National Park Service
U.S. Department of the Interior

Yellowstone National Park

2014 Fire Management Plan

This page intentionally left blank.

Yellowstone National Park
2014 Wildland Fire Management Plan

Prepared by

Yellowstone National Park
Intermountain Region
National Park Service
Department of the Interior

Recommended By: _____ Date: 4/17/14
Fire Management Officer

Recommended By: _____ Date: 4/17/14
Chief Park Ranger

Approved By: _____ Deputy Supt Date: 4/17/2014
FOR Superintendent

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1.0 INTRODUCTION

1.1 Reason for the Fire Management Plan

The National Park Service (NPS) Director's Order 18: Wildland Fire Management (DO-18), U.S. Department of Interior (NPS, 2008), and supporting Reference Manual 18: Wildland and Prescribed Fire Management Policy (RM-18) (NPS, 2014) requires: "*each park with burnable vegetation must have an approved Fire Management Plan that will address the need for adequate funding and staffing to support its fire management program. Parks having an approved Fire Management Plan and accompanying National Environmental Policy Act (NEPA) compliance may utilize wildland fire to achieve resource benefits in predetermined fire management units. Parks lacking an approved Fire Management Plan may not use resource benefits as a primary consideration influencing the selection of a suppression strategy, but they must consider the resource impacts of suppression alternatives in their decisions.*"

The Yellowstone Fire Management Plan is a comprehensive document which will act as a guide for the Wildland Fire Management Program by defining fire management strategies, the organization and responsibilities, fire management objectives, and the connection between park-wide objectives and fire management actions.

1.2 General Description of the Park

1.2.1 Purpose of the Park

Yellowstone National Park (Yellowstone or Park) encompasses 2,221,772 acres (3,472 square miles) and is located primarily in the northwest corner of Wyoming, with portions extending into southwestern Montana and southeastern Idaho. It is the core of the Greater Yellowstone Ecosystem (GYE), an approximately 12 million acre area that includes Grand Teton National Park and John D. Rockefeller, Jr. Memorial Parkway to the south, five national forests, two national wildlife refuges, and additional American Indian reservations, state lands, towns and private property. The GYE is the largest and most nearly intact temperate ecosystem in the contiguous United States (Figure 1). The scope of this Fire Management Plan is confined to areas within the authorized boundaries of Yellowstone National Park.

Congress established Yellowstone National Park to "dedicate and set apart as a public park or pleasuring ground for the benefit and enjoyment of the people; … for the preservation, from injury or spoliation, of all timber, mineral deposits, natural curiosities, or wonders within said park, and their retention in their natural condition" (U.S. Congress 1872). Yellowstone's purpose and significance are rooted in its enabling legislation, subsequent legislation, and current knowledge of its natural, cultural, and visual resources.

<u>Purpose</u>

The world's first National Park, Yellowstone:

- Preserves geologic wonders, including the world's most extraordinary collection of geysers and hot springs and the underlying volcanic activity that sustains them;
- Preserves abundant and diverse wildlife in one of the largest remaining nearly intact wild ecosystem on earth, supporting unparalleled biodiversity;
- Preserves an 11,000 year old continuum of human history, including the sites, structures, and events that reflect our shared heritage; and
- Provides for the benefit, enjoyment, education and inspiration of this and future generations.

<u>Significance</u>

- An international symbol of natural preservation;
- A Biosphere Reserve and a World Heritage Site;

- Contains more than 10,000 thermal features, including more than 300 geysers, which represent more than half of the total number of geysers in the world;
- Home of the world's tallest active geyser, Steamboat, which erupts to more than 300 feet.
- One of the few places in the world with active travertine terraces;
- Hydrothermal features which are habitats for microbes that are providing links to primal life, origins of life, and astrobiology; plus they are proving useful in solving some of our most perplexing medical and environmental problems; and
- With the restoration of the gray wolf in 1995, the Park now contains all the large mammal species known to be present when European Americans first arrived.

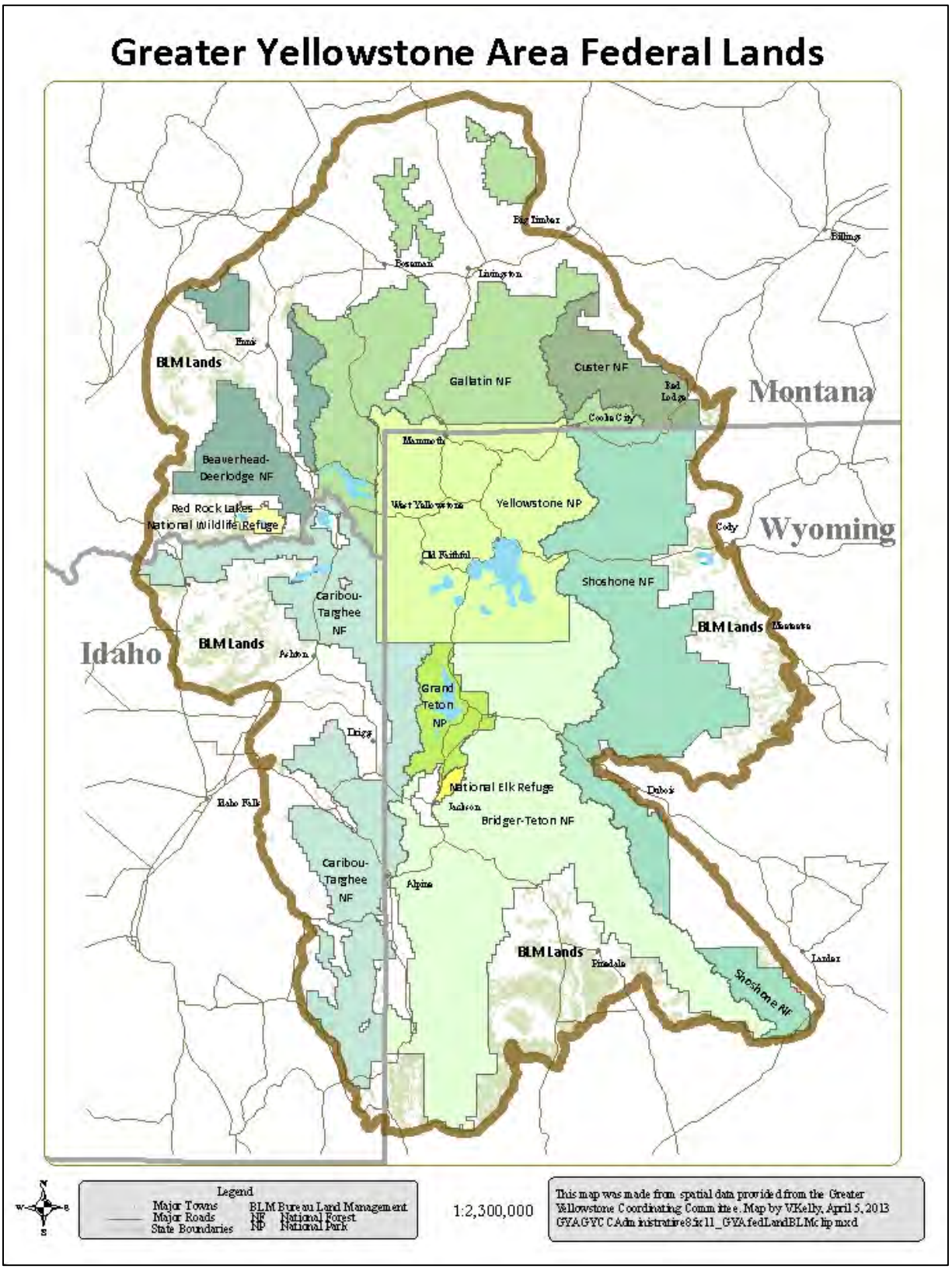


Figure 1: Map of the Greater Yellowstone Ecosystem

1.2.2 Management Environment

1.2.2.1 Land ownership, significant resources, mission and management direction

The establishment of the 1964 Wilderness Act (16 USC 1131 et seq.) helped provide for the protection of wilderness areas for future generations. With completion of the Final Environmental Impact Statement: Proposed Wilderness Classification, Yellowstone National Park, Wyoming (USDI, 1973) the NPS recommended 2,032,721 acres in 10 roadless units in the Park be designated as wilderness, and 6,040 acres as potential wilderness by an act of Congress, for a total of 91 percent of the Park. The remaining nine percent is classified as administrative and facilities, developed areas, and roads. A final determination of the wilderness proposal has yet to be completed by Congress therefore these acres are treated as recommended wilderness. Although a final determination has not been made, these acres of recommended wilderness are managed as designated wilderness within the Park.

Yellowstone is almost entirely surrounded by public land, with the exception of very small areas in and around Park entrance communities (i.e., West Yellowstone, Silver Gate, and Gardiner). Five National Forests and one National Park border Yellowstone, with much of the surrounding public land being managed as wilderness.

1.2.2.2 Overview of physical and biotic characteristics of the Park

Vegetation

Yellowstone National Park contains diverse vegetation as a result of the extreme topographic relief, differing soils, varied slope and aspect, and range of microclimates (Despain, 1990). Yellowstone's vegetation is composed primarily of typical Rocky Mountain species. The five generalized vegetation types in the park are: montane forests, sagebrush-steppe, alpine meadows, wetlands/riparian and hydrothermal communities. Below is a description of each of these vegetation types.

Montane Forests

Approximately 80 percent of Yellowstone is covered by forests and the majority of these forests are dominated by lodgepole pine (*Pinus contorta*) (NPS, 2011). Lodgepole pine is found in a variety of successional stages at elevations between 7,500 and 9,000 feet and cover 1.4 million acres of the Park. Lodgepole pine have adapted to the fire prone environment in which they are found in. In fact, the tree's serotinous cones are sealed shut by a resinous bond that requires temperatures between 113 and 140 degrees to melt the resin and release the seed. In this climate, only forest fires generate temperatures of this magnitude within a tree's crown. In the absence of fire and in rich and moist soils, subalpine fir (*Abies lasiocarpa*) and Englemann spruce (*Picea engelmannii*) replace lodgepole pine as the dominant species in the canopy (NPS, 2011).

At elevations ranging from 6,000 to 7,000 feet, common trees are Douglas-fir (*Pseudostuga menziesii*) and aspen (*Populus tremuloides*).

At higher elevations, whitebark pine (*Pinus albicaulis*) becomes a dominant overstory component, either in pure stands or mixed with lodgepole pine and subalpine fir. Some of the whitebark pine trees in Yellowstone are several hundred years old and show fire scars from a succession of low intensity surface fires. In contrast, lodgepole and whitebark pine trees have very thin bark and can be killed by surface fires (NPS, 2011).

The vegetation composition in the understory differs according to precipitation regime, forest type, and substrate. Within lodgepole pine forests the understory vegetation is characterized by a very sparse understory composed mostly of elk sedge (*Carex geyeri*) and grouse whortleberry (*Vaccinium*

scoparium). Pinegrass (*Calamagrostis rubescens*) is frequently found in the understory vegetation under a Douglas-fir forest. In other areas of the Park, the understory vegetation is composed of species such as Utah honeysuckle (*Lonicera utahensis*), snowberry (*Symphoricarpos* spp.), and buffaloberry (*Shepherdia canadensis*) (NPS, 2011).

Sagebrush-Steppe

Sagebrush-steppe vegetation is found primarily at the lower elevations, in the northern range of Yellowstone and is dominated by sagebrush (*Artemisia* spp.) and other shrubs. Idaho fescue (*Festuca idahoensis*), needle-and-thread (*Hesperostipa comata*), Sandberg bluegrass (*Poa secunda*), or bearded wheatgrass (*Elymus caninus*) are common, either mixed with the sagebrush or as open meadows. Numerous wildflowers can be found throughout (Despain, 1990; NPS, 2011).

Alpine Meadows

This is a diverse group of high elevation open areas, including alpine tundra which occurs above 10,000 feet. Some types are dominated by a thick turf of alpine grasses and forbs, while others are dry and rocky with a more open aspect. Common species include sheep fescue (*Festuca ovina*), timberline bluegrass (*Poa glauca*), and lanceleaf stonecrop (*Sedum lanceolatum*) (Despain, 1990).

Wetlands and Riparian Areas

Wetlands cover 357 square miles of Yellowstone and include lakes, rivers, ponds, streams, seeps, marshes, fens, wet meadow, forested wetlands, and hydrothermal pools. Willows (*Salix* spp.), aspen, and in some places cottonwood (*Populus* spp.) are characteristic of streamside riparian vegetation. Three wetland types can be found in the Park and 44 percent are lakes and ponds larger than 20 acres or have water deeper than 6.6 feet at low water; 4 percent are rivers and streams; 52 percent are palustrine.

Palustrine wetlands are described by either the dominant vegetation form or, if vegetation covers less than 30 percent of the substrate, by the physiography and composition of the substrate. Wetlands and riparian areas in Yellowstone provide essential habitat for the rare plants, reptiles, amphibians, and numerous insects, birds, mammals and fish in the park (NPS, 2010). Approximately 38 percent of the Park's plant species are associated with wetlands, with 11 percent only growing in wetlands (NPS, 2011).

Hydrothermal Communities

Plant communities have developed in the expanses of thermally heated ground. Many of the species found in the geyser basins tolerate different conditions, and grow all over the western United States. Other species, are typical of the central Rockies, or are endemic to the region (NPS, 2011).

Other Vegetation in the Park

Approximately 1,150 native plant species and an additional 210 non-native plant species can be found in Yellowstone. Yellowstone is home to three endemic species: Ross's bentgrass (*Agrostis rossiae*), Yellowstone sand verbena (*Abronia ammophila*), and Yellowstone sulfur wild buckwheat (*Eriogonum umbellatum var. cladophorum*). The three endemic species listed above, along with whitebark pine are listed as species of management concern within the Park (Appendix C). There are 97 rare plant species within the Park.

Executive Order 13112 - Invasive Species directs federal agencies to make efforts to prevent the introduction and spread of invasive plant species, detect and monitor invasive species, and provide for the restoration of native species. Invasive species are usually destructive, difficult to control or eradicate, and generally cause ecological and economic harm. A noxious weed is any plant designated

by a federal, state, or county government as injurious to public health, agriculture, recreation, wildlife, or property. More than 210 exotic plant species reside in the Park. Other threats to the Park's trees include insects and fungus. While the fungus blister rust (*Cronartium ribicola*) is an exotic species, insects are native to the area and include: the mountain pine beetle (*Dendroctonus ponderosae*), spruce beetle (*D. rufipennis*), Douglas-fir beetle (*D. pseudotsugae*), western balsam bark beetle (*Dryocoetes confusu*), and the western spruce budworm (*Choristoneura occidentalis*).

Soils

Four soil types have been identified in Yellowstone. The two predominant soil types in the Park are derived from two major parent materials: rhyolite and andesite. A third type, loess, evolved from glacial episodes and is found in the floodplains of area rivers. A fourth soil type makes up about six percent of the park and is derived from sedimentary rocks consisting of limestones, sandstones, and shales. Andesitic soils have better moisture-holding capacity and higher levels of nutrients compared to rhyolitic soils. Climax lodgepole pine is generally associated with rhyolitic soils, while climax spruce and fir are typically associated with andesitic soils (NPS, 2002).

Water Quality

Yellowstone encompasses a watershed of approximately 3,500 square miles that provides the surrounding area with high quality water. Streams and lakes in Yellowstone are designated as Class I, Outstanding Resource Waters, by the state of Wyoming. Existing water quality must be maintained in Class I waters. The water resources within Yellowstone cover 112,000 acres. More than 150 lakes compose an area of approximately 108,000 acres. Yellowstone Lake, the largest body of water above 7,500 feet elevation in North America, occupies 139 square miles. Other major lakes include Shoshone, Lewis, and Heart Lakes. More than 220 named, and hundreds of unnamed streams form over 2,650 miles of flowing water in the Park. River systems in the Park include the Gardner, Lamar, Yellowstone, Madison, Firehole, Gibbon, and Lewis Rivers. The hydrology of most streams and rivers in the Park is driven by snowmelt with peak discharge occurring in the late spring. Discharge then declines gradually over summer and returns to near base flow by late fall.

Air Quality

The Clean Air Act (42 USC 7401 *et seq*.) recognizes the need to protect visibility and air quality in national parks. By definition, national parks, including Yellowstone, are mandatory Class I areas and are therefore given the highest level of air quality protection. In Class I airsheds, air quality is better than the National Ambient Air Quality Standards (NAAQS), and there is little allowance for deterioration of air quality. Monitoring stations are set up in different areas of Yellowstone to evaluate air quality conditions and compare them with federal and state standards. Results from these monitoring stations throughout the Park indicate all areas currently meet federal and state ambient air quality standards. Because there is little industrial activity and a relatively low human population in northwestern Wyoming, the overall regional air quality of the Park is good.

Wildlife

Yellowstone National Park is home to a wide variety of wildlife. Nearly 300 species of birds, 60 species of mammals, 4 species of amphibians, 6 species of reptiles, and 12 species of native fish have been documented within the Park. The distribution, abundance, and diversity of species within the Park vary by season, elevation, and variety of habitats present.

The Park considers 11 wildlife species of management concern within the Park: boreal toad, bald eagle, American peregrine falcon, trumpeter swan, white pelican, Yellowstone cutthroat trout, westslope cutthroat trout, arctic grayling, North American pronghorn, wolverine, and the bison (Appendix C).

Species of management concern within the Park are species which are not on the Threatened and Endangered Species List, but are either rare or considered threatened by Park managers and therefore their populations are researched and watched closely. The Park currently has two threatened and endangered species: Canada lynx, with critical habitat designation, and the grizzly bear.

Geothermal Resources

Yellowstone contains the world's largest and most active geothermal areas, a principal reason for the establishment of the Park. The Park has more than 300 geysers and over 10,000 thermal features which include hot springs, mud pots, and fumaroles. Underground reservoirs of water, which are heated by partially molten magma, fuel the GYE's thermal features including those in the Park. Thermal areas sustain unique and diverse life and support various microbial organisms, mosses and grasses.

Archeological Resources

More than 2,000 prehistoric and historic sites have been documented in Yellowstone, although less than five percent of Yellowstone's 2.2 million acres have been intensively inventoried for archeological resources. Included within the historic archeological sites are those of Euro-American origin such as solider stations, hotels, and can dumps. Approximately one-third of the archeological sites have been evaluated for eligibility to the National Register of Historic Places. Obsidian Cliff, a prehistoric obsidian quarry, has been named a National Historic Landmark. Approximately 100 sites are added each year to the NPS Archeological Sites Management Information System database, and Determinations of Eligibility are completed when needed or when time permits.

Historic Resources

Yellowstone has 1,030 historic structures entered on the List of Classified Structures as of September 30, 2004. Of these structures, 375 are listed on the National Register of Historic Places and 351 have been determined eligible for listing. The remaining 304 structures and buildings still need to be evaluated for eligibility to the National Register. National Historic Landmarks include the Fort Yellowstone National Historic Landmark (NHL) District which has 47 buildings, structures and historic landscape features, and five individual NHL structures, including the Northeast Entrance station, the Norris, Madison, the Fishing Bridge Trailside Museums, and the Old Faithful Inn. Historic Districts which have had Consensus Determinations of Eligibility (versus formal determinations) are the Canyon Village Historic District (Mission 66), the Blister Rust Camp at Canyon Administrative Area, the Old Faithful Visitor Center Historic District (Mission 66), Tower Junction Historic District, Stephens Creek Administrative Area in Montana, and the Fishing Bridge Historic District.

Some of the structures and buildings are located outside of the historic districts or are discontiguous contributing properties to existing historic districts and developed areas. Examples of these include backcountry patrol cabins, fire towers, interpretative kiosks, roadside features, bridges, stone guard walls and retaining walls, and other structural elements.

Cultural Landscapes

Cultural landscape inventories (CLI) have been developed for some areas within the Park, including Artist Point, Apollinaris Springs, Game Ranch (Stephens Creek), Roosevelt Lodge, Tower Ranger Station, and Old Faithful. These have received consensus determinations of eligibility. Other CLIs in draft form which have not yet received consensus determinations include Lake, Fishing Bridge, Lake Fish Hatchery, North Entrance area, and Yellowstone Park Transportation Company (YPTCo) historic districts. It is anticipated that consultations with the Wyoming and Montana State Historic Preservation Officers (SHPO) for the determination of these landscapes will occur within the following calendar year. A Cultural Landscape Report (CLR) is also underway for Mammoth Hot Springs Historic District by the Olmsted Center for Cultural Landscape Preservation. Some backcountry cabins, soldier stations, and

historic districts have previously had preliminary assessments to inform past fire management activities and assist with § 106 consultations for those projects, however, these have not yet been determined eligible. Additionally, not all potentially eligible cultural landscapes within the area of effect have been inventoried.

Ethnographic Resources
Places within the Park are associated with the development and maintenance of ethnically distinctive peoples, and are closely linked with peoples' own sense of community. To date, over 600 ethnographic resources have been recorded for Yellowstone. These resources include animals such as bison, plants, thermal areas, mineral paint and obsidian sources, Yellowstone Lake, vision questing sites, and rendezvous and hunting sites. Yellowstone continues to collect data on ethnographic resources through consultations and oral history interviews with the 26 currently associated tribes.

Paleontological Resources
Nearly 150 species of fossil plants from Yellowstone have been described, including ferns, horsetail rushes, conifers and many deciduous plants such as sycamores, walnuts, oaks, chestnuts, soapberries, maples, and hickories. Sequoia was the dominant conifer. This type of assemblage reflects a warm temperature sub-tropical environment.

Real Property
There are 1,941 buildings within the Park as of October, 2013. There are also:

- Over 15 miles of boardwalk;
- 10 radio repeaters and base stations;
- 7 cell towers;
- 5 remote automated weather stations (RAWS);
- 74 geophysical and water monitoring stations;
- 130 wooden trailhead signs;
- 62 wayside exhibits;
- 70 road bridges with some component of burnable material;
- 62 water temperature data sensors;
- 41 backcountry cabins and fire lookouts;
- 301 backcountry campsites with burnable infrastructure (e.g. bear poles);
- 443 trail bridges; and
- Roughly 100 miles of above ground power lines.

This list does not include wildland urban interface hazards located within the 20 developed areas of the Park, such as propane tanks, fuel storage tanks, and thousands of visitors.

1.2.2.3 Role of fire in the Park
Natural fires have been a part of Yellowstone's environment for thousands of years prior to the arrival of modern humans (Romme and Despain, 1989). Written fire records date back to 1870 and significant fires are noted in early annual Superintendents' reports. However, fire statistics from 1872 through 1899 are minimal, with only large fires being reported. Record keeping improved somewhat at the beginning of the twentieth century and reliable fire statistics have been kept from 1930 to present.

