fire Program Analysis. Additionally in GIS they provide data acquisition and management and technical support to the planning and implementation of the fire management program. This position directly supports both Grand Teton National Park and the Bridger-Teton National Forest. The GIS Specialist

- Develops out year budget using the Fire Program Analysis (FPA) process. Troubleshoots difficulties with the new program and makes recommendations to management.
- Provides technical expertise on the FPA process in other areas as requested.
- Maintains technical references, maps, and aerial photos for the fire program, documenting spatial fire data (perimeters, severity mapping, point data, etc.).
- Maintains databases necessary for fire program analysis (vegetation, fuels, fire occurrence, resources at risk) and fire modeling programs according to identified standards and in format to be useable across local interagency boundaries (Jackson-Teton County, Bridger-Teton and Targhee National Forests, and Yellowstone National Park).
- Provides technical expertise to provide support to fuels and fire modeling efforts for project and wildland and prescribed fire planning.

**Fire Program Management Assistant**

The Fire Program Assistant provides administrative function support to the fire management program as well as subject matter expertise to the park in the specialized role of incident business management. Specifically, they will

- Administer and manage the authorized budget annually, establish accounts, track expenditures, and close out accounts at fiscal year end.
- Provide account summaries to managers throughout the fiscal year in order to facilitate spending and supply/equipment procurement.

- Budget and track personnel services costs as scheduled by managers, provide updates through the fire season to effectively utilize authorized funds.
- Procure supplies, equipment, and services for the Branch according to procurement rules and warrant limits.
- Maintain payroll and leave and earnings entries, and enter personnel actions in FPPS,
- Reviews seasonal hiring packages to ensure all requirements are met prior to submittal to personnel.
- Complete travel authorizations and vouchers for all branch travel and fire incident travel for all park staff.
- Document and approve all fire related timekeeping for traveling park resources.
- For local fire actions, complete all comp/claim, purchasing, time and cost documentation unless incident complexity warrants out-of-area support functions.
- Review and update fire training and fire experience records in the Incident Qualifications and Certification System (IQCS).
- Enter completed Individual Fire Reports in appropriate databases (WFMI) according to agency timelines and standards.
- Provide budgetary guidance and fire business support to the following Wyoming Area parks that have no dedicated fire management staff (Bighorn Canyon National Recreation Area, Fort Laramie National Historic Site, and Fossil Butte National Monument). May provide additional staff support as needed during fire management actions at these units.

**Other Fire Management Positions/Responsibilities**

**Park Duty Officer**

The Bridger-Teton National Forest and Grand Teton National Park have entered into an interagency Pre-Planned Dispatch Plan (Appendix J) to direct assignment of initial attack resources based upon location and current preparedness levels. That plan is designed to cover those situations where initial attack resources are sufficient to cover local zone and unit fire activity. In many cases multiple fire start situations and elevated preparedness levels will dictate the need to deviate from initial pre-planned responses based upon resources at risk and life/safety priority setting. It is the role of the Duty Officer to work closely with the adjacent unit Duty Officer (N Zone BTF or BTF Forest) and the TIDC IA Dispatcher to coordinate and prioritize initial attack responses in these situations. Duty Officer responsibilities are further explained in Appendix G.

The experience and qualifications needed to provide the skills and abilities to perform as the Duty Officer can be varied. The following guidelines cover a range of qualifications and experience in a variety of functions that generally contribute to the overall competency of the Duty Officer. No one qualification is determined to be required to meet this level, rather a combination of skills from each function is desired.

> **Command**: Incident Commander, Type 3 (ICT3), Strategic Operations Planner (SOPL), Prescribed Fire Manager, Type 2 (RXM2)
>
> **Operations**: Task Force Leader (TFLD), Division/Group Supervisor (DIVS)
>
> **Fire Behavior**: Fire Behavior Analyst (FBAN), Long Term Fire Analyst (LTAN), Field Observer (FOBS)
>
> **General Staff**: Safety Officer, Type 2/3 (SOF2/3)

During the identified fire season (June 15 – September 30) a Duty Officer will be on call through TIDC. During periods of elevated preparedness (PL 3 and higher locally) the duty officer position will

be staffed 7 days a week through the burn period, in addition to being on call. The FMO will provide a list of designated Duty Officers annually prior to the start of the fire season.

Primary responsibilities of the Duty Officer are as follows:

- Assignment of fire management personnel to fires based upon incident priorities, resources at risk, tactical needs, and IA resource capability and qualifications.
- Daily coordination with Teton Interagency Dispatch Center, BTF Forest and Zone Duty Officers during PL 3 – 5.
- Assess fire management resource fatigue by monitoring personnel and implementing work-rest guidelines.
- Monitor all fire activities with emphasis on fires that are transitioning in complexity to ensure appropriate plans are in place, ICS is clear, and all necessary command & general staff positions are staffed as needed.
- Monitor incident complexity to ensure assignment of appropriate Incident Commanders.
- Assist Superintendent in completion and understanding of all wildland fire decision support (WFDSS) documentation.
- Monitor fire management operations to ensure 10 Standard Orders and 18 Situations that Shout Watch Out are followed.
- Ensure notifications to park management are made regarding fire activity and issues of concern.

**Incident Commanders/Burn Bosses/Strategic Operations Planners**

The command function for each operation has the responsibility for management of the incident.

- Manage the incident according to the approved plan, and within the policies, guidelines, and standards of the National Park Service.
- Submit information necessary for completion of fire situation reports to the Teton Dispatch Center and advises Duty Officer of fire situation.
- Complete the Individual Fire Report within 10 days of a fire being declared out or mobilized resources returning to home unit. See Section 4.1.1.6 Records and Reports.
- Adhering to 30 mile abatement as outlined annually by Agency Administrators to red carded personnel. (Appendix G)
- Performing and documenting after action reviews.
- Completing appropriate Incident Organizer information.

**Teton Interagency Dispatch Center**

The Teton Interagency Dispatch Center (TIDC) performs fire, aviation, and all-risk incident dispatching for Grand Teton National Park and the Bridger-Teton National Forest. The Center Manager works directly for the Fire Management Officer. Center operations are guided by an interagency Board of Directors and Operations Group. The FMO's of both the Park and Forest are members of the 4-person Operations Group.

Primary responsibilities for the TIDC to the fire management program are as follows:

- Full spectrum dispatching of all fire incidents (initial attack, extended attack, aviation, etc.).
- Resource ordering, statussing, and mobilization of all local and out-of-area resources committed to the area.

- Daily archiving of fire weather observations from Grand Teton RAWS unit from April 1 – October 15.
- Compilation and dissemination of daily fire management report including current fire danger, fire weather forecast, fire activity, and local IA resource staffing during fire season and as activity warrants.
- Completing daily entry of unit fire activity (SIT Report) according to identified standards and timeframes as outlined in the Great Basin Mobilization Guide.
- Entry and submission of all Incident Intelligence Summaries (ICS-209) according to established standards, timeframes, and guidelines as outlined in the Great Basin Mobilization Guide.
- Mobilization of local resources to out-of-area assignments to include completion of a resource order, travel arrangements, and statussing of the resource until return.
- Advises and informs the Chief Ranger, Superintendent, and Public Affairs, of all fire activity information in priority manner.

## 5.2 Funding

Fire management funding for the NPS is derived from 2 sources, one fixed and the other a shared national fund for emergency wildland fires.

Fixed funds at the NPS level are managed for program operations and planned projects (authorized project funds). Park fire operations and projects include preparedness activities, permanent staffing, training, monitoring, fire GIS, fuels management, fire prevention and education, aviation and equipment purchases. These funds are currently based on the last FIREPRO analysis and budget process, which is an analysis of workload and complexity, based on the third worst year in the previous ten. The FIREPRO budget process will be replaced by the Fire Program Analysis (FPA) system in the future which is an interagency planning process designed to increase economic efficiency through promoting more accurate allocations of shared resources and personnel. This process is ongoing and requires time, energy and personnel commitment for the Park as well as the Wyoming Cluster Parks. Although the interagency planning process is new, GTNP and BTNF have had shared positions and equipment for a number of years, which has led to an efficient and economic organization. These shared resources include aviation, suppression, fire monitoring, fire effects, GIS, education/prevention, dispatch, fuels management, and overhead positions.

National emergency funds are managed for wildland fire operations. Within the NPS, authority exists at the local level to open accounts against these funds to cover all expenditures related to management of wildland fires, regardless of ignition source or selected management strategy. Along with the annual appropriations, agency guidance is provided in the form of a policy memo outlining administrative procedures in implementing this budgetary authority.

## 5.3 Fire Management Committee

The Fire Management Committee will be comprised of the Chief Ranger; Chief of Interpretation; Chief, Science & Resource Management; and the Fire Management Officer. When recommendations are forthcoming from the Committee regarding management actions on a wildland fires managed for benefits, the District Naturalist and District Ranger from the district in which the fire is burning will also participate. For a GO/NO GO recommendation a quorum of the Chief Ranger, Chief of Science & Resource Management, and the Fire Management Officer or their representative must be present. The Chief Ranger will chair the committee; in those instances where a decision is forthcoming the Fire Management Committee will recommend a decision to the Superintendent who has final authority over the program. The Committee may request technical expertise from other individuals at any time, (such as cultural or natural resource specialists, fire behavior specialists, and fire ecologists). Each committee member will designate an alternate to serve in the event that the normal representative is unavailable. The Committee may be convened whenever fire danger indices

indicate that fire presents a potentially serious risk to park resources. The committee may review the situation and determine an appropriate course of action, using the FMP, Resource Management Plan, and General Management plan as guidance, as well as any prepared project implementation plans (Wildland Fire Decision Support System, Prescribed Fire Plans, etc.) for incidents.

Typically, when the committee meets to review incident or planned operational activities, non-voting participation is encouraged from the following personnel: Strategic Operations Planner, Fire Information, Education & Prevention Specialist, Fire Ecologist, Resource Biologist(s), and fire management staff from any adjacent cooperator likely to be affected neighboring agencies (for example the North Zone BTF FMO, Caribou-Targhee NF FMO, Yellowstone NP FMO, etc.) This participation may take place via telephone or conference call.

The primary purpose of the fire management working group is to coordinate preparedness, fire suppression/management, mechanical and prescribed fire activities between the park's division's, and between the park and cooperating agencies. They shall meet, at a minimum, prior to and following each year's fire season. The working group will determine objectives and needs of the fire management program for the coming year and to review the season and the Fire Management Plan, recommending revision as necessary.

## 5.4 Interagency Coordination

A high degree of interagency coordination exists within the fire management programs of the Greater Yellowstone Area. The federal agencies initiated a formal interagency agreement following the 1988 fire season committing to coordinated fire management planning within the GYA, and providing operating principles and procedures to ensure effective fire management actions within the GYA. These participants include the Bridger-Teton National Forest, Caribou-Targhee National Forest, Gallatin National Forest, Beaverhead-Deerlodge National Forest, Shoshone National Forest, Custer National Forest, and Yellowstone National Park. The park FMO participates in the Greater Yellowstone Area Fire Managers group which meets at least twice annually (spring and fall) and conducts conference calls as needed through the fire season. Since that time additional policy initiatives and emphases have led to greater cooperation and formal coordination and agreements with state, county, and local governments and agencies. An agreement exists between the federal agencies in Wyoming (NPS, USFS, BIA, BLM, & USFWS) and the State of Wyoming through the Division of Forestry. Under that agreement an annual operating plan outlines how Grand Teton National Park, Bridger-Teton National Forest and Teton County can share wildland fire resources across jurisdictional boundaries.

Grand Teton National Park has a very close working relationship with the Bridger-Teton National Forest. Agreements provide for the integration of park and forest resources on multiple operational crews and modules (fuels crew, fire effects crew, helitack, engine modules, and fire monitors) and the sharing of key fire staff within each unit's organization (GIS Specialist, Fire Prevention Specialist, and Fire Cache Manager). A joint annual operating plan outlines specific operational and funding details under this parent agreement. The park and forest have seen significant program efficiencies since the initiation of this relationship.

Additionally the Park and Forest coordinate closely with Jackson Hole Fire & EMS participating in and organizing interagency training, as a member of the Teton Area Wildfire Protection Coalition, and providing Rural Fire Assistance Grants. The Teton County Annual Operating Plan outlines fire responsibilities and protocols. These cooperative efforts have benefited the local area significantly.

Through all of these agreements fire management planning efforts, coordinated policy implementation, and cross-boundary fire management are enhanced to the benefit of the local fire management programs. Contacts with these agencies should be made at least annually to discuss the aspects of the Memorandum of Understanding (MOU) and the Park's fire management program.

## 5.5 Interagency Contacts

A list of interagency contacts can be found in Appendix M and is updated annually.

## 5.6 Fire Related Agreements

The following interagency agreements are maintained by the Fire Management Office. Many can be found in this document.

- Interagency Agreement for Fire Management, NPS Agreement No. F0001030011 (USFS/BLM/NPS/BIA/FWS) (Appendix L)
- Wildland Fire & Aviation Operations Annual Operating Plan, Grand Teton NP/Bridger-Teton NF, NPS Agreement No. F1460-02-0002 (Appendix L)
- Teton Interagency Dispatch Center Annual Operating Plan, NPS Agreement No. H-1460-04-0002
- Teton Interagency Mobilization Guide, updated annually
- The Greater Yellowstone Area Interagency Fire Management Planning and Coordination Guide, Interagency Fire Management Agreement No. 00-IA-11011100-015 (Appendix L)
- Interagency Cooperative Fire Management Agreement, Agreement Number CA-H-1248-02-003 (WY State Forestry, BLM-WY, NPS-IMR, USFS-R2/R4, FWS-MPR, BIA-RMR) (Appendix L)
- Teton County Annual Operating Plan (Appendix L)
- Wyoming Interagency Fire Restriction Plan (Appendix K)
- State of Wyoming Mobilization Guide
- Inter-park Agreements (Appendix L) between Grand Teton National Park and
    - Bighorn Canyon National Recreation Area
    - Fort Laramie National Historic Site
    - Fossil Butte National Monument

# 6 MONITORING AND EVALUATION

## 6.1 Program Effectiveness

Monitoring is the process of collecting data and information to determine if goals and objectives are being met. The GTNP Fire Management Program would use monitoring in its adaptive management process for both planned and unplanned actions at the project/incident level for overall program effectiveness.

## 6.2 Fire Effects

The fire effects program provides monitoring for prescribed fires, wildfires, and mechanical treatments. Depending on the type of incident, action, or project being monitored, information is derived from aerial reconnaissance, photography, permanent or temporary data plots, on-site fire behavior assessment, weather and fuel assessment (fire danger), burn severity mapping, and fuel loading calculations. Results from monitoring are shared with inter- and intra-agency partners.