During the 1988 fire season, 50 fires burned approximately 800,000 acres in the Park. This assessment of number of acres burned was based on satellite imagery taken during October 1988. Romme and Despain (1989) evaluated Yellowstone's fire history in light of the 1988 fires. They suggested fire suppression efforts since 1886 may have only postponed the fires of 1988 by a few decades. They noted

large fires might have occurred during the dry summers of 1949, 1953, 1960, or 1961 without fire suppression efforts. They further noted fire behavior, in terms of heat release, flame height, and rate of spread, were probably similar to the fires which burned a significant percentage of the study area in the early- to mid-1700s. They concluded the 1988 fires represented a nearly natural event. The fires were mainly the result of extremely warm, dry, and windy weather combined with an extensive forest cover of highly flammable fuels, mainly lodgepole pine.

The normal fire season in Yellowstone is June 15 through September 30, based on historical weather and fire occurrence statistics. From 1972 through 2013, excluding the 1988 fire season, the park averaged 27 fires and 4,723 burned acres per year. Critical factors influencing the fire season include the number of summer lightning storms and the timing and amount of summer precipitation. Since the majority of fires are started by lightning, the periods in spring before the grasses green and in the fall after dormancy and before snowfall begins, are normally periods of few fire starts. Summer drought conditions and frequent lightning storms can result in many fire starts within the Park, with the potential for large acreages to burn.

The current and desired role of fire within the Park is to maintain the ecological role of fire by allowing natural processes to occur with a minimum of human influence. Natural fires have been a part of Yellowstone's environment for thousands of years and will continue to be; this will be accomplished using the best available science and the principles of adaptive management. Park fire managers understand and support this, and intend to allow fire to play its natural role within the ecosystem to the greatest extent possible.

1.3 Environmental Compliance

The Yellowstone National Park Fire Management Plan Environmental Assessment was completed in October of 2012. Section 7 concurrence was completed in December of 2012, and Section 106 was completed in October of 2012. The Finding of No Significant Impact (FONSI) was signed in February of 2013 (Appendix D). These documents constitute the National Environmental Protection Act (NEPA) analysis and compliance which supports this Fire Management Plan, therefore this plan meets all of the requirements of the NEPA.

2.0 POLICY, LAND MANAGEMENT PLANNING & PARTNERSHIPS

2.1 Fire Policy

This Fire Management Plan is consistent with the following related laws, policies, guidelines and plans discussed below.

Director's Order-18 (DO-18)

DO-18 (2008), the NPS guidance for Wildland Fire Management, states that "every NPS unit with burnable vegetation must have an approved Fire Management Plan." DO-18 defines what an approved FMP must include, stressing that "firefighter and public safety is the first priority" and promoting "an interagency approach to managing fires on an ecosystem basis across agency boundaries." Director's Order-18 also directs parks to identify, manage, and reduce, where appropriate, accumulations of hazardous fuels. Procedures for completion, review, approval, and required contents for FMPs are provided in Reference Manual-18 (RM-18).

Reference Manual-18 (RM-18)
RM-18 provides NPS field employees legal references, operating policies, standards, procedures, general information, recommendations, and examples to assist them in carrying out Management Policies and Director's Orders (USDI, 2014).

2009 Guidance for Implementation of Federal Wildland Fire Management Policy
The Wildland Fire Leadership Council approved the Guidance for Implementation of Federal Wildland Fire Management Policy (USDA/USDI, 2009) to provide consistent implementation of the federal fire policy. The guide defines two types of wildland fire: prescribed fire (planned ignitions) and wildfire (unplanned ignitions). The revision increases managers' flexibility to respond to changing incident conditions and firefighting capability while strengthening strategic and tactical decision implementation supporting public safety and resource management objectives.

International Council Code
Per RM-18, the Park is required to be in compliance with *International Code Council* (ICC) *Sections 603* and *604* (ICC, 2011). These sections outline the minimum wildland-urban interface defensible space standards based on the hazard posed by wildfire in the vicinity of the structure. These distances may be increased based on fuel type, continuity of fuels, slope, building material (e.g. flammable, non-flammable), and the location of the value at risk. The vast majority of the structures within the Park lie in an area characterized by high to extreme wildfire hazard for at least a portion of each year.

NPS Management Policies
NPS *Management Policies 2006* establishes service-wide policies for the preservation, management and use of park resources and facilities. These policies provide guidelines and direction for management of natural resources within the Park (including natural processes that shape them, such as fire). Chapter 4 states that "naturally ignited fire, including the smoke that it produces, is part of many of the natural systems that are being sustained in parks" and requires that the NPS "adopt park resource preservation, development, and use management strategies that are intended to maintain the natural population fluctuation and processes that influence the dynamics of individual plant and animal populations, groups of animal and plant populations, and migratory animal populations in parks".

With regard to the disruption of natural processes such as ecosystems where the natural fire regime has been altered by suppression efforts, NPS *Management Policies 2006* state the NPS will "seek to return human disturbed areas to the natural conditions and processes characteristic of the ecological zone in which the damaged resources are situated." Additionally, those policies state that "biological or physical processes altered in the past by human activities may need to be actively managed to restore them to a natural condition or to maintain the closest approximation of the natural condition in situations in which a truly natural system is no longer attainable."

Director's Order-12 (DO-12)
DO-12 (2001) is the NPS guidance for Conservation Planning, Environmental Impact Analysis, and Decision Making. DO-12 states the guidelines for implementing NEPA according to NPS regulations. DO-12 meets all Council on Environmental Quality (CEQ) regulations for implementing NEPA. In some cases, the NPS has added requirements under DO-12 that exceed the CEQ regulations.

National Historic Preservation Act of 1966
The National Historic Preservation Act (NHPA) sets forth Government policy and procedures regarding historic properties including districts, sites, buildings, structures and objects included in or eligible for the National Register of Historic Places. Section 106 of NHPA requires federal agencies consider the effects of

their actions on such properties, following regulations issued by the Advisory Council on Historic Preservation (36 CFR 800).

Endangered Species Act of 1973

The Endangered Species Act (ESA) provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The lead federal agencies for implementing the ESA are the U.S. Fish and Wildlife Service (USFWS) and the U.S. National Oceanic and Atmospheric Administration (NOAA) Fisheries Service. The law requires federal agencies, in consultation with the USFWS and/or the NOAA Fisheries Service, to ensure actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species.

Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act

The Migratory Bird Treaty Act of 1918 protects migratory birds and implements various treaties and conventions between the U.S. and Canada, Japan, Mexico and the former Soviet Union for the protection of migratory birds. Under the Act, taking, killing or possessing migratory birds is unlawful unless the species is considered a game bird and has a legal hunting season. The Bald and Golden Eagle Protection Act, enacted in 1940, and amended several times since then, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs.

Wilderness Act of 1964

The Wilderness Act of 1964 (Public Law 88-577, 16 USC §§ 1131-1136, 78 Stat. 890) established the National Wilderness Preservation System and identified the National Park Service as one of the four federal agencies responsible for protecting and preserving the nation's wilderness resource.

2.2 Park/Resource Management Planning

The current Resource Management Plan (RMP) for Yellowstone (1998) documents the Park's needs and programmed actions related to natural and cultural management goals and objectives. The plan identifies staffing needs, and budgets for over 100 individual and integrated natural and cultural resource projects to achieve the Park's stated goals. The following objectives for wildland fire management are stated in the RMP and are integral components of the 2014 FMP:

- Preserve the natural and cultural resources of Yellowstone and to allow natural processes and interactions between resources to occur with a minimum of human influence;
- Use aggressive tactics to suppress wildfires, commensurate with values at risk (i.e. life, property, sensitive natural and cultural resources);
- Use fire suppression strategies which result in minimal impacts to park resources.
- Complete rehabilitation of areas impacted by suppression activities;
- Correlate data from completed fuels monitoring with fire weather readings and use in ongoing program to determine fire danger on site;
- Accomplish hazardous fuels reduction by thinning trees and understory vegetation at developed areas in the Park;
- Consider using prescribed fire to protect values at risk;
- Cooperate with and support research on prescribed fire and other fire management topics; and
- Incorporate fire management plans and data into the park's GIS system.

The FMP is designed to support management goals and objectives defined in the Yellowstone RMP.

A Fire and Fuels Interdisciplinary Team (IDT) was used to develop the FMP Environmental Assessment, which is the basis for this FMP. The Fire and Fuels IDT consists of Park managers from disciplines including, but not limited to: wildland fire management, rangers, planning and compliance, maintenance, public affairs, cultural resources, vegetation, concessions management, resource education and youth programs, and wildlife. The IDT will also be consulted on all prescribed fire and non-fire fuel management treatment projects, and will help determine project specific boundaries, goals, objectives, prescriptions, coordination with other Park projects, and the potential resources affected and associated mitigations.

A letter describing the FMP Environmental Assessment project, announcing a scoping meeting, and requesting public input was sent on November 22, 2011 to 264 recipients including elected officials, individuals, organization, agencies, and local tribes and tribal representatives. A public scoping meeting was held on December 6, 2011 in Cody, Wyoming. Three members of the community attended the scoping meeting. Attendees were able to ask questions of NPS staff, review maps, and express their thoughts about the FMP on a comment form that was distributed to attendees.

The Yellowstone National Park Fire Management Plan Environmental Assessment was completed in October of 2012 and the accompanying Finding of No Significant Impact (FONSI) was signed in February of 2013.

2.3 Partnerships

Collaborative processes include interagency fire management planning with Grand Teton National Park, adjoining national forests, wildlife refuges, and Bureau of Land Management lands under the direction of the Greater Yellowstone Coordinating Committee (GYCC) based on the most recent copy of the *Greater Yellowstone Area Interagency Fire Management Planning and Coordination Guide* (Appendix L). In addition, the Park plays an active role with the following interagency programs:

Northern Rockies Incident Management Team Program

Yellowstone participates in the Northern Rockies Incident Management Team Program by providing qualified wildland fire personnel to serve as overhead team members.

Northern Rockies Training Center

Yellowstone cooperates with the Northern Rockies Training Center administered by Region 1 of the USFS in Missoula, Montana, for the purpose of conducting interagency training in wildland fire and aviation.

Northern Rockies Coordinating Group

The Intermountain Region Deputy FMO represents the national park units in the Northern Rockies. The Northern Rockies Coordinating Group sets the direction and establishes guidelines for all matters concerning wildland fire in the Northern Rockies area.

Greater Yellowstone Coordinating Committee Fire Management Advisory Group

Following the 1988 fires in the Greater Yellowstone Area (GYA), a Fire Management Policy Review Team issued a report examining federal fire policies. In response to this report, the Greater Yellowstone Coordinating Committee (GYCC) addressed the recommendations of the team by developing the *Greater Yellowstone Area Interagency Fire Management Planning and Coordination Guide* and by forming the Fire Management Advisory Group subcommittee. The guide includes an annual operating and preparedness plan and has three objectives: (1) coordinate fire management planning between the national forests, refuges, parks, and lands of the GYA; (2) provide for specific operating principles and procedures that ensure effective interagency coordination and management of wildland fires and prescribed fires in the

GYA; (3) articulate the roles of national forest, refuge, park, and land managers of the GYCC in GYA fire management planning and operations. This guide was revised in 1995, 2000, 2006, 2009, 2010, and 2013.

The GYCC consists of an executive coordinator and currently 11 GYA land management agency administrators including; Forest Supervisors of the Beaverhead-Deerlodge, Caribou-Targhee, Custer Gallatin, Shoshone, and Bridger-Teton National Forests; Superintendents of Grand Teton and Yellowstone National Parks; Refuge Managers from the National Elk and Red Rock Lakes National Wildlife Refuges; and representatives from the BLM in Wyoming, Montana, and Idaho. A member of the GYCC acts as a liaison to the Fire Management Advisory Group on all wildland fire management issues.

Community Wildfire Protection Plans

The Park is identified as a collaborator and stakeholder in the community wildfire protection plans for the communities of Gardiner, Silver Gate and Cooke City located within Park County, Montana and for the community of Pahaska Tepee located within Park County, Wyoming, and for Teton County, Wyoming.

3.0 PARK-WIDE CONSIDERATIONS & FIRE MANAGEMENT UNIT DESCRIPTIONS

3.1 Park-wide Fire Management Considerations

3.1.1 Fire Management Goals and Objectives

Yellowstone's fire management goals incorporate the Park's overall management goals as well as federal fire management policy principles and goals which include; always prioritizing firefighter and public safety first, maintaining fire-resilient landscapes, promoting fire-adapted communities, collaboration, accountability, as well as, effective, efficient, risk-based response to wildfire.

As identified in its mission, the NPS Fire Management Program "is dedicated to protecting lives, property and resources while restoring and maintaining healthy ecosystems". The use of fire is an important tool for meeting this goal. The Park's fire management goals tier directly from both this national fire program goal and from the Park's resource management goals. Fire management goals in Yellowstone are to:

- Ensure firefighter and public safety is the first priority in every fire management activity;
- Allow fire to play its ecological role in the Park to the greatest extent possible through the use of incident objectives, strategies and tactics;
- Use suppression as the initial response to human caused wildfires in a safe, effective, efficient, and environmentally sensitive manner;
- Preserve the natural and cultural resources of Yellowstone and to allow natural processes and interactions between resources to occur with a minimum of human influence;
- Maintain an active fire prevention program;
- Maintain a fully qualified fire management staff to implement this FMP;
- Maintain an interpretive and public information program that will educate the public on the ecological role of fire in the Park, and provide daily fire danger and situation information;
- Reduce hazardous fuels in areas where life or property may be threatened by wildfire, or may impede the ability to allow fire to play its ecological role in the Park;
- Coordinate and cooperate with adjacent land management agencies;
- Use fire suppression strategies which result in minimal impacts to park resources.

- Correlate data from completed fuels monitoring with fire weather readings and use in ongoing program to determine fire danger onsite;
- Accomplish hazardous fuel reduction by thinning trees and understory vegetation around developed areas in the Park;
- Consider using prescribed fire to protect values at risk;
- Cooperate with and support research on prescribed fire and other fire management topics; and
- Incorporate fire management plans and data into the Park's GIS system.

Yellowstone's fire management objectives, which are tiered directly off of the fire management goals, are as follows:

- 100% of all human-caused wildfires will be managed under a suppression strategy prioritizing safety to the public and firefighters, and sensitivity to Park resources and values by utilizing minimum impact suppression tactics;
- Protect 100% of all natural and cultural resources from degradation due to fire management activities;
- At least 70% of natural wildfires every year that have potential for achieving resource objectives will be allowed to play their ecological role in the Park to the greatest extent possible;
- Collaborate with the Fire and Fuels Interdisciplinary Team on all proposed prescribed fire and non-fire fuel treatment activities in the Park; and
- Utilize a resource advisor (READ) on all Park fires that may pose a threat of degradation to natural or cultural resources, that have greater than 20 people on-scene at the fire for more than one operational period, or that require personnel to remain overnight in the backcountry at a site other than a cabin or lookout.

3.1.2 Wildland Fire Management Actions

Management of Unplanned Ignitions

The Park is divided into two Fire Management Units (FMUs) to assist managers in quickly determining the correct initial response to use when an unplanned ignition occurs (Figure 2), to formulate specific tactics, and to develop management strategies. The Protection FMU is composed of the area within one quarter mile (0.25 mile) buffers around developed areas, with the intent of a timely initial response to all ignitions within this FMU to mitigate risk to values. The 20 developed areas within the Park are: Stephens Creek, Mammoth, Tower Junction, Tower Falls, Lamar Ranger Station, Norris, Canyon Village, Madison, Bridge Bay, Lake, Fishing Bridge, Old Faithful, West Thumb, Grant Village, Bechler Ranger Station, and the five Park entrance stations. All unplanned ignitions which originate within the Protection FMU will have an immediate suppression response due to the close proximity of people and property.

The remainder of the Park is identified as an Ecological FMU, where all unplanned ignition response strategies (i.e., monitor, point/zone protection, suppression) would be considered for all lightning caused ignitions, where management decisions would reflect the goal of allowing natural ecological processes to occur utilizing the safest, most effective, and most efficient methods available while meeting Park managers' identified goals and objectives. Backcountry or wilderness values at risk (i.e., patrol cabins, radio towers, research monitoring equipment) will be protected using a point/zone protection strategy to lessen the impacts of fire to the value.

Management of Planned Fuel Treatments

The Park will use hazard fuels reduction projects (manual, mechanical, and/or prescribed fire) to create defensible space around any building, structure, historical area, or in areas within the Park adjacent to gateway communities. Most planned fuels treatments will take place within developed areas.

Manual and mechanical treatment methods would be the most commonly used tools to complete hazardous fuel treatments within Park developed areas. Treatments would use a prescription of reducing canopy density to a predetermined level to reduce the threat of crown fire. Fuels treatments completed within the Park developed areas may also use various methods to remove the biomass of thinned trees. These methods may include using pile burns, chippers, masticators, utility task vehicles (UTV), tractors, winches, trucks with trailers, or firewood permits to remove unwanted biomass. Whenever possible wheeled/tracked vehicles would be kept on existing roadbeds, but occasionally if wheeled/tracked vehicles need to leave the roadbed, the IDT will be consulted, all Park revegetation and top soil guidelines will be followed, and all areas will be rehabilitated to previous existing conditions. All planned fuels management projects are subject to the Migratory Bird Treaty Act and annual approval from the Yellowstone Bird Program must be obtained prior to felling trees larger than six inches in diameter at breast height, between May 1 and July 31. 100 percent area wetland and cultural resource surveys will be completed prior to fuels project implementation. If planned fuels treatments occur within the Park's proposed wilderness a minimum requirement analysis will be completed for all mechanical use (e.g., helicopter landings, chainsaw use).

If the IDT determines prescribed fire (planned ignition) is the best method to treat hazard fuels, the most current Interagency Prescribed Fire Planning and Implementation Procedures Guide will be used. All burn plans will be developed with the IDT, and will be approved by the agency administrator (i.e., Park Superintendent or Deputy Superintendent). Pile burns are considered a type of prescribed fire, therefore if a fuels treatment takes place and the preferred method of biomass disposal is through pile burns, an approved burn plan will be utilized.

Yellowstone may also treat fuels for resource enhancement and research purposes throughout the Park. Examples of research treatments may include:

- studying fire's effects on exotic and native vegetation species;
- studying fire's effects on ungulate forage;
- studying fire's effects on different plant associations found within the Park;
- studying fire return intervals;
- studying fire behavior in different fuel models, utilizing various methods of (manual, mechanical, prescribed burning) treatments;
- removal of biomass for vegetation studies; and
- improving or restoring historical and or cultural landscapes.

The process of identifying projects, and specific project goals and objectives would include the involvement of the IDT. All NPS adopted policy would be followed when implementing projects. Planned fuels treatments are discussed at length in section 4.5.

Minimum Impact Suppression Tactics (MIST)

Fire management activities within the Park will be carried out in a manner which minimizes impacts to Yellowstone's natural and cultural resources. Minimum impact suppression tactics are required to be used for all fire management activities on National Park Service lands. They will be incorporated into

the Superintendent's briefing and Delegation of Authority to any incoming Incident Management Team (IMT). A resource advisor will be utilized for all fires within the Park that may pose a threat of degradation to natural or cultural resources, that have greater than 20 people on-scene at the fire for more than one operational period, or that require personnel to remain overnight in the backcountry at a site other than a cabin or lookout. All fire personnel from outside of the Park will receive bear avoidance and bear spray training, and a 300 foot buffer for retardant around water bodies will be employed. Incident management teams will use the methods and equipment commensurate with their needs and the chosen management strategy which will least negatively impact Park resources.

A minimum requirement analysis will be completed for all non-emergency mechanical (e.g., helicopter landings) actions proposed to take place within recommended wilderness areas of the Park.

3.2 Fire Management Unit Specific Characteristics

Yellowstone is divided into two Fire Management Units (Figure 2): a Protection FMU representing a one quarter mile buffer around the 20 developed areas where only a suppression strategy response to an unplanned ignition is allowed; and an Ecological FMU representing the balance of Park lands outside of the Protection FMU where all available types of responses to unplanned natural ignitions will be considered in developing a management strategy, with the primary goal of allowing fire to continue its ecological role.

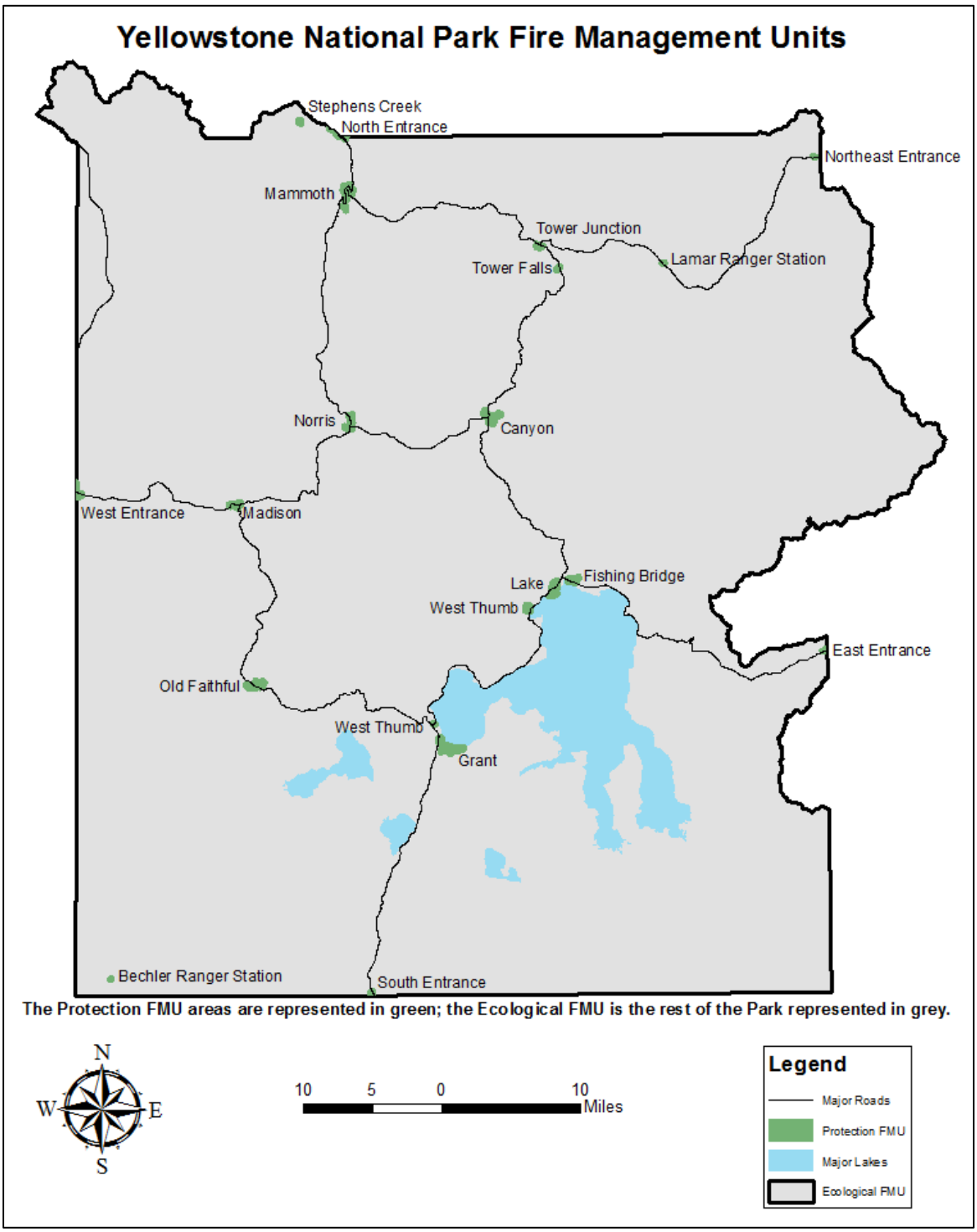


Figure 2: Yellowstone Fire Management Unit Map.