Fire effects monitoring is part of the NPS Fire Ecology Program and is required for prescribed burns under NPS DO-18 and RM-18. At the national level, it is guided by the NPS Fire Monitoring Handbook (FMH), which identifies four monitoring levels, (1) reconnaissance (pre-burn), (2) fire behavior (during burn), (3) immediate post-burn, and (4) long-term.

Formal fire effects monitoring began at the Park in 1996. Prior to that, fire monitoring protocols and fuels reduction projects called for the collection and analysis of data for unit-specific objectives, with a primary focus on assessment of fuel reduction on mechanical projects and prescribed fires. Fire effects monitoring currently is part of the National Fire Ecology Program and includes more than 75 permanently established, randomly located vegetation plots. Results from vegetation plots, along with fire behavior and fire weather monitoring, are used to evaluate and refine future prescriptions to achieve desired long-term objectives.

Seasonal and weather-related fuel conditions are monitored to track fire behavior, plan staffing levels, predict fire danger, protect values at risk, and support long-term analysis of wildfire and suppression activities. A trained crew collects the monitoring data in a safe and appropriate manner and report to the Assistant Fire Management Officer or incident commander. They also provide on-site fire interpretation, assess fuel models and vegetation types, provide for visitor and firefighter safety, support the protection of structures and cultural sites, and initiate suppression action as needed to meet the objectives of the plan. On some wildfire monitoring staff establish plots and collect immediate post-burn data, focusing on burn severity to assess the fire effects.

Fire severity mapping is a form of monitoring that assists managers in decision-making and documenting vegetation changes. Mapping is completed post-fire using satellite imagery and ground-truthing methods to determine the areas burned and their severity.

The fire effects monitoring program provides a key link between the park's Fire Management Office and Science and Resource Management staff, and interacts with federal and state agencies concerned with natural fire processes in the Jackson Hole area. Fire monitoring information is shared with regional agencies and supports BTNF ecology program.

Fuels and fire effects monitoring variables and protocols are chosen according to stated measurable objectives, so managers have the information they need to determine if these objectives have been met. Required monitoring variables are summarized in Table 6. All monitoring will be done to achieve at least 80% confidence for project objectives.

## 6.3 Cultural Resources

Monitoring of the effects of fire on cultural resources is performed by cultural resource specialists when necessary. Cultural resources are generally excluded from treatment during planned events and efforts are made to protect these resources (via consultation from specialists) during unplanned events. Surveys are conducted following a fire to determine if resources were impacted and/or located and to prepare appropriate documentation. Fire management personnel are briefed early in the season to recognize basic features while working in the field.

**Table 6. Fuels and Fire Effects Monitoring Variables for Grand Teton National Park.**

| PROJECT TYPE | LEVEL I<br>Pre-Treatment (Reconnaissance)<br>*=forested<br>#=shrub/grassland<br>$=optional | LEVEL II<br>During Implementation Monitoring<br>*=forested<br>#=shrub/grassland<br>$=optional | LEVEL III<br>Immediate post Implementation (First Order Effects)<br>*=forested<br>#=shrub/grassland<br>$=optional | LEVEL IV<br>Long term monitoring (Second Order Effects)<br>*=forested<br>#=shrub/grassland<br>$=optional |
|---|---|---|---|---|
| Prescribed Burning for Fuels or Vegetation Management | FRCC determination<br>Fuel loading*<br>Project map<br>Photo documentation<br>Live fuel moisture<br>Pre-monitoring for Level III and IV variables | Fire behavior<br>Flame length<br>Rate of spread<br>Weather<br>Relative humidity<br>Air temperature<br>Wind<br>Smoke<br>Live fuel moisture | Map of burn extent<br>Burn severity map<br>Fuel loading*<br>Photo documentation | FRCC stand determination<br>Fuel loading*<br>Tree canopy cover*<br>Overstory tree density*<br>Overstory tree dimensions (height, DBH, crown ratio, height to live crown, live/dead status)*<br>Overstory tree damage*<br>Pole tree density*<br>Pole tree DBH*<br>Seedling tree density*<br>Seedling tree height*<br>Seedling tree browse (aspen)#<br>Shrub Density#<br>Shrub Canopy Cover#<br>Herbaceous species composition#*<br>Herbaceous canopy cover or frequency#*<br>Ground Cover#* |
| Mechanical Treatments for Natural Scene Restoration / Protection and Hazard Tree removal | Photo documentation<br>Map of project | Tree spacing | Photo documentation<br>Map of project extent | Photo documentation$ |
| Mechanical treatments for Hazard Fuels in Forested Wildland Urban Interface areas | Photo documentation with sightability board<br>Map of project<br>Fuel loading<br>Pre-monitoring for Level III and IV variables | Tree spacing<br>Photo documentation before piles are burned | Photo documentation<br>Map of project extent<br>Fuel loading<br>Tree Canopy cover<br>Overstory tree BA<br>Overstory tree dimensions (height, DBH, Crown ratio, height to live crown)<br>OS tree damage<br>Pole tree density<br>Pole tree DBH<br>Seedling tree density<br>Seedling tree height<br>Sightability | Photo documentation at 5 year intervals<br>Fuel loading<br>Tree Canopy cover<br>Overstory tree BA<br>Overstory tree dimensions (height, DBH, Crown ratio, height to live crown, live/dead status)<br>OS tree damage<br>Pole tree density<br>Pole tree DBH<br>Seedling tree density<br>Seedling tree height<br>Sightability<br>Herbaceous species composition (weeds)$ |
| Mechanical treatments in shrub / grassland WUI areas | Photo documentation<br>Map of project | | Photo documentation<br>Map of project extent | Photo documentation$<br>Herbaceous species composition (weeds)$ |

| PROJECT TYPE | LEVEL I<br>Pre-Treatment (Reconnaissance)<br>*=forested<br>#=shrub/grassland<br>$=optional | LEVEL II<br>During Implementation Monitoring<br>*=forested<br>#=shrub/grassland<br>$=optional | LEVEL III<br>Immediate post Implementation (First Order Effects)<br>*=forested<br>#=shrub/grassland<br>$=optional | LEVEL IV<br>Long term monitoring (Second Order Effects)<br>*=forested<br>#=shrub/grassland<br>$=optional |
|---|---|---|---|---|
| Resource benefit fire | Vegetation map<br>Fuels map$<br>FARSITE projection$<br>Pre-monitoring for Level III and IV variables if possible$ | Fire growth<br>Fire behavior<br>Flame length<br>Rate of spread<br>Weather<br>Relative humidity<br>Air temperature<br>Wind<br>Smoke<br>Live fuel moisture | Map of fire extent<br>Burn severity map (large fires)<br>Photo documentation$ | For large fires:<br>FRCC stand determination$<br>Fuel loading$<br>Fuels map revision<br>Vegetation map revision<br>Tree canopy cover$<br>Overstory tree density$<br>Overstory tree dimensions (height, DBH, Crown ratio, height to live crown live/dead status)$<br>OS tree damage$<br>Pole tree density$<br>Pole tree DBH$<br>Seedling tree density$<br>Seedling tree height$<br>Seedling tree browse (aspen)$<br>Shrub Density$<br>Shrub Canopy Cover$<br>Herbaceous species composition$<br>Herbaceous canopy cover or frequency$<br>Ground Cover$ |
| Wildland fire – Suppression Action | Fuels map$<br>FARSITE projection$ | For large fires:<br>Fire growth<br>Fire behavior<br>Flame length<br>Rate of spread<br>Weather<br>Relative humidity<br>Air temperature<br>Wind<br>Smoke (visibility)<br>Fuel moisture | Map of fire extent<br>Burn Severity Map (large fires)$<br>Photo documentation$ | For large fires:<br>FRCC stand determination$<br>Fuels map revision<br>Vegetation map revision<br>Photo documentation$ |

# 7 FIRE RESEARCH

The first significant fire research in Grand Teton National Park took place in the 1970's, when park research biologist Lloyd Loope investigated fire history (Loope and Gruell, 1973, Loope, 1974). He located fire-scarred trees and aged regeneration stands from numerous locations in the park and adjacent Bridger-Teton National Forest. These trees provided quantifiable fire return interval information, as well as the date of the last fire. At that time, there had been few large fires since the 1800's, and Loope expressed concern about the long term effects of fire suppression. In particular, he mentioned loss of aspen and heavy fuel buildups in conifer stands.

Since the 1970's several large fires have occurred in the park, spurring researchers to investigate post fire effects on succession, wildlife habitat, soil properties, and invasive species. Not surprisingly, aspen restoration and conifer forest fuel loading have continued to be important topics. Recently, studies have also begun to focus on predicting fire behavior using geo-spatial computer models and vegetation and fuel loading data.

Park fire and resource managers have identified needs for more information about fire ecology, effects of fire, and wildlife habitat. Several vegetation types in the park are poorly understood in their relation to fire, and substantial questions exist about exotic species, wildlife utilization, threatened and endangered animals, and cultural resource protection. Detailed fuel and vegetation data, needed to predict fire behavior, is currently lacking.

The following is a partial list of identified fire-related research needs:

- Long-term fire history and burn severity in various vegetative communities
- Fuel loading and distribution including crown fuels
- Vegetation changes following fire in GTNP/JODR
- Fire effects on invasive species
- Fire's role in restoring former agricultural lands to native sagebrush steppe communities
- Aspen influence on fire behavior. Applications for fire control
- Effects of mechanical thinning on fire behavior
- Effects of mechanical thinning on neotropical migrants
- Sage grouse habitat parameters, seasonal use, and distribution
- Fire effects on sensitive species habitats
- Blister rust and fire interactions on whitebark pine
- Fire effects on ungulate migration and seasonal use patterns
- Strategies to prevent post-fire overbrowsing of aspen and shrubs by ungulates
- Fire ecology of high elevation forests
- Techniques for treating sagebrush steppe with prescribed fire to create desired mosaics
- Fire effects on soil properties
- Fire effects on nutrient budgets
- Fire effects on water quality and quantity
- Fire and air quality parameters
- Impacts of burn patch size and dispersion on understory species re-colonization

# 8 FIREFIGHTER AND PUBLIC SAFETY

**Firefighters and the public will be protected from injury or undue threat from wildland fire management, prescribed fire or fuels management activities.**

## 8.1 Firefighter Safety

### Firefighter Safety

Firefighting is inherently dangerous and requires all personnel involved to exercise caution and good judgment. Mitigation of risk is the overriding consideration during all operations. It is the responsibility of each and every person involved in an operation to ensure safety. If any action cannot be carried out safely, another action must be used. At no time would the protection of resources be placed before the safety of fire management personnel and the public. All operations are to be carried out in accordance with established safety practices established by Reference Manuals 18, 58, and 60, the Fireline Handbook (NWCG 410-1), the Interagency Standards for Fire and Fire Aviation Operations (Red Book), OSHA; NPS policy, job hazard analysis standards, and park safety plans. Below is a list of actions integral to safe firefighting practices:

- Lookouts, communications, escape routes, and safety zones (LCES) are employed on all fire incidents.
- The Park will comply with the 10 Standard Firefighter Orders.
- Fire personnel shall be equipped with personal protective equipment appropriate to their incident assignments.
- Firefighters are only allowed on an active wildland or prescribed fire after receiving proper equipment and training as specified in RM-18. This includes an annual 8-hour wildland firefighter safety class.
- Fire personnel follow established Job Hazard Analyses (JHA) which are written descriptions of hazards and corresponding mitigations for fire and daily operations.
- A qualified aviation manager will manage air operations and assure that they are performed in accordance with Federal Aviation Administration rules and regulations, the USDI departmental manual, and NPS Aviation Management Policy as outlined in Reference Manual-60. The Teton Interagency Aviation Management Plan will be adhered to for all activities.
- Wildland firefighters must meet minimum physical standards for their assigned incident position, as defined in NWCG 310-1 “Wildland Qualifications Subsystem Guide.” Physical fitness/work capacity tests for wildland firefighters and other fire-qualified employees will consist of the “pack test.” Arduous duty medical exams will be given according to latest guidance.

### Aviation Program

A qualified aviation manager will manage air operations and assure that they are performed in accordance with Federal Aviation Administration rules and regulations, the Department of Interior departmental manual, and NPS Aviation Management Policy as outlined in Reference Manual #60. An Interagency Aviation Management Plan will be updated annually and used for daily operations of aircraft.

## 8.2 Public and Employee Safety

The park's fire management program attempts to mitigate long-term threats to public safety, including park employees, by reducing hazardous fuels around developments and along roadways where visitors could become trapped by fire. Event-specific mitigation measures would be implemented to limit the public's direct exposure to fire and smoke. Such measures include temporary trail closures and cautionary signing, strict road visibility standards, temporary closures and/or evacuation of facilities and developments, and notification of residents as to current and potential impacts.

During fire management actions, extreme fire danger or drought, fire restrictions and emergency closures may be needed to ensure public safety. These restrictions can also reduce the possibility of human-caused fires. Emergency closures (i.e. trails in a fire area) may be declared by an incident commander to prevent imminent danger. Longer term restrictions or closures (i.e. Stage 1, Stage 2 restrictions) will be coordinated with interagency cooperators and a special order will be approved by the park superintendent. Public information will be coordinated and up to date for all restrictions and closures and distributed appropriately through press releases and signage.

When a fire threatens visitor or employee safety, they must be given as much advance notice as possible in order to achieve orderly evacuation.

During certain fire operations (such as prescribed fires or wildfires), the Park may keep trails open and allow visitors access to the fire area. Firefighters, interpreters, and information officers on scene will answer questions and give safety messages to the public. Firefighters or other red carded park staff may also serve as escorts through fire areas. The parks will supply media representatives with personal protective equipment (PPE) when needed.

## 8.3 Affected Environment

Within Grand Teton National Park there are several areas of special concern which range from cultural resources, threatened and endangered species, visitor use areas (trails, picnic areas, one way in/out roadway), and developments.

A list of biotic resources of concern can be found in Section 3.4.5 Management Unit Biotic Characteristics and Affected Environment with further explanation in Appendix C – Biotic Characteristics and Affected Environment. When possible these resources will be identified in pre-attack plans. Mitigation measures have been identified to protect sensitive resources and can be found in Appendix X – Fire Management Mitigation Measures.

The Park has identified areas where fire presents high risk to the public. These areas are developed areas, have concentrated visitor use, or are along roadways. Pre-attack plans will identify these areas of concern for responding personnel.