Table 1: Protection FMU Snapshot

FMU Name	Protection
FMU Identifier	FMU-YELL-Protection
Defining Characteristics	Areas within a one quarter mile of the 20 developed areas
Acres	10,193
Approved Fire Management Strategies	- Management of unplanned ignitions with a suppression strategy response throughout the unit. - Planned fuel treatments will be used within developed areas to lower fire intensity and protect values at risk
Constraints	- No use of heavy equipment off-road without specific permission from the superintendent for each emergency or IDT for non-emergency use. - No use of chemical fire retardant within 300 feet of bodies of water.
Associated Weather Station(s)	Quadrant
Interagency FMU/ Collaboration	None
Dominant Vegetation or Fuels	Montane forest and sagebrush-steppe

Protection FMU Strategic Direction

The only approved response to an unplanned ignition within the FMU is a suppression response due to the close proximity of people and property. All fuels management activities within this FMU will be developed through the use of an IDT approach as described above in section 3.1.2.

Protection FMU Goals and Objectives

Applicable FMU specific goals include:

- Ensuring firefighter and public safety is the first priority in every fire management activity;
- Maintaining an active fire prevention program;
- Maintaining an interpretive and public information program that will educate the public on the ecological role of fire in the Park and provide daily fire danger and situation information;
- Reducing hazard fuels in areas where life or property may be threatened by wildfire, or may impede the ability to allow fire to play its ecological role in the Park;
- Accomplishing hazard fuel reduction by thinning trees and understory vegetation around developed areas in the Park; and
- Consider using prescribed fire to protect values at risk.

Applicable FMU specific objectives include:

- 100% of all human-caused wildfires will be managed under a suppression strategy prioritizing safety to the public and firefighters, and sensitivity to Park resources and values by utilizing minimum impact suppression tactics;
- Protect 100% of all natural and cultural resources from degradation due to fire management activities;
- Collaborate with the Fire and Fuels Interdisciplinary Team on all proposed prescribed fire and non-fire fuel treatment activities in the Park; and
- Utilize a resource advisor (READ) on all Park fires that may pose a threat of degradation to natural or cultural resources, that have greater than 20 people on-scene at the fire for more than one

operational period, or that require personnel to remain overnight in the backcountry at a site other than a cabin or lookout.

Protection FMU Description

The Protection FMU is composed of one quarter mile (0.25) buffers around developed areas, with the intent of a timely response to all ignitions to mitigate risk to values within this FMU. All unplanned ignitions which originate within this FMU will have an immediate suppression response due to the close proximity of people and property. These zones include all 20 of the developed areas within the Park: Stephens Creek, Mammoth, Tower Junction, Tower Falls, Lamar Ranger Station, Norris, Canyon Village, Madison, Bridge Bay, Lake, Fishing Bridge, Old Faithful, West Thumb, Grant Village, Bechler Ranger Station, and the five Park entrance stations. All of these developed areas represent significant concentrations of buildings, infrastructure and visitor services. Fuel treatment planning efforts (e.g., manual, mechanical, prescribed fire) will be concentrated within this FMU to mitigate hazard fuel adjacent to significant concentrations of human life and property.

Protection FMU Management Constraints and Guidance

The Protection FMU does not have any specific restrictions outside of general park-wide restrictions, although most of the area is used heavily for visitor use, therefore fuels project implementation may be timed outside of the busiest visitation months of June through August.

Protection FMU Hazards and Unique Features

This FMU represents developed areas and areas of concentrated visitor use; therefore there are a significant number of hazards normally found within Wildland Urban Interface which are not generally found within the Yellowstone backcountry (i.e., liquid and propane fuel lines and tanks, power lines, septic systems, and other hazardous materials).

Protection FMU Logistical Information

Structure assessments, community protection plans and evacuation plans are being completed for all of the developed areas within the Park. There are 17 approved helispots and two helibases located throughout this FMU within the developed areas, and one approved large incident base camp/incident command post location. The two helibases are located at Mammoth and Fishing Bridge, and the large incident base camp/incident command post location is at Fishing Bridge.

Table 2: Ecological FMU Snapshot

FMU Name	Ecological Strategy
FMU Identifier	FMU-YELL-Ecological
Defining Characteristics	All areas within the Park, outside of the Protection FMU.
Acres	2,211,573
Approved Fire Management Strategies	- Management of unplanned ignitions with all available response strategies. - Planned fuel treatments may infrequently be used to lower fire intensity and protect values at risk.
Constraints	- No use of heavy equipment off-road without specific permission from the superintendent for each emergency or from the IDT for non-emergency use. - No use of chemical fire retardant within 300 feet of bodies of water.
Associated Weather Station(s)	Quadrant
Interagency FMU/ Collaboration	None
Dominant Vegetation or Fuels	Montane forest and sagebrush-steppe

Ecological FMU Strategic Direction

The balance of the Park's landscape, which represents the Ecological FMU, would be considered for all unplanned ignition response strategies (i.e., monitor, point/zone protection, suppression), where management decisions would reflect the goal of allowing natural ecological processes to occur utilizing the safest, most effective, and most efficient methods available while meeting Park managers' identified goals and objectives. Backcountry or wilderness values at risk will be protected using a point/zone protection strategy to lessen the impact of fire to the value.

Ecological FMU Goals and Objectives

Applicable FMU specific goals include:

- Ensuring firefighter and public safety is the first priority in every fire management activity;
- Allowing fire to play its ecological role in the Park to the greatest extent possible through the use of incident objectives, strategies and tactics;
- Use suppression as the initial response to human caused wildfires in a safe, cost-effective, and environmentally sensitive manner;
- Preserving the natural and cultural resources of Yellowstone and to allow natural processes and interactions between resources to occur with a minimum of human influence;
- Maintaining an interpretive and public information program that will educate the public on the ecological role of fire in the Park and provide daily fire danger and situation information;
- Reducing hazardous fuels in areas where life or property may be threatened by wildfire, or may impede the ability to allow fire to play its ecological role in the Park.
- Coordinating and cooperating with adjacent land management agencies;
- Using fire suppression strategies which result in minimal impacts to park resources; and
- Correlating data from completed fuels monitoring with fire weather readings and use in ongoing program to determine fire danger on site.

Applicable FMU specific objectives include:

- 100% of all human-caused wildfires will be managed under a suppression strategy emphasizing safety to the public and firefighters, and sensitivity to Park resources and values by utilizing minimum impact suppression tactics;
- Protect 100% of all natural and cultural resources from degradation due to fire management activities;
- At least 70% of natural wildfires every year that have potential for achieving resource objectives will be allowed to play their ecological role in the Park to the greatest extent possible;
- Collaborate with the Fire and Fuels Interdisciplinary Team on all proposed prescribed fire and non-fire fuel treatment activities in the Park; and
- Utilize a resource advisor (READ) on all Park fires that may pose a threat of degradation to natural or cultural resources, that have greater than 20 people on-scene at the fire for more than one operational period, or that require personnel to remain overnight in the backcountry at a site other than a cabin or lookout.

Ecological FMU Description

The Ecological FMU encompasses 99.5 percent of the Park; of this 99.5 percent roughly 91 percent is recommended wilderness. While all unplanned ignitions will be evaluated for all response strategies within this FMU, Park managers' goal will be to allow fire to play its ecological role to the greatest extent possible through the use of a monitoring and/or point/zone protection strategy throughout this FMU. Some planned fuels treatments may be implemented within this FMU, but managers will focus most efforts within and around the developed areas of the Park located in the Protection FMU. The Ecological FMU shares a boundary with five National Forests and one National Park Service unit, therefore interagency cooperation is an important component of managing unplanned ignitions near the Park boundary within this FMU.

Ecological FMU Management Constraints and Guidance

The Ecological FMU does not have any specific restrictions outside of general park-wide restrictions; although most of the area is recommended wilderness so if planned activities using mechanical tools take place a minimum requirement analysis will be completed.

Ecological FMU Hazards and Unique Features

Most of this FMU represents recommended wilderness, however Yellowstone's backcountry contains numerous backcountry cabins, campsites, scientific monitoring equipment (e.g., SNOTEL stations, RAWS, geophysical stations, etc…) which need to be considered during unplanned ignitions. The park-wide values at risk map follows for reference as an example of backcountry infrastructure. The Park is also home to several large mammals, such as grizzly bears, which need to be considered when staffing remote unplanned ignitions.

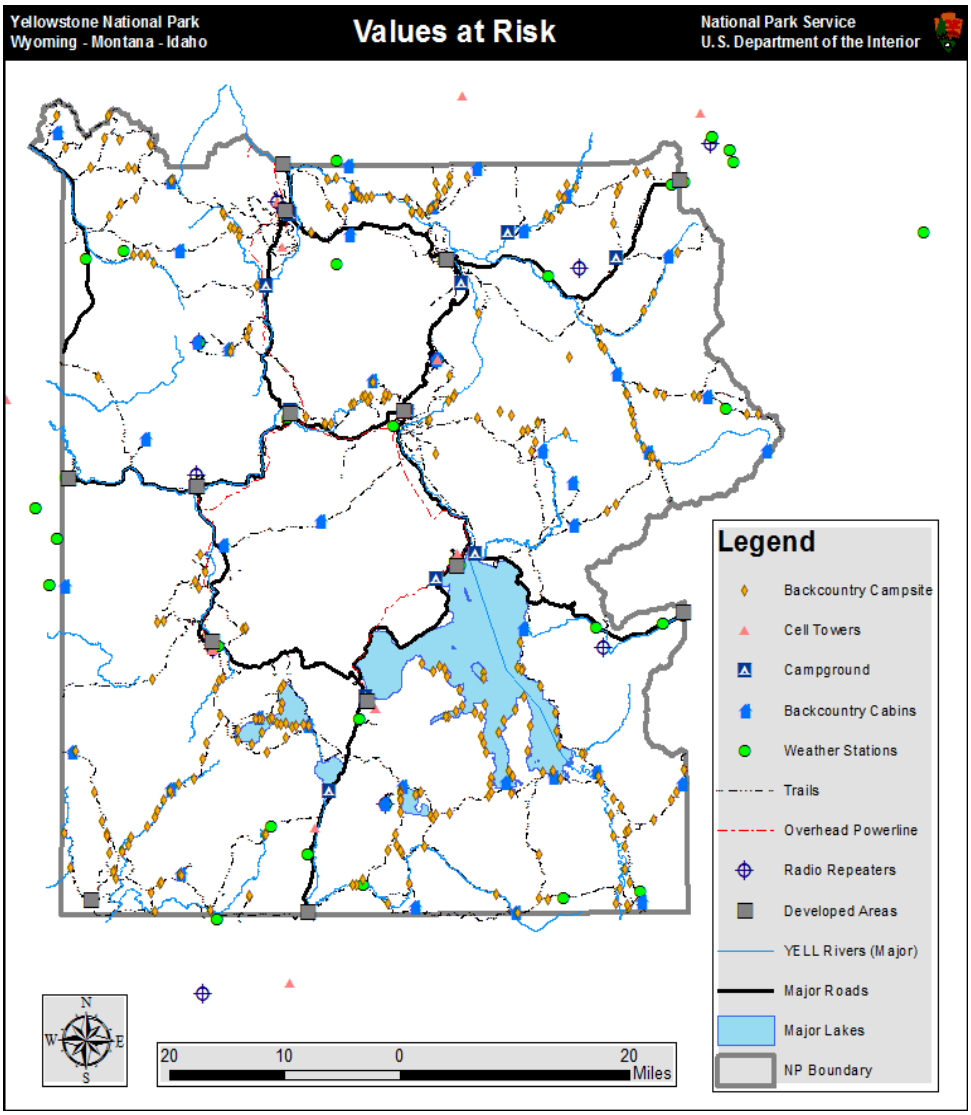


Figure 3: Park-wide Values at Risk Map.

Ecological FMU Logistical Information

A large percentage of this FMU is remote and therefore the logistics of transporting equipment and people requires either hiking long distances and pack animals or utilizing a helicopter. It requires adequate food storage and a knowledge of bear safety while in the Yellowstone backcountry. While most water sources may be used as water dip sites, there are a few locations within this FMU which need to be avoided due to aquatic invasive species (AIS). The Yellowstone Center for Resources is contacted whenever there is a question as to the suitability of a dip site due to AIS. Generally water should never be transported between watersheds, and a 300 foot buffer around water bodies should always be observed in the use of chemical fire retardant or surfactant foam.

4.0 WILDLAND FIRE OPERATIONAL GUIDANCE

4.1 Safety

Firefighter and public safety is the Park's first priority. This Fire Management Plan and the activities defined within reflect this commitment. The commitment to and accountability for safety is a joint responsibility of all firefighters, managers, and administrators. Individuals must be responsible for their own performance and accountability. Every supervisor, employee, and volunteer is responsible for following safe work practices and procedures, as well as identifying and reporting unsafe conditions. All firefighters, fire supervisors, fire managers, and agency administrators have the responsibility to ensure knowledge of and compliance with established safe firefighting practices.

All actions of the Yellowstone Wildland Fire Management program will conform to safety policies defined in agency and departmental policy, including, but not limited to:

a. Interagency Standards for Fire and Fire Aviation Operations (USDA/USDI, 2014)
b. NPS Director's Order 18 Wildland Fire (NPS, 2008); and
c. NPS Reference Manual 18 (NPS, 2014).

4.1.1 Firefighter Safety

Safety is one of the core values and guiding principles of Yellowstone's Fire Management program. Some of the safety principles managers instill in wildland fire employees include:

- Prioritizing safety in all operations;
- Only perform duties we are properly trained, equipped and qualified to do;
- Maintaining a year-round commitment to physical fitness;
- Adhering to all training and qualification requirements; and
- Prioritizing training over project work, while keeping in mind that project work often provides excellent training opportunities.

Some of guidelines outlined in the program's annual operations guide include:

- Always working with a partner;
- Always wearing the appropriate personal protective equipment for the job;
- Mitigating hazards or stopping the activity;
- Starting each day with a safety briefing based on the appropriate Job Hazard Analysis (JHA) or Six Minutes for Safety discussion;
- Making sure dispatch knows where you are going, and stay in communication to the best of your abilities;
- Not participating without appropriate training, be prepared, pay attention to detail, and use proper body position;
- Picking the appropriate tool for the job and use it correctly;
- Adhering to policy, procedures and protocols; and
- If you're not comfortable with the situation something's probably wrong, speak up if you see something that doesn't look safe, and stop the activity.

All Yellowstone employees are expected to adhere to safety principles as the overall guiding influence in performing their duties, and providing leadership and direction in the maintenance of a safe and healthy work environment per the Yellowstone National Park Safety and Health Program Employee Handbook. All

wildland fire employees and personnel participating in fire activities collaterally receive annual safety training at or in excess of the Agency determined levels. Training topics include the wildland fire safety refresher, defensive driving, blood borne pathogens, and hazardous materials. Module specific safety training on water handling, chainsaws, and engine and helicopter operations is completed annually as well.

The Wildland Fire Management program conducts daily safety briefings during the summer, which include an after action review of the previous day's events, weather overview for the day, park-wide fuel moisture overview, discussion of current safety alerts, and either a review of a JHA, pertinent Six Minutes for Safety topic, or lessons learned paper. All employees are also required to review and sign task relevant JHAs every year for hazardous tasks such as chainsaw use and chipper use. Additionally, personnel are encouraged to complete and document tailgate safety briefings prior to commencing potentially hazardous activities.

The wildland fire program provides one representative to the Park's employee safety committee. The program also administers all chainsaw safety training throughout the Park per the Yellowstone Chainsaw Safety Plan.

All fire program staff is advised annually of their right to free Hepatitis B vaccination. This right is identified in the Park's Blood Bourne Pathogens Exposure Control Plan, and is due to the potential to occupational exposure to blood or other potentially infectious materials. Employees are advised of the opportunity for hearing testing and other park-wide wellness programs as they become available. Employees who work through the winter months complete snowmobile training annually.

4.1.2 Public Safety

Yellowstone's fire management program is dedicated to ensuring the safety of firefighters, visitors, and residents as well as private property adjacent to the Park's boundary. Per 36 CFR § 1.5 the Superintendent may temporarily close park roadways, parking areas, facilities, waters, and all or portions of the Park when such actions are deemed necessary to ensure public safety, protection of resources, or the avoidance of visitor use conflicts. The posting of signs, maps, media announcements, and the use of barricades and/or gates will identify such closures.

The Park will inform visitors of all fire activity on a daily basis through normal communication channels; primarily through the Park's Public Affairs Office or incident information officers. A fire activity report will generally be updated daily, or when significant changes warrant, to inform Park personnel of any potential threat. Areas of fire activity will be clearly signed at trailheads and along roadways. Backcountry personnel will inform visitors obtaining permits for backcountry use of the exact location of fire activity and any associated closures or fire restrictions. Residents in affected gateway communities adjacent to the Park will be notified in a timely manner of any fire which poses a threat to life or property.

Yellowstone's Superintendent will make the final decision to order Park closures or evacuations based on recommendations from the Chief Park Ranger.

4.2 Preparedness

Preparedness activities provide detailed procedures and standards for: wildland fire operations, preseason and ongoing activities throughout the fire season, and preplanned procedures for initial response and incident management.

4.2.1 Coordination and Dispatching

Dispatching involves the receiving of a fire report, gathering pertinent information, assessing and analyzing the situation, and assigning fire management personnel to carry out the desired action under the direction of the Duty Officer. The fire dispatcher will monitor incident progress, relay information to fire management staff and the affected District Ranger(s), process requests for additional resources, equipment, supplies, and order aircraft support as needed. Incident personnel will remain in radio contact with Wildland Fire and Aviation Dispatch (700Fox) during all phases of the incident operations and report any significant events or fire status change.

Yellowstone's fourth-tier dispatch has an interagency agreement with the Custer Gallatin National Forest's third-tier Bozeman Interagency Dispatch Center for expanded dispatch support as necessary for extended attack incidents and incident management teams (IMTs). During fire season and particularly during resource shortages, 700Fox also coordinates with the Cody Interagency Dispatch Center, Eastern Idaho Interagency Fire Center, and Teton Interagency Dispatch Center. Yellowstone's Wildland Fire and Aviation Dispatch utilizes government e-mail systems, the internet, land and cellular telephone systems, and the Resource Ordering and Status System (ROSS) to remain in contact with our interagency cooperators at all times.

Requests for all resources needed for wildland fire and other emergency operations, such as search and rescue (SAR), will be processed through Wildland Fire and Aviation Dispatch, and a current list of qualified personnel and equipment will be maintained by Dispatch. Requests for interagency assistance will be processed through normal procedures, which include completing the Resource Order form. For any personnel requested for incident support, the immediate supervisor will be contacted for approval.

Following the report of a wildfire, the steps that will be taken are outlined in the Wildfire Initial Response Plan found in the Preparedness Plan (Appendix G).

4.2.2 Preparedness Plan

Wildland fire preparedness activities include a wide range of readiness activities and program elements which are essential to dealing with unplanned ignitions and fuel treatments. The following can be found in Appendix G:

- Annual Delegation of Authority from the Park Superintendent;
- Step-up Staffing Plan;
- Wildfire Initial Response Plan;
- Incident Organizer which includes fire size-up procedures;
- Yellowstone Wildfire Decision Support Tool;
- Yellowstone National Fire Danger Rating System (NFDRS) Operating Plan;
- Duty Officer Roles and Responsibilities;
- Annual Duty Officer Delegation;
- Annual Preparedness Timeline;
- Example Delegation of Authority; and
- Example of Return of Delegated Authority.

The Park's NFDRS Plan outlines specific fire business thresholds which staffing levels are based on. Yellowstone uses fire business thresholds because the agency directed climatological breakpoints of 90 and 97 percent do not correlate well to fire business within the Park. There are six automated fire weather stations within the Park, and four manual stations (Figure 3); fire business thresholds are

based on the Quadrant remote automated weather station (RAWS), using a fuel model 7G and ERC as an index.

Several copies of the Yellowstone Duty Officer guide can be found within the Wildland Fire Office. The Park Fire Duty Officer (Duty Officer) has the authority to make operational decisions regarding initial fire management actions based on observed and forecasted conditions. The Duty Officer's first responsibility is to the safety of the staff dedicated directly or indirectly to the implementation of fire actions. The Duty Officer is also the primary person responsible for ensuring fire management actions are appropriate, minimize impacts, and safeguard natural and cultural resources at risk. The Duty Officer guide contains several operational documents to help guide initial decisions, along with a detailed list of Duty Officer roles and responsibilities.

All relevant JHAs can be found above the mailboxes within the Wildland Fire Office and electronically on the wildfire network drive. The current copy of the Agency Administrators Guide to Critical Incident Management can be found in Park's wildland fire preparedness plan.

4.3 Management of Unplanned Ignitions

A. Preparing for Unplanned Ignitions

1. Objectives

The following goals relate specifically to management of unplanned ignitions within Yellowstone:

- Firefighter and public safety is the first priority in every fire management activity;
- Allow fire to play its ecological role in the Park to the greatest extent possible through the use of incident objectives, strategies and tactics;
- Use suppression as the initial response to human caused wildfires in a safe, cost-effective, and environmentally sensitive manner;
- Preserve the natural and cultural resources of Yellowstone and to allow natural processes and interactions between resources to occur with a minimum of human influence;
- Maintain an interpretive and public information program that will educate the public on the ecological role of fire in the Park and provide daily fire danger and situation information;
- Reduce hazardous fuels in areas where life or property may be threatened by wildfire, or may impede the ability to allow fire to play its ecological role in the Park; and
- Coordinate and cooperate with adjacent land management agencies.