**Grand Teton National Park – Areas of Special Concern:**

- **Highways US26/89/187**
- **Inside Park Road**
- **Trailheads:**
  - Granite Canyon
  - Death Canyon
  - Lupine Meadows
- **Backcountry Cabins:**
  - Lower Berry
  - Upper Berry
  - Moose Basin
  - Cascade Canyon
  - Death Canyon
  - Granite Canyon
- **Teton County Prioritized WUI Areas:**

**Solitude WUI Area**
- Jackson Hole Airport
- Circle EW
- Meadow Road Sub-division
- Solitude Sub-division
- Spring Gulch Road
- South Boundary
- East Gros Ventre Butte Residences

**Snake River WUI Area**
- Elk Ranch
- Elk Ranch In-holdings /Wolf Ridge Ranch
- Moosehead Ranch
- Triangle X Ranch
- Lost Creek Ranch

**Pacific Creek WUI Area**
- Pacific Creek Sub Division
- Moran Junction

**North Blacktail WUI Area**
- Mormon Row
- Antelope Flats In-holdings

**JY Ranch WUI Area**
- Moose-Wilson Road In-holdings
- Sky Ranch In-holding
- Whitegrass Ranch
- Death Canyon Trailhead
- J-Y Ranch

**Teton Valley Ranch WUI Area**
- Kelly
- Gros Ventre Campground
- Teton Valley Ranch

**Teton Village WUI Area**
- Poker Flats
- R-Lazy S- Ranch

**Buffalo Valley WUI Area**
- Pinto Ranch
- Wilderness Estates

**Beaver Creek WUI Area**
- Jenny Lake Lodge
- Jenny Lake Visitor Center/Campground
- Lupine Meadow Housing
- Climbers Ranch/Highlands Housing
- Beaver Creek
- Moose (Moose, Dornan's, 4 Lazy F Ranch)
- Murie Center

**Shadow Mountain WUI Area**
- Shadow Mountain Housing
- McCollister's
- Aspen Ridge Ranch/Hunter Ranch
- Teton Science School – Ditch Creek Sub-division

**Signal Mountain WUI Area**
- Brinkerhoff House and In-holding
- Signal Mountain Lodge/Campground

**Jackson Lake Lodge WUI Area**
- Jackson Lake Lodge
- Oxbow Housing

**Colter Bay WUI Area**
- AMK Ranch
- Leeks Marina
- Colter Bay

**Flagg Ranch WUI Area**
- South Gate – Yellowstone National Park: Flagg Ranch
- Lizard Creek Campground

# 9 PUBLIC INFORMATION AND EDUCATION

The Federal land management agencies, including the National Park Service, have the need to provide for a mix of responses to fires in order to meet multiple objectives. These objectives require a response ranging from full suppression when life and/or property are threatened, to a minimal response when the primary objective is to manage for resource benefits. On large fires, managing for multiple objectives will require different tactical responses to various portions of the fire, with the added complexity of a potential to change objectives in response to changes in weather, fuels, resource needs and threats to life and property. Managing fires in this manner has a high potential to create public confusion.

Consequently, policies and program changes recognizing the benefit of fire have caused confusion and apprehension for some in regard to current fire management practices. The Fire Management Public Information and Education program is committed to the expansion of ongoing efforts to educate employees and the public about the scope and effect of wildland fire management, including fuels management, resource protection, prevention, hazard/risk assessment, mitigation and rehabilitation, and fire's role in ecosystem management. Grand Teton National Park is dedicated to providing fire information and education for a variety of audiences while maintaining a level of service that is consistent with the park's professionalism. The public information and education program focuses on the following:

To provide year-round education on fire management and fire ecology;

To work within and promote the interagency relationship established with the Bridger-Teton National Forest and the Jackson Hole Fire & EMS;

To provide accurate and timely incident information for local, regional, and national fire operations as needed;

To provide local communities, park residents, and park employees, with information on fire safety, fire prevention, defensible space, and fuels management.

The Public Education & Information program will utilize the major goals of the Fire Management Plan to increase public awareness and support of the Fire Management Program and will complement national fire communication strategies and the Guidance for Implementation of Federal Wildland Fire Management Policy.

An important document serving as a reference for Grand Teton National Park fire information work is the *Interagency Information Center Communication Plan* (Iverson/Cernicek 2003). This annual plan will be signed by agency administrators from Grand Teton National Park and the Bridger-Teton National Forest. While some of the information is specific to the North Cache facility in Jackson (telephone use, computer logons, hours of operation, etc.), the document also outlines specific roles and duties of the Public Affairs Specialist, Lead Information Officer, and a Center Manager. The operating guide will be reviewed each spring to ensure the management and role of the Interagency Information Center effectively serves as a public fire information outlet during periods of increased fire activity.

Another important reference for fire information work is the *Standard Operating Procedures for Fire Information* guide (Iverson 2004) where specific operational procedures (checklists, web update information, etc.) are outlined. This includes instructions for regional and/or national reporting of fire activity.

## 9.1 Communication Methods

**Personal Services**:

**Interpretive Programs** - The Fire Communication and Education Specialist will work with the Interpretive Division to integrate fire messages into hikes, tours, displays, site bulletins, and campfire

programs. Relevant fire literature and information will be shared with the interpretive staff and stored in both the North and South District Naturalist Offices.

**Employee Training** - The Fire Management Office will strive to coordinate park-wide employee training sessions to improve staff understanding of the park's fire history and ecology and about the fuels management program. An overview of the fire management program will be presented annually at new employee and seasonal trainings to give NPS employees a basic understanding of fire management in the park.

**Education Programs** - The Fire Management Office will work to develop programs and incorporate fire ecology concepts into curriculum-based education programs, summer day camp programs, and teacher workshops. Teton Science Schools is another partner for teaching fire ecology concepts to elementary students and during their teacher trainings.

**Interagency Participation –** The Fire Communication and Education Specialist will participate on interagency committees, including the Teton County PIO Committee (all PIOs from agencies and emergency services), the Teton Interagency Prevention and Information committee to coordinate messages and ensure PIO coverage is available for emergency response.

**Roving** - During fire operations, park employees (including temporary hires, interns, interagency partners) will be stationed when possible at strategic locations to answer questions about the current fire activity and/or explain the fire management program.

**Special Events** - Fire Management staff, when possible, will participate in local events to promote the fire management program and fuels management practices.

**Public Meetings** - The park may conduct special public meetings related to a specific fire events, planning efforts, etc.

**Web Information -** The Fire Management Office will assist in maintaining an interagency fire web page and provide input to the Grand Teton National Park web page as necessary.

**Media Stories** - The Fire Management Office will communicate with print, radio, and television outlets through press releases and interviews. This will be coordinated with the park's Public Affairs Office.

**Printed Handouts** - The Fire Management Office will include fire information in regular park publications such as the annual Teewinot newspaper, and create handouts when needed to address specific fire management issues.

**Visitor Center Exhibits, Waysides, and Bulletin Boards** - The Fire Management Office will work with other divisions in the park to provide interpretive information in visitor centers and wayside exhibits. This may include both permanent waysides and temporary bulletin boards both inside and outside the park.

**Evaluation:**

The Fire Information and Education Program will prepare an annual report that documents the accomplishments for the year. This report will be presented to the park administrators, the regional Fire Management Office in Denver, and to the national communications program in Boise.

**Step Up Activities:**

Public Information Step-Activities, that will be used to increase awareness of fire danger, may include the following:

**Public Service Announcements (PSAs)** - Both radio and television PSAs may be utilized to convey a variety of key messages during fire season. The Fire Information office has established a partnership with the local high school broadcast department to record PSAs when needed.

**Newspaper Advertisements** - Newspaper ads may be utilized to convey a variety of key messages during fire season.

**Interagency Coordination of Fire Danger Levels** - Interagency fire managers work together to coordinate the implementation of partial or full fire restrictions. A checklist notes locations in the park

where signs may be posted when fire danger levels escalate, asking park users for extra caution to reduce human-caused ignitions.

**"Trapline" for Fire Information** - A list of park and concession facilities notes locations where fire information updates, posters, maps, etc. should be distributed when appropriate.

**Mobile Informational Radio System** - Grand Teton National Park has a portable system that can transmit recorded messages on a radio frequency. Messages can be changed on site or by remote transmission. Signs stating "Fire Information - 1610 AM" are mounted on stands and can be placed roadside to notify travelers fire information is available via their vehicle radios.

**Sign Boards** - The Fire Management staff has four sign boards available for posting fire information updates, press releases, maps, etc. in field locations.

**Staff Email** - Regular staff updates on park fire activities keep internal audiences informed and give them updated, accurate information to share with park visitors and local residents.

**Web Information -** The Fire Management office will post frequent web updates to the interagency website, including fire information, fire danger, restrictions, and prescribed fire updates.

**Concession Notifications** - The Fire Information Office works with the Business Resources Office to ensure fire information updates are conveyed to park concessionaires.

**Utilization of Park Interpretive Staff** - The interpretive staff will be utilized when possible to assist with roving contacts during fire activities to provide fire information updates at programs and visitor centers. The interpretive staff receives early season training on the park's fire management program and fire information resources online. Reference materials are also housed at each of the district naturalist offices. For specific information pertaining to current park and nearby fires, regular staff emails will be sent via email, and maps can be posted in visitor centers for visual aids.

**Roving Contacts** - During fire incidents, available personnel may be stationed when possible at strategic locations to answer questions about the current fire activity.

**Utilization of Administratively Determined (AD) Hires** - The Fire Information office maintains a list of local residents who may be hired under AD status to assist in field or incident information office work.

**Special Events** - Fire Management staff occasionally participates in local community events to promote the fire management program and fuels management practices. If one of these scheduled events coincides with a local fire incident, current fire information will be incorporated into the display area.

# **10** PROTECTION OF SENSITIVE RESOURCES

An underlying principle of the fire management program within the NPS is to manage fire operations commensurate with values at risk. In many cases the effects of fire management actions can be more destructive on park resources than the effects of the fire itself. To ensure that action alternatives protect natural, cultural, and social resources, a consistent set of mitigation measures will be applied during all fire operations. Lists of these resources can be found in Section 3.4.5 - Management Unit Characteristics and Affected Environment, Section 8.3 - Affected Environment, Appendix Z – Environmental Assessment, or Appendix Y – FMP Biological Assessment. In addition to the Park adhering to the Minimum Impact Suppression Tactics (MIST), rehabilitation guidelines, and minimum requirement analysis, the mitigation measures outlined in Appendix X – Fire Management Mitigation Measures will be followed to protect the following:

**Firefighter Safety –** Firefighting is inherently dangerous and requires all personnel involved to exercise caution and good judgment. Mitigation of risk is the overriding consideration during all operations. If any action cannot be carried out safely, another action must be used. At no time would the protection of resources be placed before the safety of fire management personnel and the public.

**Public Safety –** The park's fire management program attempts to mitigate threats to public safety, including park employees, during planned and unplanned events.

**Vegetation** – mitigate impacts to native vegetation associated with all fire management strategies.

**Wildlife and Fish** – mitigation measures to protect animal species and habitats are similar to those found in the vegetation section.

**Threatened, Endangered, and Special Concern Species** – The presence or absence of special-status species in the area is determined during the project-planning phase of prescribed fire or manual/mechanical treatment projects. Park resource specialists evaluate existing databases and maps, and, if necessary, request additional surveys or field verification. Consultation with the USFWS is required if a planned project or suppression activity could cause an adverse impact on federally listed species. Specific mitigation measures have been developed as part of a Biological Assessment. As part of the Biological Assessment, the USFWS reviewed project design criteria proposed in subsequent sections. These design criteria will be implemented to prevent adverse impacts to threatened, endangered, and special concern species. Wildland fires use actions will be managed to avoid long-term, undesirable disturbance to important habitat for special-status wildlife or threats to substantial populations of special-status flora when and where possible. See Section 12 Consultation and Coordination for specific information on procedures.

Wildland fires do not require consultation by the USFWS, as they are considered as a disaster or Act of God as written in section 7 of the Endangered Species Act of 1973 (ESA), as amended (50 CFR 402.05). Consultation by the USFWS is therefore only required if wildland fire suppression activities pose a threat to a listed species or the species' critical habitat. Annually the USFWS issues an emergency consultation letter that will be adhered to. In instances where the safety of firefighters is threatened, no constraints are required for the protection of endangered species. GTNP would follow USFWS guidelines on emergency consultations for wildland fire suppression activities.

Species addressed include: Bald Eagle, Canada Lynx, Grizzly Bear, Gray Wolf, Trumpeter Swan, Migratory Birds and Sage-grouse.

**Wetlands** – Mitigation of fire effects on wetlands is similar to mitigation of effects on water resources. Wildland fires that impact riparian areas are considered natural events and little mitigation is required for the fire itself. Suppression actions near wetlands will follow the mitigation measures as outlined in Appendix X to avoid inadvertent retardant and foam use in these areas.

**Water Resources –** The need for mitigation of fire effects on water resources is largely determined by burn severity and time of year. Increased sedimentation from high-severity wildland fires may directly affect hydrology, water quality, and aquatic resources. Wildland fires that impact riparian areas are considered natural events and little mitigation is required for the fire itself.

**Soil** – Wildland fires are considered natural events and little post burn mitigation is required.

**Wilderness –** The impacts of fire management activities on wilderness values is mitigated through the use of MIST, minimal use of mechanized equipment in wilderness areas, and preparation of a minimum requirement analysis.

**Air Quality/Visibility –** Park staff monitor air quality adjacent to prescribed and wildland fire project areas and in nearby developed areas by recording and documenting smoke dispersal, column mixing height, and documenting smoke complaints by visitors and residents. Accumulations of smoke from planned and unplanned events may trigger a change in management strategy.

**Cultural Resources –** Mitigation measures approved by the SHPO are included in all treatment plans, wildland fire plans, and incident management plans for suppression actions. A resource advisor is used during emergency operations or long term planning to ensure mitigation actions are taken.

**Park Neighbors** – The park coordinates with neighbors to identify response measures needed to protect life, property, and associated values during planned and unplanned events.

# **11** FIRE CRITIQUES AND ANNUAL PLAN REVIEW

The fire management program at Grand Teton National Park will engage in a program of adaptive management and instill a continuous learning environment where new experience and science are used to identify, resolve, and improve opportunities. The following guidelines will establish a procedure to enable the continuing improvement of the program.