2. Evaluating Risk

Every unplanned ignition will be assessed following a decision support process that examines the full range of potential responses. This decision making process involves collaboration between the Park Superintendent's Office, the Chief Park Ranger's Office, and the Fire Management Office. As identified in the Wildfire Initial Response Plan in Appendix G, numerous other Park personnel are notified of new fire starts, and are welcome to join in the discussion as to how best to manage the incident. Each incident is evaluated for potential to be managed using a monitor strategy or point/zone protection strategy, through a Park decision process and a process directed by the NPS National Fire Office. The NPS directed National Fire Office decision support process currently being used on federal land is the Wildland Fire Decision Support System (WFDSS). In addition, when a natural ignition is discovered, a Park-specific decision support tool will be used for all wildfires which start outside of the Protection FMU. The Park-specific decision tool includes items such as:

- Current and anticipated location of fire;
- local Fire Danger and associated staffing levels;
- national preparedness level;
- 1000 hour fuel moistures;
- Current and expected drought conditions;
- live fuel moistures;
- anticipated incident complexity level;
- current and predicted energy release component (ERC);
- time of year;
- potential conflicts with established resource management objectives; and
- political and social climates at the time within the Park.

Ultimately, some wildfires will be suppressed due to an unfavorable combination of factors prompted and evaluated through the decision process. The Park-specific tool is completed in collaboration with any, or all, of the following Park staff: the Duty Officer, Park Superintendent, Deputy Superintendent, Chief Park Ranger, Fire Management Officer, Assistant Fire Management Officer, Fire Ecologist, and a Resource Advisor. It can be found in Appendix G, and is adaptive and will be modified as wildland fire program managers continue to fine tune the criteria contained within it. As the Agency Administrator, the Park Superintendent has the final determination and approval of any fire management strategy other than suppression. Only the Duty Officer may elect to suppress any wildfire without the Superintendent's approval that they determine will pose threat to life or property which is not able to be mitigated. During the peak of fire season in the Park, fires have a high potential for rapid growth, and the time afforded to decision making is compressed. As part of the determination of the best fire management strategy, the wildfire's complexity will be determined by completing a Wildland Fire Risk and Complexity Assessment (RCA). The RCA can be found in Appendix E of the Interagency Standards for Fire and Fire Aviation Operations (2014) guide, and will be included in the Park's incident organizer. Indicators of incident complexity can be found in Appendix F of the Interagency Standards for Fire and Fire Aviation Operations (2014) guide, and provides a good secondary reference for the determination of incident complexity.

3. Implementation Procedures

- Seasonal fire severity indices will be tracked, communicated, and a pocket card will be updated and distributed;
- Preparedness activity elements will be reviewed and updated;
- Interagency agreements will be reviewed and signed;
- Employees will attend required training to maintain currency commensurate with their fire qualifications and Red Book requirements;
- Duty Officer designation and delegation of authority will be signed;
- The fire history, aerial hazard, and values at risk Park-wide maps will be updated as needed; and
- Annual FMP and Preparedness reviews will be completed and reported to the Regional Office.

The Wildland Fire Decision Support System (WFDSS) will be used to document decisions for all required wildfires. Wildland Fire and Aviation Dispatch is responsible for initiating the WFDSS record

by creating a new incident and entering location information. It is then the Incident Commander (IC), Duty Officer, or FMO's responsibility to finish the initial WFDSS report and publish a decision for the Agency Administrator(s) with jurisdiction to review and approve if they concur. It is the Park Superintendent's or Deputy's responsibility to validate the published WFDSS decision and revalidate it on an appropriate interval.

The Park has six automated fire weather stations and four manual stations (Figure 4). Five out of the six automated weather stations are RAWS, and one is a National Weather Service cooperative station. The 10 weather stations, WIMS station identifiers and location in the Park are:

- Quadrant RAWS, 480115, in the northwest corner of the Park;
- Mammoth NWS automated co-op station, 480111, in the north central section of the Park;
- Soda Butte RAWS, 480119, in the northeast corner of the Park;
- Cabin Creek RAWS, 480118, in the southeast corner of the Park;
- Bechler RAWS, 480101, in the southwest corner of the Park;
- Grebe RAWS, 480120, in the center of the Park;
- Mt. Washburn Lookout manual station, 480106, in the east central section of the Park;
- Old Faithful manual station, 480107, in the west central section of the Park;
- Canyon manual station, 480112, in the center of the Park; and
- East Entrance manual station, 480113, on the central eastern boundary of the Park.

The 10 weather stations' 1300 hour weather observations are processed in the Weather Information Management System (WIMS) application to determine fire danger indices, staffing classes, and fire danger adjective classes in accordance with NFDRS protocols. The Quadrant RAWS is used for the Park-wide Step-up Staffing Plan (Appendix G), with a 7G fuel model and ERC as an index. During emergent incidents any weather station in close proximity to a fire may be used for weather, depending on observed conditions on site and known fuel moistures in the area. The Park Lead Fire Effects Monitor is responsible for maintaining all of the above listed weather stations except for Mammoth, and ensuring quality of data for all of the stations.

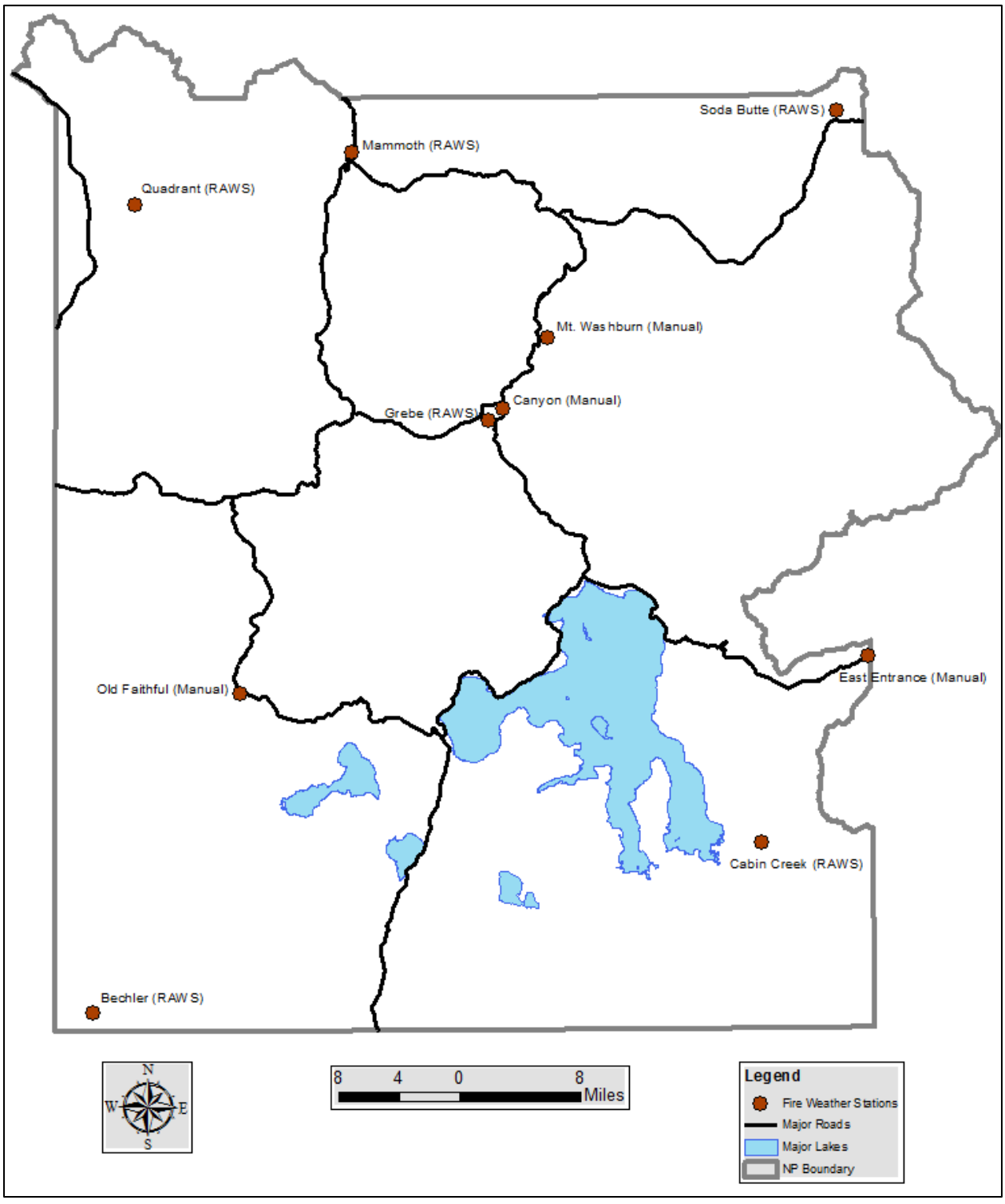


Figure 4: Map of Yellowstone Fire Weather Stations.

The Fire Ecology program also maintains four long term fuel moisture monitoring sites which represent the major vegetation types throughout the Park. Live herbaceous, woody, and ground fuels are measured at each site biweekly. There are also 1000 hour log moisture stations at all of the manual fire weather stations, and Mammoth, which are weighed weekly. All of the fuels information is updated, tracked and posted weekly within the Fire Cache on the fuels and weather intelligence board located outside of the training room.

4. Staffing

A Duty Officer will be identified daily by the FMO when the preparedness level is moderate or higher. The FMO is the *de facto* Duty Officer during periods of low fire danger or when no one else has been identified as such. The Step-up Staffing plan with specific staffing levels based on ERC classes can be found in Appendix G. At a minimum the Duty Officer will confer with the Superintendent (or designated acting) and the Chief Park Ranger (or designated acting) when deciding the initial management response to an unplanned ignition. Dispatch will initiate WFDSS and the IC, Duty Officer, or FMO will publish a decision, and the Superintendent or Deputy will validate the decision.

5. Information

The FMO or Duty Officer will work with the Park Public Affairs Office or the incident information officers to disseminate all public information regarding fire management activities. During the fire season the fire danger adjective class and fire restrictions status is distributed throughout the Park via the morning report. Fire danger signs are located at all five of the entrance stations throughout the Park, and are updated by entrance station employees as needed.

6. Record Keeping

Fire management records will be kept following agency standards, which are found here: http://www.nwcg.gov/policies/records/index.html

B. Expected Fire Behavior

Fire season in Yellowstone typically is from mid-June until September, occasionally into October. Fire behavior within the Park varies greatly throughout the fuel types. A majority of lightning caused fires, primarily occurring in the forests, exhibit fire behavior which can be categorized under a matrix of scenarios. After ignition, a snag smolders for several days and then burns out either because live or dead fuel moistures are too high to support sustained combustion, or because fuels are too discontinuous both horizontally and vertically to promote fire spread. Under a different scenario, sufficient surface and ladder fuels in the understory are present, dry conditions exist and fire can move into the canopy whether influenced by high winds or convective currents that result from active combustion. Depending on the forest type present and in conjunction with fuel moisture, weather, and topography, fires can grow in size by isolated to frequent torching and spotting, or in the extreme case, by spreading from tree crown to crown. In any fire event, crown fire behavior represents the main mode of fire spread. Fires in the forests of the Yellowstone region seldom experience significant spread through surface fuels only. Fires within the sage and Douglas-fir northern range of the Park are infrequent and rarely grow past 10 acres due to either discontinuous fuel or high fuel moistures.

Fire managers within the Park rely on ERCs, forecast weather, and current and expected fuel moistures to determine spread potential during the span of an incident.

C. Initial Response Procedure

All wildfire (i.e., unplanned ignitions) which start within the Protection FMU will be suppressed immediately. All human caused fires will also be suppressed per federal policy. All other unplanned

ignitions which start within the Ecological FMU will be considered for all management responses; a management strategy will be chosen by using the Park-specific decision support tool involving the Duty Officer, Superintendent or Deputy, Fire Management Officer, and Chief Park Ranger or Deputy.

1. Information Needed To Set Initial Response Priorities

- Current and anticipated location of the fire;
- Yellowstone staffing level (based on ERC);
- Time of year;
- National preparedness level;
- 1000 hour fuel moisture at nearest representative log weighing station;
- Drought intensity;
- Live fuel moisture of fire carrier; and
- Anticipated incident complexity level.

2. Incident Documentation and Reporting

A record for each unplanned ignition will be initiated per the most recent policy guidance, and as management of the incident evolves, the record will be updated to capture information and decisions. Each fire will also be reported in the most current fire occurrence reporting system within three weeks of a fire being called out.

3. Criteria for Selecting the Initial Response

The Park-specific unplanned fire decision support tool (Appendix G) will be used to assist managers in selecting the appropriate management strategy. The Duty Officer and/or the FMO have the authority to increase or decrease the response depending on the current situation (e.g., other fires in the area, location, availability of resources, etc.).

4. Response Times

Response times within the Park can vary from a few minutes in developed areas to multiple hours in the backcountry. Most fires which occur within the Park are not located near roads and require hiking in or the use of an aviation asset. Aerial reconnaissance and remote monitoring may be used as an alternative to engaging the fire on the ground.

5. Management Requirements and Restrictions

The following restrictions apply to both FMUs:

- The use of any heavy equipment in support of wildfires requires prior approval from the Superintendent's office;
- The use of fireline explosives will be avoided in non-forested areas;
- The use of existing natural fuel breaks and human made barriers, wet line, or cold trailing the fire edge will be used in lieu of fireline construction whenever possible;
- Fireline will be kept as narrow and shallow as possible when it must be constructed;
- Water will be used in lieu of fire retardant whenever possible, if chemical fire retardant must be used a 300 foot buffer around water bodies will be employed;
- Water will not be transported between 5th level (10 digit) hydrological unit watersheds, unless in an emergency (e.g., life or structure loss). If water is transported between

watersheds, a Park expert on Aquatic Invasive Species (AIS) will be contacted to determine if AIS have been transported and if so, a monitoring plan will be developed and implemented;

- If aircraft or equipment is used in an area known to contain AIS, used in areas suspected to contain AIS, or comes from outside of the Park, it will be inspected by AIS staff;
- Fuel containment systems will be used at all times for pumps near water sources;
- During extended attack, all fire vehicles and equipment will be cleaned and inspected before being put into service;
- Helicopter water buckets and fixed tanks will be inspected for AIS, when feasible, prior to being put into service in the Park;
- All Clean Air Act, Clean Water Act and all other applicable federal, state and local laws and requirements will be complied;
- Backcountry fire camps will be located greater than one mile from known active lynx dens and wolf dens or rendezvous sties. To minimize human wildlife interactions each camp will be attended by a Park-appointed resource advisor who enforces camp protocols; and
- Large fire camps (i.e., greater than 100 people) will be strictly limited to preexisting disturbed sites in the vicinity of developed areas and roads.
- Geothermal areas will be avoided as much as possible to protect the sensitive areas and for incident personnel safety.

6. Other Special Issues or Concerns

Most of the Park is recommended wilderness. Yellowstone's backcountry contains numerous backcountry cabins, campsites, scientific monitoring equipment (e.g., SNOTEL stations, RAWS, and geophysical stations) which need to be considered during unplanned ignitions. The Park is also home to several large mammals, such as grizzly bears, which need to be considered when staffing remote unplanned ignitions. Minimum impact tactics are required to be used for all fire management activities on National Park Service lands. The Park has an annual visitation of approximately three million visitors many of whom visit during fire season. Occasionally, fires threaten the Park road system and/or one of the 20 developed areas within the Park, or Park gateway communities, where visitors, concessionaires, contractors, and employees are concentrated. Fires that approach this wildland-urban interface will require extensive coordination to ensure the safety of firefighters and the public.

D. Transition to Extended Response and Large Fire

1. Criteria for Transition

Wildland fire complexity will be determined by completing a Wildland Fire Risk and Complexity Assessment (RCA). The RCA can be found in Appendix E of the Interagency Standards for Fire and Fire Aviation Operations (2014) guide, and will be included in the Park's incident organizer. Indicators of incident complexity can be found in Appendix F of the Interagency Standards for Fire and Fire Aviation Operations (2014) guide, and provides a good secondary reference for the determination of incident complexity. The RCA was adopted in January of 2014 by the NWCG and NPS. It replaces the previous Organizational Needs Assessment (ONA) found within WFDSS, and the Complexity Analysis (CA) found in various field references. It is designed to assist incident commanders and managers with selecting the organization needed to manage an incident. WFDSS has been updated to facilitate transcribing a hardcopy of the RCA into it. The Park has developed a comprehensive Incident Management Team (IMT) Transition Package to facilitate a safe and effective

transition from local fire management to a geographic area or national incident management team. This transition package is available in electronic or hard copy format in the FMO office.

2. **Implementation Plan Requirements and Responsibilities.**
   All Type 1, 2, and 3 complexity fires will be entered into WFDSS. Additionally, any type 4 or 5 complexity fire that is managed under a monitoring or point/zone protection strategy will be entered into WFDSS. Fire management office staff will collaboratively develop the WFDSS decision for each incident with input from various stakeholders and cooperators. The Superintendent's Office is responsible for approving WFDSS decisions and for revalidating the decision on a timetable of their choosing; generally the revalidation period is between two and five days. WFDSS will serve as the record of decision for the overall strategy, goals, objectives, and special concerns associated with an incident. It will serve as a platform for sharing and communicating the above information with cooperating agencies, and provide an opportunity to document concurrence with the plan of action from multiple stakeholders and, if need be, across jurisdictional boundaries as a fire progresses.

3. **Delegation of Authority**
   An example of the current Delegation of Authority and Return of Delegated Authority can be found in Appendix G. When a Delegation of Authority is utilized there is generally a negotiation between the incoming IC and Park management as to the particulars of the delegation. Segments of the delegation that frequently require negotiation are the responsibility for fire information dissemination, initial attack of new fires within the Park, and if all or just some of the current active fires within the Park are to be managed by the incoming IMT.

4.4 Post-Fire Programs and Response

4.4.1 Burned Area Emergency Response

The response to imminent post-wildfire threats to human life and safety, property and critical natural or cultural resources and the taking of immediate actions to manage unacceptable risks is termed Burned Area Emergency Response (BAER). The National Park Service Fire Management Post Wildfire Program is dedicated to protecting lives, property, and resources while promoting the restoration, maintenance, and integrity of ecosystems. The program determines the need to prescribe and implement emergency treatments to meet the following objectives:

- Minimize threats to life or property;
- Stabilize and prevent further unacceptable degradation to natural and cultural resources resulting from the effects of a fire;
- Repair or improve lands damaged directly by a wildfire; and
- Rehabilitate or establish the integrity of stable ecosystems in the burned area.

Natural recovery after a fire is always preferable if immediate stabilization and rehabilitation needs have been met or are assessed to be unnecessary. In situations where a burned area emergency exists and it is possible to restrict access to protect life and safety or where valid uses will significantly interfere with emergency treatment objectives or delay recovery, administrative closures should be the first consideration. Treatments should be disallowed if they are experimental or proven to be ineffective. All wildfires are eligible for post-wildfire funding regardless of the strategies, tactics, and management options.

Post-wildfire management consists of four funding activities: Suppression Damage Repair, Emergency Stabilization (ES), Burned Area Rehabilitation (BAR), and Restoration.

Table 3: Post Wildfire Program and Funding Components

	Suppression Rehabilitation	Emergency Stabilization	Rehabilitation	Restoration
Objective:	Repair suppression damages	Protect life and property	Repair damages	Long term ecosystem restoration
Damage due to:	Suppression activities	Post fire events	Fire	Fire
Urgency:	Before incident closeout	1-12 months	1-3 years	3+ years
Responsibility:	Incident Commander	Agency Administrator	Agency Administrator	Agency Administrator
Funding type:	Suppression (fire)	Emergency Stabilization	Rehabilitation	Regular program

4.4.2 Fire Suppression Activity Damage Repair

These actions are planned and performed by the suppression incident organization as soon as possible prior to demobilization. However, some actions may need to be conducted by the local unit following incident management team demobilization. The incident management team must document the fire suppression activity repair actions and those still needed to ensure that all planned actions are completed during transition back to the local unit. Suppression activity damage repair is not the responsibility of the BAER team, and is often planned and documented by the Resource Advisor (READ).

4.4.3 Emergency Stabilization

Emergency stabilization (ES) is an extension of emergency actions and consists of planned actions taken to minimize threats to life or property resulting from the effects of a wildfire. The effects require immediate action and therefore ES is funded for only one year from the containment date of the wildfire. An ES plan must be submitted to the regional director within seven calendar days after total containment of the wildfire. Accomplishment reports and monitoring data will be submitted electronically to ensure future managers can learn from past successes and failures.

4.4.4 Burned Area Rehabilitation

Burned area rehabilitation (BAR) is non-emergency actions taken to repair or improve wildfire damaged lands which are unlikely to recover naturally, or to repair or replace minor facilities damaged by wildfire. BAR plans must be submitted and carried out within three years following containment of a wildfire. All plans will be submitted to the regional director for approval. The BAR plan then gets forwarded to the national office because BAR funding is competitive within the Department of the Interior. Accomplishment reports and monitoring data will be submitted electronically to ensure future managers can learn from past successes and failures.

4.4.5 Restoration

These activities are long term ecosystem restoration projects that are beyond the funding limitations and time frames of emergency stabilization and burned area rehabilitation. Fire funds are not available for these projects. The Park needs to determine their priority and shift ONPS funding or seek other funding sources.

4.5 Management of Planned Fuels Treatments

The Park will use hazard fuel reduction projects (manual, mechanical, and/or prescribed fire) to create defensible space around any building, structure, historical area, or in areas within the Park adjacent to gateway communities. Most planned fuel treatments will take place within developed areas.

The Park may also treat fuels for resource enhancement and research purposes throughout the Park. Examples of research treatments include:

- studying fire's effects on exotic and native vegetation species;
- studying fire's effects on ungulate forage;
- studying fire's effects on different plant associations found within the Park;
- studying fire return intervals;
- studying fire behavior in different fuel models, utilizing various methods of (manual, mechanical, prescribed burning) treatments;
- removal of biomass for vegetation studies; and
- improving or restoring historical and or cultural landscapes.

4.5.1 Fuel Planning and Documentation

The Yellowstone fuel management program will implement fire management policies and help achieve resource management and fire management goals as defined in:

- *Federal Wildland Fire Management Policy and Program Review;*
- *Managing Impacts of Wildfires on Communities and the Environment, and Protecting People and Sustaining Resources in Fire Adapted Ecosystems – A Cohesive Strategy; and*
- *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Comprehensive Strategy Implementation Plan.*

a. Fuel Planning Participants

The AFMO or Fuels Specialist in Yellowstone will take the lead for the initial planning of fuels projects, with help from the FMO, Fire Ecologist, and Vegetation Management Specialist. The Fire Ecologist will take the lead for any compliance related to fuel projects. Once a treatment area is defined and a draft treatment plan is developed, all proposed fuels treatment projects will be evaluated by the Park's Interdisciplinary Fire and Fuels Team (IDT) to determine site specific goals and objectives. The Fire and Fuels IDT consists of Park managers from disciplines including, but not limited to: fire management, rangers, planning and compliance, maintenance, public affairs, cultural resources, vegetation, concessions management, resource education and youth programs, and wildlife. The IDT will be consulted on all planned fuels treatments, and will help determine project specific boundaries, goals, objectives, prescriptions, coordination with other Park projects, and potential resources affected.

b. Candidate Fuel Projects.

Per RM-18, the Park is required to be in compliance with International Code Council (ICC) Sections 603 and 604 (ICC, 2011). These sections outline the minimum wildland-urban interface defensible space standards based on the hazard posed by wildfire in the vicinity of a structure. The code stipulates the minimum requirement for defensible space around structures is 30 to 100 feet, based on site specific analysis of local conditions (ICC, 2011). These distances may be increased based on fuel type, continuity of fuels, slope, building material (i.e., flammable, non-flammable), and the location of the value at risk. The Park's fire dependent lodgepole pine, flammable construction material, and fuels loading is at the extreme end of the fire risk scale, therefore additional clearance beyond the minimum 30 to 100 feet may need to be evaluated.

The criteria for fire managers and the IDT to determine if an area should be treated may include:

- if current fuels conditions in the wildland-urban interface developed areas need to be treated to lower the risk of crown fire and therefore make values at risk more defensible when threatened by a wildfire;
- reduce the potential of an unplanned ignition originating within the Park and negatively impacting a gateway community;
- seek opportunities to protect a value at risk within the wildland-urban interface while at the same time enhancing cultural landscapes and viewsheds;
- increase opportunities to manage fire for natural processes within a region of the Park; and
- previously treated areas require periodic maintenance.

These criteria are discussed with the IDT, and background information such as topography, fuel type, fire history, threatened and endangered species, resource surveys (i.e., wetland and cultural), and ongoing or proposed Park maintenance projects (e.g., road construction, building construction) are all factored into which areas are candidates.

c. Project Prioritization Criteria

Planned fuels treatment projects will be prioritized with the IDT. Examples of criteria which may be used are:

- degree of hazard based on the fire history map;
- proximity of fuel and fuel type surrounding values at risk;
- degree of impact on natural and cultural resources;
- maintenance cycles for previously treated areas;
- practicality of implementation and cost effectiveness of treatment;
- coordination efforts with adjacent land managers;
- cost to complete resource surveys for treatment area; and
- logical project sequence with other planned Park projects.

d. Updating the Fuels Treatment Plan

A multi-year fuels treatment plan represents a multiple year moving window of current and out year fuel treatments, and is a required element of National Park Service Fire Management Plans. The Park's five year fuels treatment plan (Appendix E) is reviewed annually and is updated to include new projects and to drop or revise previously proposed projects. These updates then become part of the annual update to the FMP.

4.5.2 General Fuels Management Implementation Procedures

a. Guidance

All proposed fuels treatment activities (manual, mechanical and/or prescribed fire) will be planned in accordance with RM-18 Chapter 7, Fuels Management chapter, the Interagency Prescribed Fire Implementation Procedures Reference Guide, Section 106 guidelines, Section 7 guidelines, *International Code Council Sections 603 and 604*, the Migratory Bird Treaty Act, and the Park's wilderness guidelines.

b. Annual Actions

Fuels reduction projects must be entered into the most current agency database to request project funding annually the spring before the end of the current fiscal year. This means projects must be planned at least 12 months in advance. Each year the five year fuels treatment plan must be updated, and an annual meeting will be held to discuss proposed projects with the IDT. In this

meeting it is determined if any proposed projects need Section 7 or Section 106 compliance completed, along with resource surveys.

c. Implementation Standards

All proposed fuels treatment activities (manual, mechanical and/or prescribed fire) will be implemented in accordance with RM-18 Chapter 7, Fuels Management chapter, Interagency Prescribed Fire Implementation Procedures Reference Guide, Interagency Standards for Fire and Fire Aviation Operations, *International Code Council Sections 603 and 604,* Section 106 guidelines, Section 7 guidelines, the Migratory Bird Treaty Act, and the Park's wilderness guidelines.

d. Planning & Reporting Requirements

All fuels project costs and accomplishments will be entered and tracked using the National Fire Plan Operations and Reporting System (NFPORS) by the Park's AFMO or Fuels Specialist. In addition, year-end accomplishment reports will be compiled for internal Park management and a Fire Ecology report with current fuels treatment analysis will be completed and submitted to a national sharepoint website each year.

e. Monitoring

All planned hazardous fuels treatments will have specific and measurable objectives, and will employ adaptive management through monitoring. Canopy densities and downed fuel densities will be monitored before, during, and after projects to ensure the treatments are effective in lowering the risk of crown fire and reducing fire intensity. Previous planned fuels treatments within the Park typically used a minimum average crown spacing of 20 feet as an objective, which is difficult to monitor efficiently and accurately. Because of this, monitoring currently focuses on tree densities and canopy bulk density measurements rather than actual crown spacing. All treatments will be monitored in accordance with guidance from the NPS Fire Monitoring Handbook (2003).

4.5.3 Prescribed Fire Treatments

a. Guidance

All prescribed fire planning and implementation within the Park will be in accordance with RM-18 Chapter 7, Fuels Management, the Interagency Standards for Fire and Fire Aviation Operations, and the Interagency Prescribed Fire Implementation Procedures Reference Guide. In addition, all prescribed fire events will also conform to the applicable state (i.e., Montana and Idaho Airshed Group, Wyoming DEQ, or Montana DEQ depending on location and time of year) smoke permitting processes.

b. Treatment Review

All treatment projects must be documented with a signed project plan, and a written report by the burn boss and the lead fire effects monitor will be completed after prescribed burns. When monitoring results are completed they will be added to this report, along with the annual Fire Ecology program report. These monitoring results will be used to determine if objectives were met and to make recommendations for successful prescription parameters. This evaluation process is part of the adaptive management process described in RM-18 Chapter 5 and is part of the documentation required in RM-18 Chapter 7.

4.5.4 Non-Fire Fuel Treatments

A typical manual or mechanical hazardous fuel treatment within a Park developed area will focus on protecting values at risk by removing standing live and dead trees, along with ladder fuel to reduce the

threat of crown fire. Dead and down fuels will also be removed to reduce flame length and fire intensity. This could include some of the actions listed below, which could be completed using hand tools, chainsaws, chippers, or small mechanical equipment designed to minimize ground impact:

- Removing all vegetation within three feet of the value at risk. Only green grass which is kept mowed to under three inches is allowed to touch the structure, as long as that part of the structure is not flammable (e.g., concrete or rock foundation);
- Removing any vegetation within 30 to 100 feet which can ignite and send embers toward the value at risk. This does not necessarily mean all vegetation will be cut; it is dependent on site specific conditions. It is important to protect values at risk while preserving area aesthetics and recognizing other resource concerns. Trees and native vegetation may be allowed within this area provided the average canopy bulk density and tree density does not allow crown fire propagation during worst case fire behavior scenarios; and
- Continue thinning trees as far as 400 feet out from the value at risk.

Specific project prescriptions can vary, but will typically involve reducing the canopy density of standing trees to reduce the threat of crown fire. Effective canopy spacing will vary from project to project depending on the values at risk, topography of the area, and specific fuel types. All planned fuels treatments will employ adaptive management through monitoring; tree densities will be monitored before, during and after projects to ensure critical canopy bulk densities are effective in lowering the risk of crown fire and reducing fire intensity. Creating the correct canopy spacing in an aesthetically acceptable or historically compatible manner is as much art as science, and Park managers recognize the need to conduct repeated partial treatments several years apart rather than attempting to meet all defensible space criteria for values at risk in one treatment.

a. Guidance

All proposed non-fire fuel treatment activities will be in accordance with RM-18 Chapter 7 Fuels Management chapter, the Interagency Prescribed Fire Implementation Procedures Reference Guide, Section 106 guidelines, Section 7 guidelines, *International Code Council Sections 603 and 604*, the Migratory Bird Treaty Act, and the Park's wilderness guidelines.

b. Planning

All proposed non-fire fuel treatments will follow RM-18 Chapter 7, Section 6 guidelines. A sample fuel treatment plan scope of work can be found in Appendix F, and the rest of the required documentation can be found within specific project folders located in the Wildland Fire Cache.

c. Treatment Review

When monitoring results for individual projects are complete they will be included in the annual Fire Ecology program report. These monitoring results will be used to determine if objectives were met and to make recommendations for successful prescription parameters. This evaluation process is part of the adaptive management process described in RM-18 Chapter 5.

4.6 Prevention, Mitigation & Education

4.6.1 Prevention/Mitigation

The goal of Yellowstone's fire prevention plan and fire restrictions guide are to help provide for the safety of employees and public, protect communities and infrastructure, and natural and cultural resources from human-caused fires. The three main causes of human caused fires within Yellowstone are: unattended campfires, discarded smoking material, and power line related issues. The fire

prevention plan is a component of the Park's overall fire communication and education strategy in order to support an integrated wildland fire communication and education program. The fire prevention plan and fire restrictions guide can be found in Appendix I.

4.6.2 Communications/Education

The fire communication and education program is a key component of the National Park Service Wildland Fire Management program and the Yellowstone National Park Wildland Fire Management Program. The main focus during outreach is to educate the public that wildland fire is an essential and natural process in the Park's ecosystem. Public and employee education efforts will be shared throughout the Park by the Park's Resource Education and Youth Programs Division, Public Affairs office, and Fire Management office. The Visitor Center staff will continue their efforts in informing the public about NPS and Yellowstone philosophy of fire, and the role of fire in Yellowstone's ecosystem. This may include having on-site interpretive personnel at a fire to answer specific questions or leading groups of visitors to a vantage point to watch a fire. Slide presentations, video presentations, and interpretive talks will address the fire management program and explain the role of fire in the Yellowstone ecosystem. The backcountry office includes information on campfires and fire restrictions in the backcountry camper permitting process. The FMO in conjunction with the Public Affairs Office (PAO) will provide current fire information in a timely manner about fire activity to Park employees, visitors and media.

a. Program Capabilities

Dissemination of information concerning fire activity will be the responsibility of the FMO or Duty Officer through the PAO, or the assigned incident information officers. The PAO will contact the news media and provide pertinent information. This information will be made available to all entrance stations, campground offices, the visitor service office, visitor centers, and Park personnel through normal communication channels. Notification of select partners and cooperators will be accomplished by the Fire Management Office. Park information dissemination through social media outlets is the responsibility of the PAO, or the assigned incident information officers.

The PAO will increase their involvement and number of press releases on an as-needed basis as the fire management activity increases. Staff members will be assigned to wildland fire information gathering and dissemination, and additional public information resources will be ordered through normal dispatch channels.

The region currently has three permanent, full-time communication and education specialists. The National Parks located in Montana and Wyoming have an assigned, specialist that has a duty station in Grand Teton National Park. This individual is available to assist the Park throughout the year through consultations, guidance or on-site help. Wildland fire and aviation management success stories are published quarterly through the assistance of the region's communication and education specialists.

In addition to normal interpretive programs led by the Resource Education and Youth Programs Division, the Fire Management Office also conducts talks for various groups throughout the year on fire management and fire ecology within the Park.

1. Contact List

Contact lists for planned ignitions (i.e. prescribed fires) will differ depending on the location of the burn within the Park, but will generally include the following contacts:

- Yellowstone Fire and Aviation Dispatch (700Fox);
- Yellowstone Communication Center (700);
- Intermountain Regional Office;
- Yellowstone Public Affairs Office;
- Ranger and Interpretive staff for developed area nearest planned burn;
- Local gateway community volunteer fire department and Chamber of Commerce nearest the planned burn if necessary; and
- Adjacent property owners or federal agencies if necessary.

The Fire Management Office also maintains several email contact lists for new wildfire notifications, fire situation updates, and fire danger rating updates throughout the season. These lists are a combination of Park employees, surrounding agency partners and cooperators, and regional office staff.

2. **Online Resources**
   The Park's Fire Management website can be found on the internet:
   http://www.nps.gov/yell/parkmgmt/firemanagement.htm

b. Communications Step-Up Plan

Communication is a shared responsibility between the Fire Management office and the Public Affairs office. The Yellowstone National Park Fire Restrictions Guide will be followed and all pertinent information will be disseminated as needed throughout the fire season based on the step-up staffing plan and the fire restrictions guide.

4.7 Air Quality/Smoke Management

4.7.1 Air quality issues

The Clean Air Act (42 USC 7401 *et seq*.) recognizes the need to protect visibility and air quality in national parks. By definition, national parks, including Yellowstone, are mandatory Class I areas and are therefore given the highest level of air quality protection. In Class I airsheds, air quality is better than the National Ambient Air Quality Standards (NAAQS), and there is little allowance for deterioration of air quality. Monitoring stations are set up in different areas of the Park to evaluate air quality conditions and compare them with federal and state standards.

All prescribed fires will be approved and permitted as required by the Wyoming Department of Environmental Quality, Air Quality Division. Yellowstone ensures compliance with the smoke management requirements of Idaho and Montana through a designated NPS regional representative with the Idaho/Montana Airshed Group and follows all state management operating laws.

4.7.2 Smoke Management Program

The Montana Department of Environmental Quality Monitoring and Data Management Bureau installed and regularly examine a carbon monoxide monitoring station on the northeast side of the west entrance of the Park and a particulate sampling station outside of the Park in the town of West Yellowstone. The Park manages one at Old Faithful. Dry atmospheric deposition and wet (acid rain) deposition are monitored at Tower Falls in the northern portion of the Park, through the Park's participation with the National Atmospheric Deposition Program. Yellowstone also participates with the Environmental Protection Agency (EPA) in operating a site that provides atmospheric data and ground-level ozone through the program CASTNet (Clean Air Status and Trends Network). Lastly, the Park participates in a collaborative visibility monitoring program known as the Interagency Monitoring

of Protected Visual Environments (IMPROVE) program. The equipment for both the IMPROVE and CASTNet programs are located at Yellowstone Lake, which measure atmospheric concentrations of aerosols, sulfates, nitrates, ammonium, sulfur dioxide, nitric acid, and ozone levels. Results from the several monitoring stations throughout the Park indicate all Park areas meet federal and state ambient air quality standards.

Smoke generated by prescribed fires will be managed to minimize degradation of air quality and visibility. The Park's guidelines for smoke management from a prescribed fire are:

- All prescribed fire plans will have clear objectives and will monitor impacts of smoke on the human and natural environments;
- Prescribed fires ignited within the Protection FMU near a developed area will avoid being ignited during periods of high visitation and conducted only when the prevailing winds are predicted to carry the smoke away from the structures;
- Current and predicted weather forecasts will be utilized along with test fires to determine smoke dispersal;
- Smoke dispersal will be visually monitored on a continuous basis at set intervals during the course of all prescribed fires. If air quality standards are exceeded or smoke creates a hazard or nuisance, especially in or near smoke sensitive areas, ignition will cease and additional emissions will be minimized if safe and feasible to do so; and
- When prescribed fires are conducted, notification will include the appropriate states involved; the USFS; local communities that may experience smoke; Park staff; Park concessioners; and Park visitors.

4.8 Data & Records Management

Considerable time and effort is dedicated to acquiring and managing fire program information and data. Information is used by the Park, regional, and national offices for a variety of purposes. Data and recordkeeping represent a significant investment and must be well managed to be readily available for use when needed, and must be safeguarded from damage or destruction. Required reports, timeframes and responsible individuals are outlined in the annual fire program task checklist in Appendix U. All digital files are kept on the Park's Wildland Fire O drive, and are backed up weekly using approved NPS digital archival methods.

4.9 Organizational & Budgetary Parameters

Yellowstone is located within the Intermountain Region of the National Park Service, and is supported by the Intermountain Regional Office, Division of Visitor and Resource Protection, Branch of Wildland Fire and Aviation Management. The Yellowstone Wildland Fire and Aviation Management office is within the Division of Resource and Visitor Protection. The Yellowstone Wildland Fire office is made up of an FMO, AFMO, fire program assistant, exclusive-use helicopter with a helitack crew, one type 6 interagency engine with crew, a lookout, a wildland fire and aviation dispatch center, a fuels specialist and fuels crew, a fire ecologist, and a lead fire monitor and fire effects crew. The Park Wildland Fire and Aviation Management organizational chart is located in Appendix T. For organizational roles and responsibilities, refer to the Interagency Standards for Fire and Fire Aviation Operations (USDA/USDI, 2011), Chapter 3, National Park Service Program Organization and Responsibilities. Specific fire management roles and responsibilities within the Park's fire program can be found in Appendix U.

The budget for the Yellowstone Wildland Fire office is allocated through appropriations directly for wildland fire through the Department of the Interior, and administered through the regional office. All financial activities will meet NPS requirements as well as Interagency Fire Business Management Standards.

The Fire Management Officer is responsible for assigning a Duty Officer daily when the fire danger level is moderate or higher. The FMO is the de facto Duty Officer if a qualified substitute is not identified. All Duty Officers will have annually delegated authority from the Superintendent, and a Duty Officer's required qualifications are based on the staffing level at the time. The list of required Duty Officer qualifications for all staffing levels can be found in the Yellowstone Step-up Staffing Plan in Appendix G. Duty Officer roles and responsibilities are detailed in Appendix G.

The Duty Officer is primarily responsible for:

- The safety of the staff dedicated directly or indirectly to the implementation of wildland fire activities;
- Ensuring wildland fire management actions are appropriate and minimize impacts and safeguard natural and cultural resources at risk;
- Coordinating daily with fire and aviation dispatch and all assigned resources.
- Ensuring adequate initial attack forces are available to meet identified needs based on current and forecasted conditions, along with setting priorities for wildland fire responses;
- Ensures resource availability and status is updated, known and passed on the fire and aviation dispatch;
- Compiles information, provides a briefing, and documents resource availability and status;
- Documents all decisions and actions in preparation for transitioning to next Duty Officer; completes a daily log entry;
- Assesses current conditions and implements authorized activities outlined in the Park's step-up staffing plan;
- Recommends wildland fire response actions to the FMO, Chief Park Ranger and Superintendent;
- Assures only fully qualified personnel are used in wildland fire activities; and
- Monitors fires in a transitional phase to ensure plans are complete and the incident command system is clear and functioning, and also monitors incident complexity to ensure it is within the incident commander's qualifications.

Yellowstone has several interagency plans, agreements, and contracts in place with neighboring agencies and parks. They are listed below.

Yellowstone Exclusive-use Fire Helicopter Contract

The Park currently maintains a contract for a Type 3 exclusive-use helicopter for at least 108 days during the fire season. The ship is staffed by an eight person NPS helitack module that is qualified to perform short-haul rescue, short-haul for wildfire, and a variety of non-traditional aircraft exits. The primary mission of the helicopter is interagency wildland fire support. It also supports search and rescue, and resource management operations as needed.

Little Bighorn Battlefield National Monument (LIBI) Inter-park Agreement

Yellowstone provides wildland fire management oversight to this unit through an inter-park agreement and annual Delegation of Authority from the LIBI Superintendent. Additionally, the Park provides an annual fire management plan update, reviews pertinent preparedness checklists with LIBI staff, and coordinates a pre-season meeting between LIBI staff and representatives from the Crow Agency which provides initial attack coverage to the Monument through a five year memorandum of understanding. The Park provides one representative to the Northern Rockies Coordinating Group's East Zone Board as part of our commitment to safe and efficient wildland fire operations at LIBI.

Custer Gallatin National Forest and Yellowstone National Park Annual Operating Plan
This plan outlines the terms of the shared interagency Type 6 engine, duty officer coverage, mutual aid response, communications, public information, and expanded dispatch.

Community Wildfire Protection Plans for Park and Teton Counties, Wyoming and Park and Gallatin Counties, Montana
These plans identify at risk communities in the wildland-urban interface, prioritize these communities on the basis of fire risk, and make recommendations for reducing the chances of a catastrophic fire threatening these communities. The plans help coordinate activities across jurisdictions and ownerships before an emergency occurs to help reduce the chance of loss of life, and damage to infrastructure, homes, and natural resources as a result of a wildfire. The plans further address the need to restore fire adapted ecosystems.

Interagency Agreement – Custer Gallatin National Forest – Dispatch services
This agreement funds one seasonal dispatcher position in the Bozeman Interagency Dispatch Center with NPS fire funds.

Interagency Agreement – Shoshone National Forest – Helicopter support
This agreement provides USDA Forest Service fire funds to the Yellowstone Helitack program in exchange for initial attack helicopter support on the Forest.

Montana, Idaho, and Wyoming Cooperative Fire Management and Stafford Act Response Agreements and Statewide Operating Plans
The purpose of these three agreements is to document the commitment of the signatory agencies to improve wildland fire management by facilitating the increased availability of resources including but not limited to: the exchange of personnel, equipment, supplies, and services among the agencies.

Northern Rockies Coordinating Group – South Central Zone Cooperative Fire Management Agreement and Operating Plan
The purpose of this agreement is to define a framework of cooperation for the operating procedures and responsibilities for wildland fire management between the Montana Department of Natural Resources and Conservation(DNRC), the counties of Gallatin, Madison, Meagher, Park, and Sweet Grass, the USDI National Park Service, Yellowstone National Park, and the USDA Forest Service, Custer Gallatin National Forest, under the provisions of the Montana Cooperative Fire Protection Agreement #05-FI-11015600-014 (Montana Six Party Coop Fire Agreement).

5.0 ADAPTIVE MANAGEMENT STRATEGY

Adaptive management, in the USDI Technical Guide (Williams et al., 2009), is defined as:

> "A decision process that promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Careful monitoring of these outcomes both advances scientific understanding and helps adjust policies or operations as part of an iterative learning process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity. It is not a 'trial and error' process, but rather emphasized learning while

doing. Adaptive management does not represent an end in itself, but rather a means to more effective decisions and enhanced benefits. Its true measure is in how well it helps meet environmental, social, and economic goals, increases scientific knowledge, and reduces tensions among stakeholders."

The NPS Fire Management Program and Yellowstone are committed to implementing adaptive management across the spectrum of fire management activities. Adaptive management consists of several steps including:

- Setting clear, meaningful fire management objectives;
- Designing fire management activities that will accomplish objectives;
- Implementing the fire management actions using best available knowledge and practices;
- Monitoring to determine whether outcomes meet objectives;
- Evaluating and adjusting management activities and/or objectives as needed based on outcomes/monitoring;
- Initiating new research as needed to fill in knowledge gaps; and
- Communicating results, new information, and changes in management activities or objectives to all stakeholders.