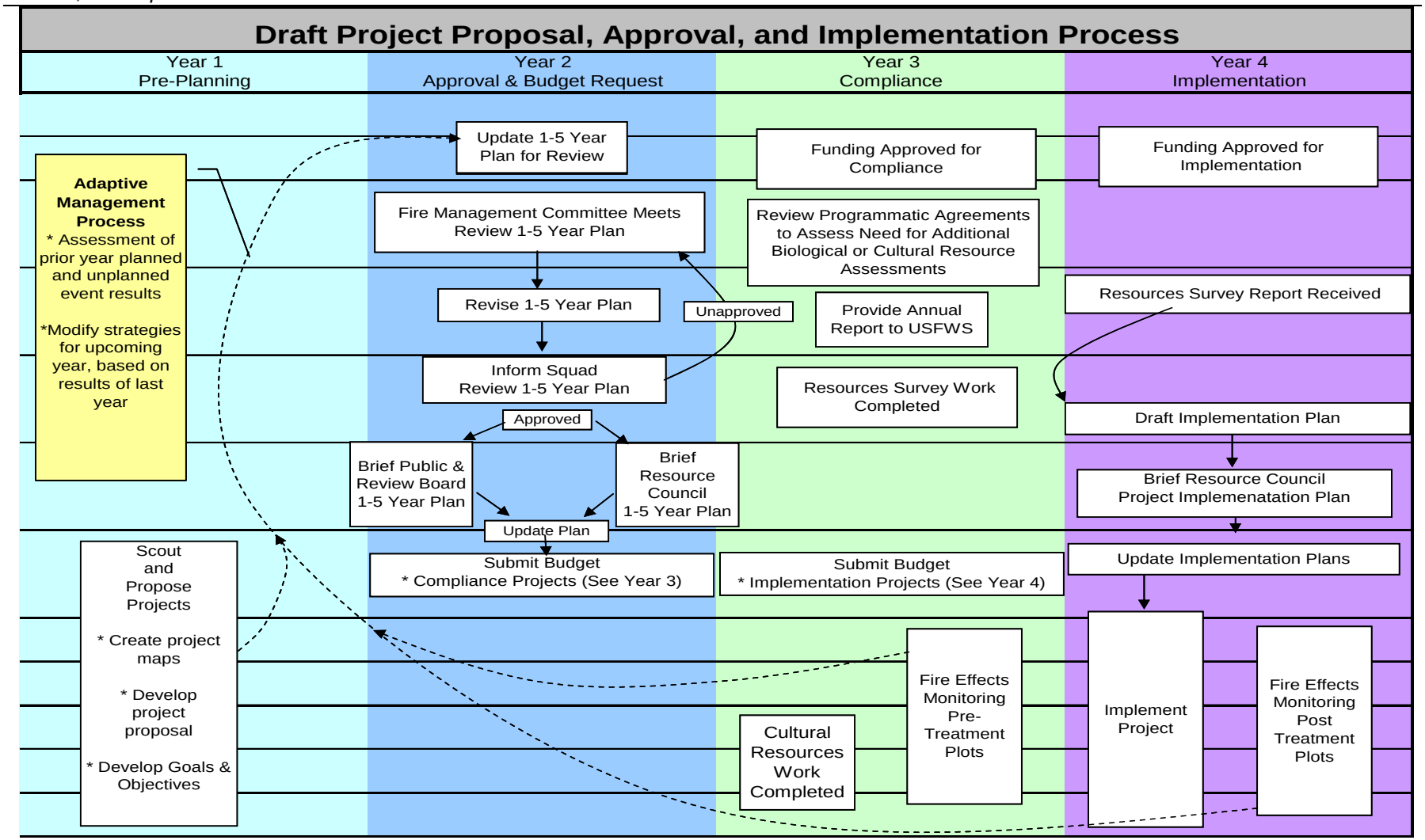
## 11.1 Adaptive Management

The adaptive management process is a multi-year decision-making framework for developing planned events (prescribed fire and mechanical treatment) and determining suppression strategies for unplanned events based on expanded resource objectives. Adaptive management, in compliance with the NEPA process and in accordance with guidelines provided by the Council on Environmental Quality (CEQ 1997, 2003), incorporates the elements “predict, mitigate, implement, monitor, and adapt”.

In compliance with Director’s Order #12, the practice of adaptive management will effectively drive the evolution of the fire management program by:

- considering recent fire history, project history, current research, and fire effects monitoring,
- holding annual public workshops to involve the public, regulators and affected agencies,
- implementing future environmental compliance work such as Biological Assessments and cultural resource surveys,
- integrating avoidance and mitigation measures to minimize environmental impacts,
- monitoring the effects of fire activities, and
- re-assessing program strategies, decisions and objectives based on learned results from prior actions.

***Figure 11.1 Multi-year decision-making process for planned events.*** *Adaptive management would be incorporated into the process of proposing, approving, and implementing planned treatment projects. Planned projects are identified annually but would require as many as 4 years to implement; the decision-making process would be reinitiated each year. See Appendix A (Glossary) for description of Fire Management Committee, Resource Council, and Squad members.*



## 11.2 Plan and Program Review

The Fire Management Officer will review the Fire Management Plan annually for currency and incorporate changes into the plan by way of an annual amendment. Any amendments will be prepared prior to the initiation of fire season. The fire management plan is subject to formal review every five years to ensure program compliance and NEPA currency.

Operational "preparedness" reviews are to be conducted annually. An interagency accepted series of program checklists is available to cover all aspects of a unit's fire management program. Only those checklists appropriate to the Park's fire program need to be addressed. These are updated annually to reflect changes in agency policy and standards. Current checklists are made available via the Internet. Reviews will ensure operational readiness of equipment and personnel, currency and adequacy of local MOU's and interagency agreements, and understanding of agency policy and park staff responsibilities as outlined in this plan. These reviews can be conducted "in-house"; however general guidelines are to include the local interagency community at a minimum. Any unit conducting or planning to conduct fuels management activities in the upcoming year will undertake a fuels program review annually. This review should be conducted by the Fire Management Officer and include relevant resource & fire management staff and local cooperators, as applicable.

The Fire Management Officer, NPS-Intermountain Region and/or NPS-Fire Management Program Center periodically initiate full program and fiscal reviews of park fire management programs reaching pre-identified complexity levels. Frequency and scope of these program reviews are directed by national policy in Reference Manual-18 and are scheduled at the national and regional level.

## 11.3 Incident Reviews

Wildland and prescribed fires will initially be critiqued in an after action review by the Incident Commander or the Burn Boss. As many operational personnel as logistically feasible will be engaged. This review should take place in a timely manner to address issues as they remain fresh in the mind. The "After Action/After Incident Review" format is suggested as a well structured template for bringing out issues and identifying lessons learned.

A more in-depth review will take place on those incidents (wildland or prescribed fires) of significant size, cost, or where minor safety issues or minimal levels of public concern occur. This review will be initiated by the Superintendent and will be conducted by appointed fire management personnel with knowledge and experience commensurate with the complexity of the incident under review. These findings should be forwarded to the Regional Fire Management Office.

Prescribed or wildland fires involving an Incident Management Team or significant political, safety, or public issues should be reviewed by the Regional Fire Management Office. If a fire generates a major political or public concern, involves multiple serious injuries or a fatality, the Fire Management Program Center should conduct or participate in the review.

Reference Manual -18, Section 13 and the Interagency Standards for Fire and Fire Aviation Operations (Red Book) Chapter 19defines additional situations warranting reviews, identifies responsibilities and provides sample review formats and checklists for formal reviews.