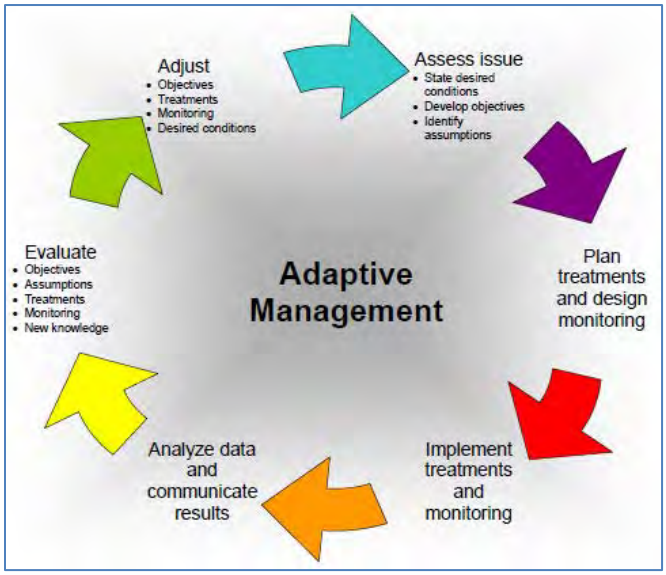


Figure 5: Adaptive Management Process

5.1 Fire Management Objectives

Yellowstone's fire management goals incorporate the Park's overall management goals as well as federal fire management policy principles and goals, including firefighter and public safety, efficiency, effectiveness, collaboration, and accountability. As identified in its mission, the NPS Fire Management Program "is dedicated to protecting lives, property and resources while restoring and maintaining healthy ecosystems". The use of fire is an important tool for meeting this goal. One of the Park's specific fire management goals is to allow fire to play its ecological role in the Park to the greatest extent possible through the use of incident objectives, strategies and tactics; this goal is also one of the Park's desired conditions. Fire Management program-wide objectives are designed to be specific and measurable; project-specific objectives are created with input by the Fire and Fuels IDT. An example of project-specific objectives can be found in the sample fuel treatment plan scope of work (Appendix F).

5.2 Monitoring

Monitoring is not only part of the adaptive management process, but also a fundamental NPS management policy to be fulfilled. Fire monitoring includes wildfire, prescribed fire, and non-fire fuels treatments and is described in RM-18 Chapter 8 (NPS, 2014) with more details in the NPS Fire Monitoring Handbook (NPS, 2003). The 2003 NPS Fire Monitoring Handbook (FMH) defines four levels of monitoring; the following provides a brief description of each level and activities which are used within the Park.

Table 4: Monitoring Elements Measured for Each Fire Management Strategy

Monitoring Level	Unplanned Fire	Prescribed Fire	Non-Fire Treatment
Level 1: Environmental	Yes	Yes	Yes
Level 2: Fire Observations	Yes	Yes	n/a
Level 3: Short Term Change	When feasible	Yes	Yes
Level 4: Long Term Change	When feasible	Yes	Yes

Level 1: Environmental

This level provides a basic overview of baseline data which can be collected prior to the fire season or planned treatments. Examples of baseline data which are collected by the Fire Ecology program for the Park include:

- Weather;
- Fuel moistures;
- NFDRS indices;
- Winter snowpack; and
- Drought information.

Level 2: Fire Observations

Level 2 provides basic data on ambient fire conditions, as well as on fire and smoke characteristics. These data are used in conjunction with Level 1 data to assist with fire behavior predictions. Examples of these data collected in the Park include:

- Vegetation and fuel descriptions;
- Fire regime and condition class;
- Smoke volume and movement;
- Fire characteristics such as flame length and rate of spread;
- Localized terrain and weather; and
- Fire location and cause.

Level 3: Short Term Change

This level of monitoring provides data on short term changes to fuel loads and vegetation. Data are collected through sampling of permanent monitoring plots, temporary plots, Composite Burn Index (CBI), and/or photo points. These data are used to determine if predefined project specific management objectives are met, and are required for all planned ignitions. Monitoring data are usually collected pretreatment, immediate post treatment, and up to two years post treatment.

Level 4: Long Term Change

Level 4 monitoring usually represents monitoring the same variables as Level 3 at the same permanent monitoring plots, over a longer period. Monitoring for long term change involves identifying the long term effects of management activities that can be used to guide management decisions. Level 4 monitoring frequency is based on a predefined interval appropriate to both the vegetation and fuels complex, the

anticipated duration of treatment impacts, and project specific objectives. In Yellowstone, reasons for Level 4 monitoring include:

- providing base line data against which to compare change;
- determining if management objectives are met (e.g., potentially sensitive or fire dependent species or communities);
- measuring fuel accumulation rates;
- predicting burn potential and burn severity;
- understanding the effects of fire on forest health;
- exotic diseases and plants;
- modelling the relationships between fuels, vegetation, weather, and fire behavior;
- monitoring the progress of bringing fire dependent ecosystems back into historical patterns; and
- applying knowledge and experience from natural unplanned ignitions to planned ignitions.

The Park has several varieties of long-term monitoring plots, which are listed and described below.

1. Fire Monitoring Handbook (FMH) Plots
    a. These permanent monitoring plots were installed ahead of natural unplanned ignitions or planned ignitions from 1999 until 2007, and almost half have burned. The plots have standard FMH protocols with the exception of a Daubenmire transect in place of a point intercept transect. Data are collected on surface fuel loading, surface vegetation, and tree populations. The pre- and post-fire plot data are used to relate fire behavior to vegetation and fuel loading, and to track long-term changes in the ecosystem as a result of fire. Because a majority of these plots were installed in remote areas of the Park, they are now only visited opportunistically due to travel logistics.
2. Despain Plots
    a. These permanent monitoring plots were installed within the Park from 1977 through 1989. They were also installed ahead of natural unplanned ignitions and in some cases after the ignitions. Data are collected on surface fuel loading, surface vegetation and tree populations. The pre- and post-fire data have been used to track long term changes in the ecosystem as a result of fire, particularly the 1988 fires. The plots have similar to FMH protocols, but are sampled in different sizes and shapes than a standard FMH plot.
3. Hazard Fuels Monitoring Plots
    a. These permanent monitoring plots are installed in most planned hazard fuels treatment projects throughout the developed areas and backcountry of the Park. Data are collected on surface fuel loading, surface vegetation, tree density, and canopy bulk density. The pre- and post-treatment data are used to correlate fuel loading and canopy bulk density to predicted fire behavior, evaluate treatment effectiveness, determine if management objectives were met, and to track long term changes in the ecosystem as a result of a planned fuel treatment project. An example of a hazard fuel monitoring plan can be found in Appendix F.
4. Fire Line Explosive Study
    a. Multiple transects were place throughout the park in 1997 to assess vegetation disturbance and recovery using Fire Line Explosives (FLE) compared to conventional fire line construction techniques (i.e., handline). Three 20 meter transects make up each plot; a FLE only transect, a FLE improved transect, and a handline transect. Plots were installed into sagebrush vegetation and lodgepole vegetation. The transects were installed for a five year study, after they were resampled in 2001 it was determined five years was not enough time to determine succession and change are much slower than could be picked up in five years. There are currently no plans to revisit these plots again, but the data are being stored within the Yellowstone FEAT FIREMON Integrated (FFI) database.

5. 1935 Forestry Plots
    a. Forestry plots were installed in 1935 at three locations in the Park. Two of the plots are located in close proximity to Despain plots, therefore these two were resampled in 2002. Both plots burned in 1988 and data were collected on tree populations. There are currently no plans to revisit these plots again, but the data are being stored within the Yellowstone FFI database.

The Park also has several fire ecology research studies being conducted annually by various university and interagency partners which are managed by the Yellowstone Research Permit Office.

5.3 Evaluation

Adaptive management is a process which requires continual evaluation; before, during and after a fire management activity. All wildland fires and fire related incidents will be reviewed in accordance with RM-18, Wildland Fire and Program Reviews Chapter 17, and the Interagency Standards for Fire and Fire Aviation Operations. All non-fire activities (e.g., search and rescue, daily tasks) will, at the minimum, employ a daily After Action Review (AAR) to identify commendable actions, techniques, and decisions, as well as, areas which need improvement.

All monitoring data collected will be used annually to help fire managers analyze program and project-specific objectives. All new projects will have a monitoring design based on management objectives, and will include pre-treatment monitoring through the establishment of plots or other appropriate monitoring technique (e.g., photopoints). Qualitative data will be collected and discussed during the projects. Monitoring will continue after the project and analysis of differences between pre-treatment and post-treatment conditions will be completed to determine if management objectives were met and if new research is needed. Monitoring will continue as appropriate to achieve the desired conditions. If management objectives are not being met, refinements to the monitoring design may need to be made, the objectives may not be realistic, the prescriptions may need to be changed, or additional research may be needed. All results from the analyzed monitoring data will be communicated to Park resource and fire management staff to assist in the evaluation.

5.4 Fire Research

The mission goals for the NPS Wildland Fire Management Program outlined in DO-18 include science-based management (NPS, 2008). Research plays a critical role in fire management programs by identifying area-specific fire regimes; defining the historic role of fire; developing techniques for predicting fire behavior; defining desired conditions for Park resources; documenting and analyzing fire effects; assessing treatment effectiveness; and many other topics. All of this information plays a critical role in formulating and implementing fire management plans and actions (NPS, 2014). Because Yellowstone is a fire adapted ecosystem, and the world's first National Park, there are numerous volumes of fire research either about the Park, or relevant to the Park.

Past and current research projects have established research methods and techniques to determine short and long term fire effects in Yellowstone. Research on fire occurrence and behavior continues, as with fire effects research on vegetation, wildlife, fisheries, water quality, air quality, soils, and plant succession. Research projects undertaken in the aftermath of the 1988 fires provided valuable information about the effects of such large magnitude fires (Franke, 2000).

Below is a very brief bibliography with a summary of key published research important to Yellowstone's Fire Management program.

1. Despain D.G. 1993. Forest Successional Stages in Yellowstone National Park. Information Paper Number 32. Yellowstone National Park, Mammoth Hot Springs, Wyoming.
   Yellowstone's vegetation zones are grouped by various successional stages from seral stands towards climax forest. Stands are defined by tree species, age and successional state. The successional forest stand labels identified in this paper are still used in the Park.
2. Romme, W.H. and D.G. Despain. 1989. Historical perspective on the Yellowstone Fires of 1988. Bioscience 39(10): 695-699.
   The study found that on rhyolite (volcanic soil) the fire return interval for lodgepole was stand replacing fires every 300-400 years. It suggests the 1988 fires' size and severity were most likely similar to fires which burned the area in the early to mid-1700s.
3. Barrett, S.W. 1994. Fire regimes on andesitic mountain terrain in northeastern Yellowstone National Park, Wyoming. International Journal of Wildland Fire. 4(2): 65-76.
   This study found the fire return interval for lodgepole on andesitic soils was predominately stand replacing fires every 200 years.
4. Houston, D.B. 1973. Wildfires in Northern Yellowstone National Park. Ecology 54: 1111-1117.
   The study found the fire return interval within the grassland, sage and Douglas-fir vegetation ecosystem of the Park's northern range was historically 20 to 25 years.
5. Renkin, R.A. and D.G. Despain. 1992. Fuel moisture, forest type, and lightning caused fire in Yellowstone National Park. Canadian Journal of Forest Research. 22(1): 37-45.
   One thousand hour fuel moistures are correlated to fire activity within Despain's forest successional stands.
6. Miller, E.A., R.J. Seifert, S.J. Jackson, E.R. Moss, and S.C. McEldery. 2004. Fuel Appraisal Photoseries for Yellowstone National Park. Yellowstone National Park, Mammoth Hot Springs, Wyoming.
   The study develops surface and canopy fuel information for two forest types (early post fire lodgepole, andesitic soil Douglas-fir and mixed conifer) within Yellowstone through a photoseries approach. Images representing the forest types, associated surface and canopy fuel information, and vegetation information are provided.

Below is a brief summary of an ongoing fire study directly related to Yellowstone.

1. Turner, M.G., W.H. Romme, D. Tinker, T. Whitby, D. Donato. (in progress). Paths of recovery: landscape variability in forest structure, function and fuels 25 years after the 1988 Yellowstone Fires.
   The study focuses on understanding succession following severe wildfire by testing hypotheses in the context of three overarching questions:
   a. Are stand structure and function beginning to converge 25 years after the Yellowstone fires, and what mechanisms may contribute to convergence or divergence?
   b. Are plant community composition and species richness converging or diverging across gradients in local fire severity, post fire lodgepole pine density, elevation and soil type a quarter century after the 1988 fires?
   c. How do canopy and surface fuels vary across the postfire landscape, and how will the variation in fuels influence potential fire behavior a quarter century postfire?

Below is a summary of research desired to assist with implementation and refinement of the Yellowstone Wildland Fire Management Program.

1. Determination of critical canopy bulk density and surface fuel loadings in lodgepole pine stands surrounding Park development areas.

Considerable effort has gone into the development of canopy bulk density calculations, and there is a wide range of critical canopy bulk density numbers proposed by differing researchers. Planned fuels treatment projects within the Park are using measured canopy bulk density and surface fuel loading data as a management objective, but it is unclear at what critical canopy bulk density and surface fuel loads crown fire will transition to surface fire. This is especially important, along with environmental condition thresholds in early seral lodgepole pine stands created by the 1988 fires.

2. *LANDFIRE landscape development.*
   It has been found over the past few years LANDFIRE does not adequately represent early seral and mid-seral lodgepole pine stands (i.e., stands 0-40 years old and stands 100-200 years old). Fuel models have to be consistently changed to more adequately represent fire behavior within these stands.
3. *Forest insect outbreaks and the effects on fire occurrence and behavior.*
   Recent research into the effects of insects is suggesting different relationships in lower elevation mixed severity drier forests, compared to higher elevation crown fire dominated subalpine forests. Fire starts, the initiation and propagation of crown fire, and spotting potential appear to be affected differently by the amount of time following an outbreak; more empirical data are needed to differentiate among these relationships.

Appendix A – Literature Cited

Barrett, S.W. 1994. Fire regimes on andesitic mountain terrain in northeastern Yellowstone National Park, Wyoming. International Journal of Wildland Fire. 4(2): 65-76.

Despain D.G. 1990. Yellowstone Vegetation: Consequences of history and environment in a natural setting. Roberts Rinehart, Inc., Boulder, CO.

Despain D.G. 1993. Forest Successional Stages in Yellowstone National Park. Information Paper Number 32. Yellowstone National Park, Mammoth Hot Springs, Wyoming.

Franke, M.A. 2000. Yellowstone in the afterglow: lessons from the fires. Yellowstone Center for Resources. Yellowstone National Park, Mammoth Hot Springs, Wyoming.

Houston, D.B. 1973. Wildfires in Northern Yellowstone National Park. Ecology 54: 1111-1117.

International Code Council. 2011. 2012 International Wildland-Urban Interface Code.

Miller, E.A., R.J. Seifert, S.J. Jackson, E.R. Moss, and S.C. McEldery. 2004. Fuel Appraisal Photoseries for Yellowstone National Park. Yellowstone National Park, Mammoth Hot Springs, Wyoming.

United States Department of the Interior, National Park Service. 1973. Final Environmental Statement: Proposed Wilderness Classification, Yellowstone National Park, Wyoming.

United States Department of the Interior, National Park Service. 2001. Director's Order 12: Conservation Planning, Environmental Impact Analysis, and Decision-making.

United States Department of the Interior, National Park Service. 2002. Wildland-Urban Interface Fuels Management Environmental Assessment. Yellowstone National Park, WY.

United States Department of the Interior, National Park Service. 2003. Fire Monitoring Handbook. Fire Management Program Center, National Interagency Fire Center, Boise, ID.

United States Department of the Interior, National Park Service. 2006. Management Policies 2006.

United States Department of the Interior, National Park Service. 2008. Director's Order 18: Wildland Fire Management.

United States Department of the Interior, National Park Service. 2010. Native Fish Conservation Plan/Environmental Assessment. Yellowstone National Park.

United States Department of the Interior, National Park Service. 2011. Yellowstone Resources and Issues Chapter 5: Vegetation.

United States Department of the Interior, National Park Service. 2014. Reference Manual 18: Wildland Fire Management.

Renkin, R.A. and D.G. Despain. 1992. Fuel moisture, forest type, and lightning caused fire in Yellowstone National Park. Canadian Journal of Forest Research. 22(1): 37-45.

Romme, W.H. and D.G. Despain. 1989. Historical perspective on the Yellowstone Fires of 1988. Bioscience 39:696-699.

United States Department of Agriculture/United States Department of the Interior. 2009. Guidance for Implementation of Federal Wildland Fire Management Policy.

United States Department of Agriculture/United States Department of the Interior. 2014. Interagency Standards for Fire and Fire Aviation Operations. NFES 2724. National Interagency Fire Center, Boise, ID.

United States Department of the Interior. 2004. Departmental Manual, Part 620: Wildland Fire Management, Chapter 3: Burned Area Emergency Stabilization and Rehabilitation.

United States Department of the Interior. 2006. Interagency Burned Area Emergency Response Guidebook. Version 4.0.

United States Department of the Interior. 2006. Interagency Burned Area Rehabilitation Guidebook. Version 1.3.

Appendix B - Definitions, Abbreviations and Acronyms

Archeological Resource: Any material remains or physical evidence of past human life or activities including the record of effects of human activities on the environment. An archeological resource can reveal scientific or humanistic information through archeological research.

Backcountry: Primitive, undeveloped areas.

Burned Area Emergency Response (BAER): A program addressing post-fire rehabilitation and stabilization in or near the burned area with the goals of protecting life, property, water quality, and deteriorated ecosystems from further damage after the fire is out. BAER objectives are to

- Determine if an emergency condition exists after the fire
- Alleviate emergency conditions to help stabilize soil; control water, sediment and debris movement; prevent ecosystem impairment; mitigate significant threats to health, safety, life, property, and downstream values at risk
- Monitor implementation and effectiveness of emergency treatments

BAER spending authority granted for each project covers only the most urgent treatments that cannot await normal funding processes. Special funds are authorized for these activities, and costs vary with fire season severity.

Burned Area Rehabilitation (BAR): The full range of post-fire activities that rehabilitate and restore fire damaged lands, including protection of public health and safety.

Canopy: The part of tree stands represented by tree crowns. Usually refers to the uppermost foliage layer, but can be used to describe lower layers in a multi-storied forest.

Critical Habitat: Specific areas occupied by a threatened or endangered species which contain physical or biological features essential to species conservation, and which may require special management considerations or protection; specific areas outside the immediate geographical area occupied by the species at the time of its listing, upon a determination by the Secretary of the Interior that such areas are essential for the conservation of the species.

Crown Fire: Flames extend into the forest canopy and burn overstory tree crowns.

Cultural Landscape: A geographic area, including cultural and natural resources and wildlife or domestic animals therein, associated with a historic event, activity, or person, or exhibiting other cultural or esthetic values. There are four nonmutually-exclusive cultural landscape types that may each share the same setting: historic sites, historic designed landscapes, historic vernacular landscapes, and ethnographic landscapes.

Cultural Resource: An aspect of a cultural system valued by or significantly representative of a culture, or that contains significant information about a culture. A cultural resource may be a tangible entity or cultural practice. Tangible cultural resources are categorized as districts, sites, buildings, structures, and objects for the National Register of Historic Places, and as archeological resources, cultural landscapes, structures, museum objects, and ethnographic resources for NPS management purposes.

Defensible Space: Space needed by firefighters to adequately defend structures from oncoming wildland fires or stop a structural fire from igniting wildland vegetation. Defensible space is the desired result of planning, siting, landscaping, and constructing facilities to minimize wildfire vulnerability and maximize wildfire protection.

Desired Conditions: A park's natural and cultural resource conditions that the NPS aspires to achieve and maintain over time, and the conditions necessary for visitors to understand, enjoy, and appreciate those resources. These conditions are identified through a park's planning process.

Developed Area: An area managed to provide and maintain facilities (e.g., roads, campgrounds, housing) serving visitors and park management functions. Includes areas where park development or intensive use may have substantially altered the natural environment or the setting for culturally significant resources.

Ecosystem: System formed by the interaction of a community of organisms with their physical and biological environment considered as a unit.

Environmental Assessment: A NEPA document prepared with public involvement to:

- determine if impacts of a proposed action (or its alternatives) could be significant;
- evaluate a proposal that will have no significant impacts, but may have measurable adverse impacts; or
- evaluate a proposal either not on the list of categorically excluded actions, or is on the list, but exceptional circumstances apply.

Ethnographic Resources: Objects and places including sites, structures, landscapes, and natural resources, with traditional cultural meaning and value to associated peoples. Research and consultation with associated people identifies and explains the places and things found culturally meaningful. Ethnographic resources eligible for the National Register of Historic Places are called traditional cultural properties.

Exotic Species: Species that occupy or could occupy park lands directly or indirectly as the result of deliberate or accidental human activities. Exotic species are also commonly referred to as nonnative, alien, or invasive. Because an exotic species did not evolve in concert with species native to place, exotic species are not a natural component of the natural ecosystem at that place.

Fire Behavior: Fire intensity (how hot or high the flame), spread rate (how fast it moves) and fire type (surface or crown). Fire behavior occurs while the fire is burning. Increased fire behavior refers to increased intensity (temperature and flame height), faster moving (higher rates of spread), and more crown than surface fire.

Fire Intensity: The rate fire produces thermal energy or heat output while burning. The higher the fire intensity, the hotter it is. In addition, the hotter or more intense a fire is, the greater the flame length. There are no standard definitions for low, moderate, or high intensity.

Fire Management Plan: A plan that identifies and integrates all wildland fire management and related activities in the context of approved land/resource management plans and defines a program to manage

wildland fires (planned and unplanned fire). The plan is supplemented by operational plans, including, but not limited to preparedness plans and prevention plans. Fire Management Plans assure that wildland fire management goals and components are coordinated.

Fire Management Unit (FMU): A land management area defined by objectives, management constraints, topographic features, access, values to be protected, political boundaries, fuel types, and major fire regime groups, etc., that set it apart from an adjacent FMU. A FMU may have dominant management objectives and preselected strategies assigned to accomplish these objectives.

Fire Regime: Fire frequency, intensity, timing, and distribution for a particular vegetation type. Historic fire regimes refer to past fire patterns. Historic fire frequency and timing can be inferred from fire scars on old trees, especially ponderosa.

Fire Return Interval: Number of years between two successive fire events in a specified area.

Fire Severity: Magnitude of fire effect on the environment including vegetation, soil, watersheds, wildlife habitat, and human life and property.

Fuels: Above ground organic biomass that can contribute to a wildland fire. Fuels are usually classified by size and whether live or dead, woody or herbaceous.

Handline: An inclusive term for all constructed barriers and treated edges used to control a fire that are constructed without mechanical equipment.

Historic Property: A district, site, building, structure, or object significant in the history of American archeology, architecture, culture, engineering, or politics at the national, state, or local level.

Impact: The likely effect of an action or proposed action on specific natural, cultural, or socioeconomic resources. Impacts may be direct, indirect, individual, cumulative, beneficial, or adverse.

Implementation Plan: A plan that focuses on how to implement an activity or project to achieve a long term goal. An implementation plan may direct a specific project or an ongoing activity.

Invasive Species: An aggressive exotic plant known to displace native plant species in otherwise intact native vegetative communities. Invasive plant species are unwanted plants harmful or destructive to humans or other organisms. Not all exotic plants are invasive.

Ladder Fuels: Fuels that provide vertical continuity between forest strata, thereby allowing fire to carry from surface fuels to shrub or tree crowns with relative ease. Ladder fuels help initiate and assure crowning continuation.

Minimum Requirement Analysis (MRA): A documented NPS process to determine appropriateness of all actions affecting wilderness.

Mitigation: Modification of a proposal to lessen intensity of impact on a particular resource.

Monitoring: The orderly collection, analysis and interpretation of environmental data to evaluate management's progress toward meeting objectives, and to identify changes in natural systems.

Native Species: Species that have occurred, now occur, or may occur as a result of natural processes on lands in a place. Native species in a place are evolving in concert with each other.

Non-fire Fuels Treatments (mechanical or manual): Hazardous fuels reduction or removal. Mechanical removal involves wheeled or tracked vehicle use. Manual removal involves chainsaws, other portable handheld equipment like gas powered trimmers and hand tools. Specific laws prohibit use of some mechanical fuel reduction techniques in specific areas. For example, use of wheeled or tracked vehicles in wilderness is prohibited.

Planned Fire (planned ignition, prescribed fire): The intentional initiation of a wildland fire by a 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.

Point/Zone Protection: The actions taken to limit the adverse environmental, social, political, and economical effects of fire to a single or group of values at risk. This strategy emphasizes and prioritizes mitigating the potential negative impacts from fire to values at risk over establishing a perimeter to control fire spread.

Preparedness Level: Increments of planning and organization readiness commensurate with increasing fire danger.

Preparedness Plan: A written plan providing management direction given identified levels of burning conditions, fire activity, and resource commitment.

Prescribed Fire (planned fire): Any fire ignited by management actions to meet specific objectives. A written, approved prescribed fire burn plan must exist prior to ignition.

Prescribed Fire Burn Plan: Plan required for each fire application ignited by management. Plans are prepared by qualified personnel, approved by agency administrators, and include a prescription of criteria under which fire will be conducted. Plan content varies among agencies.

Prescription: Measurable criteria that define conditions, under which a prescribed fire may be ignited.

Protection: The actions taken to limit the adverse environmental, social, political, and economical effects of fire.

Response: The mobilization of the necessary services and responders to a fire based on ecological, social, and legal consequences, the circumstances under which a fire occurs, and the likely consequences to firefighter and public safety and welfare, natural and cultural resources, and values to be protected.

Stakeholder: An individual, group, or other entity with a strong interest in decisions concerning park resources and values. Stakeholders may include recreational user groups, permittees, and concessioners. In the broadest sense, all Americans are stakeholders in the national parks.

Stand Replacing Fire: The majority of above ground, dominant vegetation is either consumed or dies as a result of fire.

Strategy: The response to a wildland fire based on evaluation of

- risks to firefighter and public safety,
- circumstances under which the fire occurs, including weather and fuel conditions,
- natural and cultural resource management objectives,
- protection priorities, and
- values to be protected.

The evaluation must also include analysis of the specific fire's context in overall local, geographic, or national wildland fire situation. Fire management strategies can range from suppression to point/zone protection to monitoring, or a combination of these.

Suppression: The work of extinguishing or confining a fire's spread. This is generally accomplished through establishing a perimeter around it by a combination of handline and natural barriers.

Surface Fire: Fire consumes litter, low-growing plants, and dead herbaceous plants accumulated on the surface. Surface fire can ignite snags, and consume shrubs and seedlings. Surface fire does not burn in tree crowns. Flame heights and intensity can vary widely.

Surface Fuel: Fuels lying on or near the ground surface consisting of leaf and needle litter, dead branch material, downed logs, bark, tree cones, and low stature living plants.

Values At Risk: Property, structures, physical improvements, natural and culture resources, community infrastructure, and economic, environmental, and social values that could be damaged or destroyed by a fire.

Unplanned Ignition: The initiation of a wildland fire by lightning, volcanoes, unauthorized and accidental human caused fires.

Watershed: Entire geographical area drained by a river and its tributaries; an area characterized by all runoff conveyed to the same outlet.

Weather Information Management System: Centralized weather data processing system at which daily fire danger ratings are produced.

Wilderness (eligible, study, proposed and recommended): Federal lands found to possess wilderness character based on Wilderness Act criteria. The four categories reflect different wilderness review process stages. All categories are managed to preserve wilderness resources and values that make them eligible for wilderness designation.

Wildfire: Unplanned ignition of a wildland fire (such as a fire caused by lightning, volcanoes, unauthorized and accidental human caused fires) and escaped prescribed fires.

Wildland: An area where development is essentially non-existent, except for roads, railroads, powerlines, and similar transportation facilities. Structures, if any, are widely scattered.

Wildland Fire: Any non-structural fire that occurs in wildland. Two distinct wildland fire types include planned (i.e., prescribed fire) and wildfire (i.e., unplanned fire).

Wildland-Urban Interface (WUI): The line, area or zone where humans and their development meet or intermingle with undeveloped wildland or vegetative fuel.

AAR: After Action Review
AIS: Aquatic Invasive Species
BAER: Burned Area Emergency Rehabilitation
BAR: Burned Area Rehabilitation
BLM: Bureau of Land Management
CA: Complexity Analysis
CASTNet: Clean Air Status and Trends Network
CBI: Composite Burn Index
CEQ: Council on Environmental Quality
CFR: Code of Federal Regulations
CLI: Cultural Landscape Inventory
CLR: Cultural Landscape Report
DNRC: Department of Natural Resources and Conservation
DEQ: Department of Environmental Quality
DOI: Department of the Interior
DO: Director's Order
EO: Executive Order
EPA: Environmental Protection Agency
ERC: Energy Release Component
ES: Emergency Stabilization
ESA: Endangered Species Act
FLE: Fireline Explosive
FMH: Fire Monitoring Handbook
FMO: Fire Management Officer
FMP: Fire Management Plan
FMU: Fire Management Unit
FONSI: Finding of No Significant Impact
GIS: Geographic Information System
GYA: Greater Yellowstone Area
GYE: Greater Yellowstone Ecosystem
GYCC: Greater Yellowstone Coordinating Committee
IC: Incident Commander
ICC: International Code Council

IDT: Interdisciplinary Team
IMPROVE: Interagency Monitoring of Protected Visual Environments
IMT: Incident Management Team
JHA: Job Hazard Analysis
LANDFIRE: Fire modeling program
LIBI: Little Bighorn Battlefield National Monument
NAAQS: National Ambient Air Quality Standards
NEPA: National Environmental Policy Act
NFDRS: National Fire Danger Rating System
NFPORS: National Fire Plan Operations and Reporting System
NHL: National Historical Landmark
NHPA: National Historic Preservation Act
NOAA: National Oceanic and Atmospheric Administration
NPS: National Park Service
NWCG: National Wildfire Coordinating Group
NWS: National Weather Service
ONA: Organizational Needs Assessment
ONPS: Operation of National Park Service (refers to base funding: ONPS funding)
PAO: Public Affairs Office
RAWS: Remote Area Weather Station
RCA: Risk and Complexity Assessment
RM: Reference Manual
RMP: Resource Management Plan
ROSS: Resource Ordering and Status System
SAR: Search and Rescue
SHPO: State Historic Preservation Officer
SNOTEL: Snow Telemetry
USC: U.S. Code
USDA: U.S. Department of Agriculture
USDI: U.S. Department of the Interior
USFS: U.S. Forest Service
USFWS: U.S. Fish and Wildlife Service
UTV: Utility Task Vehicle
WFDSS: Wildland Fire Decision Support System
WIMS: Weather Information Management System
WUI: Wildland-Urban Interface
YELL: Yellowstone National Park
YPTCo: Yellowstone Park Transportation Company
700Fox: Yellowstone Wildland Fire and Aviation Dispatch

Appendix C - Current Species of Concern

Yellowstone Vegetation Special Status Species

The species listed below are listed by the Park as a species of management concern. Only vegetation species that exist or have the potential to exist in the Park are listed.

Whitebark Pine (*Pinus albicaulis*): Whitebark pine is a major component of the forest community in areas above 8,400 feet and a major understory component of lodgepole dominated forests from 7,000 to 8,400 feet. Seeds of the whitebark pine are important food for grizzly bears and a variety of other wildlife species. Whitebark pine populations in Yellowstone have been declining due to native mountain pine beetles (*Dendroctonus ponderosae*) and non-native blister rust, which is caused by a fungus, *Cronartium ribicola* (Schwandt, 2006). In July 2011, the USFWS determined whitebark pine warrants protection under the ESA, but adding the species to the Federal List of Endangered and Threatened Wildlife and Plants is precluded by the need to address other listing actions of a higher priority. This species is now added to the list of candidate species eligible for ESA protection and its status will be reviewed annually. Whitebark pine exist both as an overstory and understory component within the forest communities in many regions of the Park.

Yellowstone Sand Verbena (*Abronia ammophila*): Yellowstone Lake's shore is the only place in the world where Yellowstone sand verbena grows. The presence of a sand verbena at 7,700 feet elevation in the northern Rockies is unexpected, as most members of this North American genus occur in the Southwest or along the Pacific Coast. Warmth provided by the geothermal activity in the area may be helping this species tolerate the long, cold winters followed by a brief summer in which they bloom and reproduce. The taxonomic relationship of this sand verbena population to others is a matter of debate. It may be distinct at the sub-specific level, and is certainly reproductively isolated from the closest sand verbena populations, which are in the Bighorn Basin of Wyoming. Yellowstone sand verbena is restricted to the shoreline of Yellowstone Lake and the location of nearly all of the plants on the Lake's north shore places the species at risk of extinction due to random events affecting the population.

Yellowstone sulfur wild buckwheat (*Eriogonum umbellatum* var. *cladophorum*): Yellowstone sulfur wild buckwheat is endemic to the Park, only occurring globally from the vicinity of Madison Junction through the Lower and Midway Geyser Basins to the Upper Geyser Basin. This conspicuous wildflower starts blooming in late June and continues into August. It is primarily present on glacial till deposits with some geothermal influence such as the sagebrush steppe community near the Old Faithful Interchange. Yellowstone sulfur wild buckwheat has demonstrated its ability to re-colonize after construction disturbance in the Old Faithful area by its presence on the road prism around the interchange.

Ross' bentgrass (*Agrostis rossiae*): Ross' bentgrass is restricted to Yellowstone National Park occurring in the Lower Geyser Basin, Midway Geyser Basin, Upper Geyser Basin and Shoshone Geyser Basin on geothermally influenced warm ground sites. This Yellowstone endemic is globally rare and was considered for possible listing under the Endangered Species Act, though in June 2011 the U.S. Fish and Wildlife Service determined that listing was not warranted at this time since they determined that existing National Park Service regulatory mechanisms are adequate to protect the species.

Yellowstone Wildlife Special Status Species

The species listed below are listed by the Park as a species of management concern. Only species that exist or have the potential to exist in the Park are listed.

Boreal toad (*Bufo boreas*): The boreal toad typically breeds in park areas with water chemistry characteristics that include a pH greater than 8.0, high conductivity, and high acid-neutralization capacity; many of the sites have a geothermal influence (Koch and Peterson, 1995). Boreal toad breeding areas are common in the upper Geyser Basin and have been documented in the Swan Lake Flats area. Boreal toads can also be found in riparian and riverine areas where they feed if adequate cover is available. Although declining throughout much of their range, boreal toads remain widespread throughout the Park.

Bald eagle (*Haliaeetus leucocephalus*): The USFWS removed the bald eagle from the list of endangered and threatened wildlife on August 8, 2007. Current data indicate populations of bald eagles have recovered in the lower 48 states, with an estimated minimum of 9,789 breeding pairs now, compared to 417 active nests in 1963 (USFWS, 2007). Nesting and fledgling bald eagles in Yellowstone increased incrementally from 1987 to 2005 (McEneaney, 2006). Resident and migrating bald eagles are now found throughout the Park, with nesting sites located primarily along the margins of lakes and shorelines of larger rivers. The bald eagle management plan for the Greater Yellowstone Ecosystem achieved the goals set for establishing a stable bald eagle population in the Park, with a total of 26 eaglets fledged from 34 active nests during 2007. This is the most fledged eaglets ever recorded within Yellowstone, and the increasing population trend indicates habitat is not presently limiting the growth of the population.

American peregrine falcon (*Falco peregrines anatum*): The American peregrine falcon was removed from the list of endangered and threatened wildlife on August 25, 1999 due to its recovery following restrictions on organochlorine pesticides in the United States and Canada, and implementation of various management actions, including the release of approximately 6,000 captive-reared falcons (64 FR 46541). The U.S. Fish and Wildlife Service has implemented a post-delisting monitoring plan pursuant to the Endangered Species Act that requires monitoring peregrine falcons at three year intervals which began in 2003 and will end in 2015. Monitoring estimates from 2003 indicate territory occupancy, nest success, and productivity were above target values set in the monitoring plan and that the peregrine falcon population is secure and viable (71 FR 60563). Peregrine falcons reside in Yellowstone from April through October, nesting on large cliffs. The number of nesting pairs and fledglings in the Park has steadily increased from zero in 1983 to 32 pairs and 47 fledglings in 2007 (Baril et al., 2010).

Trumpeter swan (*Cygnus buccinator*): Trumpeter swans were nearly extinct by 1900, but a small group survived by remaining year round in the Greater Yellowstone Area. In 2010 there were approximately 46,000 trumpeter swans in North America (USFWS, 2010). Yellowstone supports resident, non-migratory trumpeter swans through the year, and its areas of ice-free water that diminish as winter progresses provide limited, temporary habitat for migrants from the region, Canada, and elsewhere during the winter. The NPS is committed to the conservation of resident trumpeter swans and preserving habitat for winter migrants in Yellowstone because swans are part of the natural biota and a species with considerable historical significance. However, counts of resident, adult trumpeter swans in the Park decreased from a high of 69 in 1961 to 10 in 2012. Causes of this decline are unknown, but may include decreased immigration, competition with migrants, and the effects of sustained drought, human disturbance, and predation on productivity

(McEneaney, 2006). The trumpeter swan population operates at a scale larger than Yellowstone, and the dynamics of resident swans in Yellowstone appear to be influenced by larger sub-populations and management actions in the Greater Yellowstone Area and elsewhere.

White pelican (*Pelecanus erythrorhynchos*): American white pelicans were identified as a Species of Management Concern because numbers of nesting pairs fluctuate widely, and Yellowstone has the only nesting colony of white pelicans in the national park system (Smith et al., 2012). Pelican control in the 1920s followed by human disturbances in the 1940s and 1950s kept the population at low levels. Since then, pelican numbers have increased but the number of nesting attempts and fledged juveniles fluctuates greatly from year to year. Flooding occasionally takes its toll on production, as does disturbance from humans or predators (Baril et al., 2011). In 2012, a total of 270 pelicans fledged from the 392 nests while none of the 684 nests fledged young in the previous year. Difference in success from year to year is primarily attributed to fluctuations in lake water levels, but bald eagle predation is also a contributing factor. Yellowstone cutthroat trout are the main food for white pelicans in Yellowstone, but declines in this species since lake trout introduction may influence the population.

Yellowstone cutthroat trout (*Oncorhynchus clarkii bouvieri*): A range-wide status review estimated that the conservation population (>90 percent genetic purity) of Yellowstone cutthroat trout occupy over 6,300 km within their native range in Idaho, Montana, Nevada, Utah, and Wyoming. Yellowstone Lake, at over 84,000 surface acres, is home to the largest population of Yellowstone cutthroat trout in existence (Varley and Schullery, 1998); they are an important food source for many animal species in the Park. In Yellowstone Lake, recent threats such as lake trout introduction, drought, and whirling disease have severely diminished the ecological role of this fish.

Westslope cutthroat trout (*Oncorhynchus clarkii lewisi*): Numerous stressors, including stocking of non-native fish, habitat degradation and fragmentation from land use activities, have reduced the distribution and abundance of Westslope cutthroat trout. The subspecies currently occupies only 19 percent to 27 percent of its historical range east and west of the Continental Divide in Montana and about 36 percent of its historical range in Idaho. Even some of the historically secure populations in Glacier National Park and the Flathead Basin of Montana are in serious decline. In the upper Missouri river drainage, Westslope cutthroat trout now occupy less than five percent of their historical range. The remaining population persists as small-stream residents occupying isolated habitats ranging from several hundred meters to a few kilometers in extent. As a result, these populations face a high risk of extinction. In Yellowstone, Westslope cutthroat trout are present in approximately three kilometers of a small tributary to Grayling Creek, as a restored population in East Fork Specimen Creek, and as a population stocked in Geode Creek in the 1920s.

Arctic grayling (*Thymallus arcticus*): Arctic grayling are listed as a Species of Management Concern by the NPS and the USFWS. Fluvial (stream-dwelling) grayling were once widespread in the Missouri River drainage, but wild grayling persist only in the Big Hole River, representing approximately four percent of their native range in Montana. In Yellowstone, fluvial grayling historically occupied waters of the Madison and Gallatin River drainages on the Park's west side. Introduced populations of a fluvial (lake-dwelling) grayling exist in Wolf and Grebe lakes, which form the headwaters to the Gibbon River. A 2005–2006 study indicated the small number of grayling in the Gibbon and Madison rivers are likely emigrants from Wolf and Grebe lakes and the native fluvial grayling population has most likely been extirpated from the Park.

North American pronghorn (*Antilocapra americana*): Yellowstone's pronghorn population was one of only a few not exterminated or decimated by the early 20th century and, as a result, was the source for re-establishing or supplementing populations throughout much of its range (Lee et al., 1994). These pronghorn express much of the genetic variation that was formerly widespread in the species, but is no longer present elsewhere (Reat et al., 1999). This population also sustains one of only two long-distance pronghorn migrations that persist in the greater Yellowstone region (White et al., 2007). There are serious concerns about its viability because low abundance (~200) and apparent isolation have increased its susceptibility to random, naturally occurring catastrophes (NPS, 2010).

Wolverine (*Gulo gulo*): The wolverine is a wide-ranging mustelid that naturally exists at low densities throughout much of northern and western North America (Beauvais and Johnson, 2004). Wolverines are highly adapted to extreme cold and life in environments that have snow on the ground all or most of the year (Aubry et al., 2007). In the contiguous United States, these habitats are highly mountainous and occur at elevations above 8,000 feet (Copeland et al., 2007).

Overexploitation through hunting and trapping, as well as predator poisoning programs, likely caused wolverine populations to contract along the southern portion of their historical range in North America since the early 1900s (Banci, 1994). However, recent surveys indicate wolverines are widely distributed in remote, montane regions of Idaho, Montana, Washington, and parts of Wyoming (68 FR 60113).

Wolverines have been detected in the Greater Yellowstone Ecosystem including the eastern, northern, and southern portions of the Park (Beauvais and Johnson, 2004; Copeland et al., 2007). Wolverines have protected status in Washington, Oregon, California, Colorado, Idaho, and Wyoming (Banci, 1994). In Montana, wolverines are classed as furbearers and trapper harvests are managed through a quota system that limits the number of animals that can be taken. The USFWS has listed the wolverine in the contiguous United States as a candidate species.

Bison (*Bison bison*): Plains bison in Yellowstone have been petitioned for listing as an endangered species twice in the past 15 years and both times the U.S. Fish and Wildlife Service has declined to list the species. The Yellowstone bison population has been identified as a distinct population by USFWS definition. The population is comprised of plains bison that historically occupied about 20,000 square kilometers (km^2) in the headwaters of the Yellowstone and Madison rivers of the western United States. While nearly extirpated in the early 20^{th} century, the Park provides sanctuary to the only wild and free-ranging bison population to continuously occupy historic range. Intensive husbandry, protection, and relocation were used to bring back the population, and during the summer of 2012 there were about 4,300 bison in the Park. Yellowstone bison are managed as a single population having two distinct breeding areas with individuals that move across an extensive landscape (350,000 acres). These bison are subject to natural selection factors such as competition for food and mates, predation, and survival under substantial environmental variability. Thus, they have retained the adaptive capabilities of plains bison. Yellowstone bison contribute a unique genetic lineage to plains bison that is not represented elsewhere within populations managed by the Department of Interior. They have high genetic diversity compared to other populations of plains bison, and are one of a few bison populations with no evidence or suggestion of potential cattle ancestry.

The central herd occupies the central plateau of Yellowstone National Park, extending from the Pelican and Hayden valleys in the east to the lower elevation and thermally influenced Madison headwaters area in the

west. Central herd bison congregate in the Hayden Valley for breeding. Most bison move between the Madison, Firehole, Hayden, and Pelican valleys during the rest of the year. Some of these bison are likely to migrate north to the Gardiner Basin during the winter months and return to the Hayden Valley to breed. Emigration has been observed with more bison emigrating north from the central range than vice versa. The northern herd occupies the area commonly referred to as the northern range, extending from the high elevations along the east boundary from Cooke City south to the Needle (a small number of males summer in the upper Lamar Valley to Saddle Mountain) westward to include the Mirror Plateau, Specimen Ridge and Upper Slough Creek all the way to the lower reaches of the Gardiner Basin at Yankee Jim Canyon. This sub-population breeds at the eastward end of their range and slowly moves down in elevation as the fall and winter months pass. By late winter and early spring the majority of the northern range group is located west of Tower and follows the chronology of spring green up conditions back to the high country for the July and August breeding period.

Bison tend to be observed in open grassland or shrub steppe habitats but due to the juxtaposition of these habitats in Yellowstone, there are many travel corridors along rivers and over high elevation passes that provide connections to all of the major watersheds throughout the Park.

Literature Cited

(Aubry et al., 2007). Aubry, K.B., K.S. McKelvey, and J.P. Copeland. 2007. Distribution and Broadscale Habitat Relations of the Wolverine in the Contiguous United States. *Journal of Wildlife Management*, 71:2147-2158.