**Table 11.3 Timeframes and Responsibilities for various program and incident reviews**

| Review Type | Timeframe | Intent/Objectives | Responsible Party |
|---|---|---|---|
| Fire Management Plan | Annually | Assure effectiveness of the Plan in meeting goals and objectives of this FMP and the Park's General and Resource Management Plans, assure currency and compliance of FMP with NEPA requirements. | FMO and the Fire Management Committee |
| Preparedness | Annually (pre-season) | Ensure operational preparedness of firefighting resources. | Fire Management Officer |
| Program | As needed | Assure compliance with established NPS standards | Fire Management Officer, Intermountain Region |
| After Action Review (AAR) | Post-incident, after each operational period | Review operational effectiveness, learn lessons | Incident Commander, or Burn Boss |
| Incident Review | Post-incident, as needed | Constructive critique to determine facts of incident and determine lessons learned. | Superintendent |

# 12 CONSULTATION AND COORDINATION

## 12.1 Agency Consultation

**United States Fish and Wildlife Service (USFWS)**

The programmatic Biological Assessment (BA) that accompanies the programmatic Environmental Assessment (EA) and the Fire Management Plan outlines design criteria and mitigation measures for threatened and endangered species within the park that would ensure a high likelihood of a "not likely to affect" determination for all planned fire management activities. Special emergency consultation procedures are in effect and will be followed to determine effects to species for unplanned fire activities. Any fire activity or action that is out of the scope of the FMP and the EA require separate NEPA analysis and consultation with the USFWS; however, all activities within the scope of the programmatic EA and BA will not require consultation on an action-by-action basis. Rather, GTNP will provide an annual report of planned and unplanned fire activities to the USFWS and briefings at their request, in order to keep the USFWS informed on all fire management activities within the park. This annual report and review process will give the USFWS an opportunity to monitor fire activity within the park, ensure compliance with the programmatic documents, and provide valuable feedback to the park on wildlife issues and latest regional findings.

In summary, a BA would not be written and submitted to the USFWS for future planned activities within the scope of the FMP unless the activity could not follow the design criteria. Consultation with the USFWS would be conducted on an annual basis using a fire activity report. The report format will be worked out between GTNP and the USFWS on a regular basis, as the need for information changes.

USFWS issues annual memorandums that address emergency consultations for suppression activities. GTNP would be obligated to initiate consultation if fire suppression activities would appear to adversely affect a listed species. Emergency consultation for wildland fire is characterized by a five-step process: initial contact, consultation completion, biological opinion, and conservation recommendation. The memorandum detailing this process is included with the Biological Assessment in Appendix Y.

**Wyoming State Historic Preservation Office (SHPO)**

For this Fire Management Plan EA, the park initiated consultation with the State Historic Preservation Office (SHPO) by sending a scoping statement to the Office of the Governor. This office distributed the scoping document to all affected agencies for their review. SHPO responded to the scoping statement by letter on April 14, 2003.

Grand Teton National Park does not have a good database or inventory of their cultural resources, other than historic structures. Archaeological resources, ethnographic resources, museum collections, and cultural landscapes are located throughout the park and their locations are not all known. The current practice to address cultural resources in the context of fire management is to survey these resources and submit a report for review/concurrence by the Wyoming State Historic Preservation Office before any planned action may take place. Therefore, separate compliance with Sections 110 and 106 are conducted for each project area. Emergency procedures are in place for unplanned ignitions, wherein an assessment of effects would be conducted after unplanned events. The results of any post-burn inventory would be forwarded to the Wyoming SHPO.

In summary, NHPA compliance is conducted in consultation with the Wyoming SHPO on a project-by-project basis for all actions within the scope of the FMP for cultural resources, as described in figure 2.4.1 Multi-year decision-making process for planned events. In the future, the park wishes to develop a programmatic agreement with the SHPO to support moving away from 100% surveys toward identifying high probability areas and developing better sampling strategy techniques to predict where cultural resources have a higher probability of occurring. This agreement would be similar to the agreement that the BTNF currently has with the SHPO.

**Wyoming Game and Fish Department (WGFD)**

The park initiated consultation with WGFD by sending a scoping statement to the Office of the Governor. WGFD responded to the scoping statement by letter on April 25, 2003. The letter stated that WGFD supports Alternative B of the EA which in turn documents support to this plan. In addition, WGFD made several recommendations that have been incorporated into mitigation measures and interagency coordination procedures.

**Wyoming Department of Environmental Quality (WDEQ)**

WDEQ is developing a new smoke management regulation based on a permit-by rule system. Compliance with the following considerations would constitute permission from the state to conduct the project. Prescribed burns expected to generate two tons of particulate matter ($PM_{10}$)/day are classified as a SMP-II therefore registration is required. Notification is also required two weeks prior to a burn. Burn information will be communicated to the general public so that precautions against smoke exposure could be taken. In addition, GTNP must document consideration of alternatives to burning, use at least one emission reduction technique for a given prescribed fire, and conduct visual monitoring. The permissibility of burning is based on smoke dispersion, which is classified by weather-related ventilation categories. The program guidance document identifies those conditions under which a variance may be requested and granted by the state or mitigation measures may be requested of the burner to comply with statewide emissions thresholds.

## 12.2 Preparers and Contributors

| Name | Title | Team Role |
|---|---|---|
| Mary Gibson Scott | Superintendent | Management oversight |
| Lisa Elenz | Fire Management Officer | Team leader for FMP |
| Chip Collins | Assistant Fire Management Officer | Fire management advisor |
| Mack McFarland | Fuels Management Specialist | Fire and fuels management advisor |
| Diane Abendroth | Lead Fire Effects Monitor | Fire effects and fire ecology advisor |
| Lori Iverson | Fire Education Specialist | Fire education advisor |
| Dirk Shupe | GIS Fire Specialist | GIS data transfer |
| Wayne Petsch | Engine Foreman | Writer/Editor |
| Fauzia Massey | Fire Management Program Assistant | Writer |
| Andy Fisher | Chief Ranger | Law enforcement and fire management advisor |
| Kelly McCloskey | Ecologist | Ecological advisor |

## 12.3 Agencies, Tribes, Organizations and Individuals Contacted

**Federal Agencies**

U.S. Army Corps of Engineers, Omaha District

U.S. Department of the Interior, Fish and Wildlife Service, Wyoming Office

U.S. Department of the Interior, National Elk Refuge, Jackson Office

U.S. Department of the Interior, Bridger-Teton National Forest, Jackson Office

U.S. Department of the Interior, Caribou-Targhee National Forest, Driggs Office

U.S. Department of the Interior, National Park Service, Denver Service Center

U.S. Department of the Interior, Yellowstone National Park

U.S. Department of the Interior, Bureau Land Management

**State and County Agencies**

State of Wyoming Fire Dept

Jackson/Teton County Fire Department

Wyoming State Historic Preservation Office

Teton County Planning Office

Wyoming Game and Fish Department

Jackson Town Council

WY Dept. of Transportation

Wyoming Department of Environmental Quality

**Tribes**

Northern Arapaho Business Council

Eastern Shoshone Business Council

Crow Tribal Council

Northern Cheyenne Tribal Council

Shoshone-Bannock Tribes

**Special Interest Groups**

Greater Yellowstone Coalition

The Nature Conservancy

Jackson Hole Conservation Alliance

*A list of all individuals and additional organizations that received the project scoping statement and/or the environmental assessment is kept in the GTNP Planning Office in GTNP.