(Banci, 1994). Banci, V.A. 1994. Wolverine. In: Ruggiero, L.F., Aubry, K.B., Buskirk, S.W., Lyon, L.J., Zielinski, W.J., eds., 1994. The Scientific Basis for Conserving Forest Carnivores: American Martin, Fisher, Lynx, and Wolverine in the Western United States. USDA Forest Service General Technical Report RM-254.

(Baril et al., 2010). Baril, L.M. and D.W. Smith. 2010. Yellowstone Bird Program 2009 Annual Report. National Park Service, Yellowstone Center for Resources, Yellowstone National Park, WY, YCR-2010-04.

(Baril et al., 2011). Baril, L.M, L. Henry and D.W. Smith. 2011. Yellowstone Bird Program 2010 Annual Report. National Park Service, Yellowstone Center for Resources, Yellowstone National Park, Wyoming, YCR-2011-04.

(Beauvais and Johnson, 2004). Beauvais, G.P. and L. Johnson. 2004. Species Assessment for Wolverine (*Gulo gulo*) in Wyoming. United States Department of the Interior, Bureau of Land Management, Wyoming State Office.

(Copeland et al., 2007). Copeland, J.P., J.Peak, C. Groves, W. Melquist, K.S. McKelvey, G.W. McDaniel, C.D. Long, and C.E. Harris. 2007. Seasonal Habitat Associations of the Wolverine in Central Idaho. *Journal of Wildlife Management* 71:2201-2212.

(Koch and Peterson, 1995). Koch, E.D. and C.R. Peterson. 1995. Amphibians and Reptiles of Yellowstone and Grand Teton National Parks. University of Utah Press: Salt Lake City, UT.

(McEneaney, 2006). Yellowstone bird program 2005 annual report. Yellowstone National Park, WY: National Park Service, Yellowstone Center for Resources, YCR-2006-02.

(Reat et al., 1999). Reat, E.P., O.E. Rhodes, Jr., J.R. Heffelfinger, and J.C. deVos, Jr. 1999. Regional genetic differenctiation in Arizona Pronghorn. Pronghron Antelope Workshop Proceedings 18:25-31.

(Schwandt, 2006). Schwandt, J.W. 2006. Whitebark Pine in Peril: A Case for Restoration. USDA Forest Service, Report R1-06-28, Missoula, Montana.

(Smith et al., 2012). Smith, D.W., L. Baril, N. Bowersock, D. Haines, and L. Henry. 2012. Yellowstone Bird Program 2011 Annual Report. National Park Service, Yellowstone Center for Resources, Yellowstone National Park,Wyoming, YCR-2012-02.

(NPS, 2010). United States Department of the Interior, National Park Service. 2010. Yellowstone Resources and Issues: An Annual Compendium of Information about Yellowstone National Park.

(USFWS, 2007). United States Department of the Interior, Fish and Wildlife Service. 2007. National Bald Eagle Management Guidelines. Available online at:
http://www.fws.gov/pacific/eagle/NationalBaldEagleManagementGuidelines.pdf

(USFWS, 2010). United States Department of the Interior, Fish and Wildlife Service. 2010. Species profile: Trumpeter Swan. Available online at:
http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B08W

(Varley and Schullery, 1998). Varley, J.D. and P. Schullery. 1998. Yellowstone fishes: Ecology, history, and angling in the park. Stackpole Books, Mechanicsburg, Pennsylvania.

(White et al., 2007). White, P.J., T.L. Davis, K.K. Barnowe-Meyer, R.L. Crabtree, and R.A. Garrott. 2007. Partial Migration and Pilopatry of Yellowstone Pronghorn. *Biological Conservation*, Volume 135, Issue 4.

Appendix D – Compliance

Appendix D: Compliance for Fire Management Plan

AGENCIES/TRIBES/ORGANIZATIONS/INDIVIDUALS CONTACTED DURING THE FMP EA NEPA PROCESS

Tribes. On December 12, 2011 a letter was sent to 103 representatives of the Park's affiliated tribes announcing the proposed rewrite of the FMP and associated EA. The letter invited tribes to contribute comments on the project during the scoping process and announced the public scoping meeting. The tribes will be sent a copy of the EA for review and comment.

State Historic Preservation Office. A consultation letter and the EA was sent to the Montana, Wyoming, and Idaho State Historic Preservation Offices for Section 106 compliance in conjunction with the public review of the EA. Only the Wyoming SHPO responded to the consultation letter; ID and MT let the 30 day response period run out indicating they had no objection to the plan. The WY SHPO responded on October 3, 2012 through a letter in which they concurred with the preferred alternative, but indicated additional Section 106 compliance will need to be completed on an individual project level.

U.S. Fish and Wildlife Service. Park staff is requested endangered and threatened species verification from the U.S. Fish and Wildlife Service in conjunction with the public review of the EA. This EA was sent to the USFWS for review on September 18, 2012, and concurrence was received on December 5, 2012 as the Section 7 compliance for the FMP.

A list of agencies, tribes, organizations, and individuals that received the scoping letter and that are notified of the availability of the EA is located in the project file at Yellowstone National Park.

The environmental assessment was available for public review and comment for 30 days. It is available online at the National Park Service Planning, Environment, and Public Comment (PEPC) website. Go to http://parkplanning.nps.gov to access the PEPC site. Public comments on this environmental assessment can also be provided on the PEPC website.

LIST OF PREPARERS AND CONSULTANTS OF THE FMP EA AND THE FMP

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

Lisa Baril, Raptor Ecologist
John Cataldo, Assistant FMO
Katy Duffy, Interpretive Planner
George Helfrich, Chief, Division of Concessions Management
Joe Krish, Fire Management Officer
Doug Madsen, Outdoor Recreation Planner, Compliance and Science Coordination

Al Nash, Public Affairs Officer
Staffan Peterson, Park Archeologist
Vicki Regula, Environmental Protection Specialist
Dale Reinhart, Branch Chief of Operations, Concessions Management
Dan Reinhart, Branch Chief of Integrated Resource Management
Roy Renkin, Supervisory Vegetation Specialist
Dan Rhodes, Landscape Architect
Tobin Roop, Branch Chief of Cultural Resources
Becky Smith, Fire Ecologist
Dan Stahler, T & E Coordinator

Mangi Environmental Group

Tori Hudgins, Environmental Analyst
Eveline Martin, Project Manager and Environmental Analyst
Carrie Oberholtzer, Environmental Analyst

National Park Service
U.S. Department of the Interior
Yellowstone National Park
Wyoming, Montana, Idaho

Finding of No Significant Impact

Yellowstone National Park Wildland Fire Management Plan

Background

In compliance with the National Environmental Policy Act (NEPA), the National Park Service (NPS) prepared an Environmental Assessment (EA) to examine various alternatives and environmental impacts associated with the proposal to revise the Park's Fire Management Plan (FMP) as recent fire program management guidance and policy has changed. Fire management policy has evolved since the last FMP Environmental Assessment (FMPEA), which was prepared in 1992; the most recent FMP was updated in 2004. The 2012 document supersedes the earlier versions of Yellowstone's Fire Management Plan/EA. It should be noted that the FMPEA and FMP are independent documents, and the revised Yellowstone FMP (an operational document) will be finalized in the near future. It describes the alternatives and their consequences to the Park's natural and cultural resources for implementing a comprehensive fire program which includes wildland fire response, fire prevention and fuels management utilizing prescribed fire, and non-fire treatments. The scope of the FMP is confined to areas within the authorized boundaries of Yellowstone. Therefore, the FMP addresses the approximately 2,221,772 acres (3,472 square miles) of federal land. The EA considers impacts outside of the Park that could reasonably be impacted by Yellowstone National Park fire management actions. The scoping process contributed to the development of mitigation measures (i.e., aquatic invasive species considerations), specific issues addressed in the impact analyses (i.e., fire management in whitebark pine stands), and explanation of management approach (i.e., use of a 300-foot buffer for retardant around water bodies).

Selected Action

Two alternatives were evaluated in the EA, including Alternative 1: No Action, which is the continued implementation of 2004 FMP and Alternative 2: Proposed Action (referred from this point forward as "The Selected Action"). The same fire management tools would be available under both alternatives and include management of wildfires for resource benefit and suppression. Fuels management options include manual and mechanical treatments, and prescribed fire, under both alternatives. The Preferred Alternative (Alternative 2) differs from the No Action alternative in the following areas:

The Park would be divided into fire suppression strategy zones to assist managers in quickly determining the correct management strategy to use for an unplanned ignition. These zones would be composed of one quarter (0.25) mile buffers around frontcountry developed areas (e.g. Mammoth, Canyon Village, Northeast Entrance, as shown on the map on page 18 of the EA) to mitigate risk to values. All unplanned ignitions which originate within the suppression strategy zones will receive immediate suppression strategy response due to the close proximity of people and property. The zones will help facilitate a faster response time to wildfires within these zones. The balance of the Park's landscape would be considered for all unplanned ignition response strategies (i.e. monitor, point/zone protection, suppression), where management decisions would reflect the goal of allowing natural ecological processes to occur utilizing the safest, most effective, and most efficient methods available while meeting Park managers' identified goals and objectives.

Backcountry or wilderness values at risk will be protected using a point/zone protection strategy to lessen the effects of fire around the value. Opportunities to mitigate risk to park resources and values using manual, mechanical, and prescribed fire treatments would be included in this alternative.

Current fire management guidance has replaced several terms used to describe the activities undertaken within the 2004 FMP. Updated terminology under the Preferred Alternative includes prescribed fire (i.e. planned ignitions) and wildfire (i.e. natural or human caused unplanned ignitions). Wildfires would be managed with one, or a combination of, different response strategies which include: monitor strategy, point/zone protection strategy, and/or suppression strategy.

Wildfires managed with a monitor or point/zone protection strategy under the Preferred Alternative would be managed according to goals and objectives rather than specific prescriptions (e.g. weather and fire behavior parameters) as in the No Action.

Important improvements to the Preferred Alternative include greater emphasis on interdisciplinary planning as well as increased efficiency in response to unwanted fires. Desired conditions, goals, and objectives are better defined for fire management under this alternative.

Wildland fires would be evaluated for management response, while planned projects, including prescription, mechanical and manual fuel reduction projects would be implemented to protect values at risk.

Mitigation Measures

Under the selected action, various mitigation measures will be implemented. These mitigation measures are listed in Appendix A.

Alternatives Considered

Two alternatives were evaluated in the EA including the no action alternative and one action alternative. Under Alternative 1, No Action, there would be a continuation of current management actions under the 2004 Fire Management Plan. The 2004 Fire Management Plan allowed for naturally occurring fires within the Park to be assessed for management of multiple goals and objectives under specific pre-set prescriptions, suppression of unwanted fires, manual and mechanical fuel treatments, and prescribed fires. Alternative 2, Proposed Action, is the preferred alternative, as described in the previous "Selected Action" section.

Environmentally Preferable Alternative

According to the CEQ regulations implementing NEPA (43 CFR 46.30), the environmentally preferable alternative is the alternative "that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources. The environmentally preferable alternative is identified upon consideration and weighing by the Responsible Official of long-term environmental impacts against short-term impacts in evaluating what is the best protection of these resources. In some situations, such as when different alternatives impact different resources to different degrees, there may be more than one environmentally preferable alternative."

Alternative 2, the Proposed Action, is the environmentally preferable alternative for several reasons: a) It provides the full spectrum of fire management strategies and practices to accomplish Yellowstone fire and resource management objectives while protecting human life, and identified resources and values. b) It allows a broader set of goals and objectives for wildfires than the No Action alternative; rather than more confined prescriptions, allowing for the safety of firefighters, visitors, employees, and Park neighbors and the protection of Park development, while allowing fire to play its ecological role in the Park to the greatest extent possible. c) It is more streamlined with

the inclusion of suppression strategy zones, safer, more cost effective wildfires, and could lead to quicker initial response. For these reasons, Alternative 2 causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources, thereby making it the environmentally preferable alternative.

By contrast, Alternative 1 (No Action) is not the environmentally preferable alternative because, while it represents the current management direction for Yellowstone National Park in conformance with the Park's 2004 Wildland Fire Management Plan, it would not achieve fire management goals to as great an extent as Alternative 1, the Proposed Action.

Why the Selected Action Will Not Have a Significant Effect on the Human Environment

As defined in 40 CFR §1508.27, significance is determined by examining the following criteria:

Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.

Implementation of the preferred (selected) alternative will result in some adverse impacts; however, the overall benefit of the project, particularly a revised decision making process and prompt fire management response, outweighs these negative effects. The adverse effects are summarized as follows. Negligible to moderate adverse and beneficial impacts of the preferred alternative will occur to air quality, water quality, geological resources, wilderness, vegetation and wetlands, fish and wildlife, threatened and endangered species, visitor use and experience, cultural resources, and socioeconomic resources. Implementation of the Yellowstone National Park Fire Management Plan will be an overall benefit to park resources in the long-term.

The overall benefit of implementing the preferred (selected) alternative is that the decision making process and terminology are updated, and prompt fire management response to unplanned fire is improved, thus protecting, life, property, and resources.

The degree to which the proposed action affects public health or safety

Firefighter and public safety is the first priority in the development of an FMP. In light of this, numerous mitigation measures will be implemented related to human health and safety. Only fully qualified (i.e. meeting National Wildfire Coordinating Group qualifications and accepted interagency knowledge, skills and abilities for the assigned fire job) personnel will be assigned fire management duties (unless assigned as trainees, in which case they would be closely supervised by an individual fully qualified for the given position). No operation will be initiated until all personnel involved have received a safety briefing describing known hazards and mitigating actions, current fire season conditions, and current and predicted fire weather and behavior. Wildland fire incident commanders will minimize firefighter exposure to heavy smoke when possible. Park neighbors, visitors and local residents will be notified of all fire management events that have the potential to impact them. The superintendent or designee may, as a safety precaution, temporarily close parts of the Park to the visiting public. With all of these measures in place, adverse effects on health and safety will be minimized.

Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas

As described in the EA, negligible to moderate effects to cultural resources were identified for the Preferred Alternative. The possibility of disturbing currently unmapped and unsurveyed sites exists, although this would be unlikely. Mitigation measures to protect cultural resources would be employed during project implementation and are described in the EA.

Wetlands would be avoided during treatment under the Preferred Alternative. There are no prime farmlands within Yellowstone. The Preferred Alternative does not include planned fire management activities that would affect any ecologically critical areas, wild and scenic rivers, or other unique natural resources, as referenced in the Wild and Scenic Rivers Act, Management Policies, 40 CFR 1508.27, or the criteria for national natural landmarks.

The degree to which the effects on the quality of the human environment are likely to be highly controversial

The Selected Action's overall effects on the human environment would be beneficial as a result of the reduction of wildfire risk and maintenance of natural fire regimes, and thus not likely to be controversial. Implementation of the Preferred Alternative would not have a significant adverse effect on key resources or values at Yellowstone and would be unlikely to generate any effects on the human environment that would be highly controversial.

The degree to which the possible effects on the quality on the human environment are highly uncertain or involve unique or unknown risks

As previously described, risks involved under the Proposed Action alternative relate to firefighter and public safety. Mitigating measures employed will reduce the effects to public safety and have been effective in other instances. Therefore, there are no highly uncertain or unique or unknown risks identified.

The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration

National Park Service Wildland Fire Management Guidelines (DO-18) require all parks with vegetation capable of sustaining fire to develop a wildland fire management plan. The plan should meet the specific resource management objectives for the park and ensure firefighter and public safety is not compromised. These guidelines further state that all non-structural fires occurring in the wildland are classified as either planned ignitions or unplanned ignitions. Fires may be authorized by an approved wildland fire management plan and contribute to a park's resource management objectives. The preferred alternative neither establishes a NPS precedent for future actions with significant effects nor represents a decision in principle about a future consideration.

Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

No major (significant) cumulative effects were identified in the EA. Impacts of the preferred alternative on air quality, water quality, geological resources, wilderness, vegetation and wetlands, fish and wildlife, threatened and endangered species, visitor use and experience, cultural resources, and socioeconomic resources were identified. As described in the EA, cumulative impacts were determined by combining the impacts of the preferred alternative with other past, present and reasonably foreseeable future actions. The impacts of other past, present and reasonably foreseeable future actions on resources, in conjunction with the impacts of the preferred alternative, will result in both beneficial and adverse cumulative impacts ranging in intensity from negligible to moderate. Therefore, the preferred alternative will not contribute or result in significant cumulative impacts.

The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

As described above, Yellowstone has more than 2,000 documented prehistoric and historic sites; 1,030 historic structures entered on the List of Classified Structures, 375 are listed on the National Register of Historic Places and 351 have been determined eligible for listing; several cultural landscapes; and over 600 recorded ethnographic resources.

Adverse impacts to cultural and historic resources would be overall minor to moderate, short- to long-term, adverse or beneficial and local depending on the nature and intensity of any wildfire and subsequent fire management response and rehabilitation activities. Adverse effects on cultural and historic resources from planned fire management actions would be avoided or minimized through identifying the resources prior to disturbance and protecting the resources. Prior to prescribed burning and fuel reduction project implementation, an archeologist meeting the Secretary of the Interior's standards would inventory unsurveyed areas for cultural resources, and the Park would ensure compliance with Section 106 of the National Historic Preservation Act. If necessary, mitigation would be developed in consultation with the Wyoming, Idaho, and Montana State Historic Preservation Officers.

During the preparation period for this Fire Management Plan and Environmental Assessment, the park hosted a conference call with all three SHPOs associated with the Park, during which IDSHPO and MTSHPO indicated that they would defer to WYSHPO for 106 compliance for the YELL FMP. Letters were sent to all three SHPOs requesting concurrence for the preferred alternative, but only the WYSYPO responded, ID and MT let the 30-day clock run out.

The 30-day period in which the Idaho and Montana State Historic Preservation Offices were given to respond for concurrence to the preferred alternative expired on November 1, 2012 with no response from either office, indicating they had no objection to the plan. The Wyoming State Historic Preservation Office responded on October 3, 2012 through a letter in which they concurred with the preferred alternative, but indicated additional Section 106 compliance will need to be completed on an individual project level.

The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

Two federally listed species occur in the project planning area:

Canada lynx (threatened) are considered rare in the Greater Yellowstone Area and are believed to use boreal or montane forests. Evidence of lynx in the Park comes from winter tracking surveys, lynx hair-snare transects, and historic sightings. Park wide, only four lynx sightings have been reported by visitors in the last 10 years. Surveys have documented one possible, two probable, and two definite cases of lynx presence. Population numbers are unknown. Lynx critical habitat was designated in Yellowstone in 2009.

As of 2011, the Yellowstone ecosystem grizzly bear (threatened) population is estimated at 593 bears occupying over 12 million acres. There are more grizzly bears today, occupying a larger area, than there were in the late 1960's prior to the closure of the ecosystem garbage dumps (312 bears occupying 5 million acres). Grizzly bears now occupy areas they have been absent from for decades and are expanding into areas far outside of the recovery zone.

The gray wolf was native to the Yellowstone area when the Park was established in 1872. Historically hunted for their hides and as predators, they were eliminated from the ecosystem by the 1930s. With reintroduction efforts, in 2011 at least 98 wolves (10 packs and 2 loners) occupied

the Park. At the end of 2011, there were approximately 499 adult wolves consisting of 38 breeding pairs present in the Greater Yellowstone Area. The gray wolf was delisted on September 30, 2012 during the informal consultation period with the U.S. Fish and Wildlife Service. This species is discussed here because its status has changed during the development of this plan.

Two candidate species also occur in Yellowstone:

The wolverine is a wide-ranging mustelid that naturally exists at low densities throughout much of northern and western North America. Wolverines have been detected in the Greater Yellowstone Ecosystem including the eastern, northern, and southern portions of the Park.

Whitebark pine is a major component of the forest community in areas above 8,400 feet and a major understory component of lodgepole dominated forests from 7,000 to 8,400 feet. Whitebark pine populations in Yellowstone have been declining due to native mountain pine beetles and non-native blister rust, which is caused by a fungus. Whitebark pine exist both as an overstory and understory component within the forest communities in many regions of the Park. If either of these species are listed under the Endangered Species Act, the Park would reconsult with the U.S. Fish and Wildlife Service (USFWS).

Impacts on federally protected species under the preferred alternative will be negligible to minor, short- to long-term, and adverse or beneficial. It is unlikely that any federally protected species would be harmed by fire management activities, and may benefit from post fire conditions. Some displacement due to fire management activity, habitat loss and degradation would occur, although impacts would be short-term and not jeopardize continued existence of species. Short-term benefits would also occur from managing vegetation and habitat for natural resource objectives. Habitat could be enhanced or created, and likely to have long-term benefits to listed species. Avoidance measures and mitigation would be used to protect federally listed species. The use of a monitor or point/zone protection response strategy would provide beneficial effects by allowing natural processes to perpetuate so natural ecological function would be maintained and restored on more acreage in the Park.

On September 18, 2012 the park sent a letter to the USFWS requesting informal consultation on the 2012 Yellowstone Fire Management Plan Environmental Assessment, Alternative 2. On December 5, 2012 the park received a letter from the USFWS concurring with the Park's determination of "may effect, not likely to adversely affect" for grizzly bear, Canada lynx, and designated critical habitat for lynx. On September 30, 2012 gray wolves were delisted and consultation on this species is no longer required. Additionally, impacts to threatened and endangered species do not differ from impacts described in a prior informal consultation that occurred in 2005 on the 2004 FMP when Yellowstone National Park prepared a Programmatic Biological Assessment (PBA; dated January 31, 2005). The USFWS sent a letter on March 28, 2005 concurring with the Park's "may effect, not likely to adversely affect" determination that concluded that informal consultation. Future consultations with the USFWS will occur for individual fuels treatment projects that are described in Appendix B of the FMPEA prior to implementation of those projects. The USFWS does not give a determination on proposed or candidate species within the park.

Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment

The action will not violate any federal, state, or local laws or environmental protection laws.

Public Involvement and Native American Consultation

The EA was made available for public review and comment during a 30-day period ending October 19, 2012. A total of eight responses were received. To notify the public of this review period, a

letter was mailed to stakeholders, 103 members of the Park's affiliated Native American tribes, interested parties, and a press release was sent to newspapers and news organizations. The content of the responses varied. No single topic was commented on by more than one commenter. This total includes six letters from unaffiliated individuals and two letters from State offices: one letter from the Wyoming State Historic Preservation Office and one letter from the Wyoming Game and Fish Department. Of the eight responses, all were from within states that contain Yellowstone National Park land.

Public review and comments did not result in any substantial changes to the information and findings presented in the EA or to the NPS selected alternative. Based on comments received, there were a few changes to the text of the EA which are addressed in errata sheets attached to this FONSI. The FONSI and errata sheets will be sent to all commenters. A summary of issues raised and NPS responses to substantive comments are included in the "Response to Comment" section.

Conclusion

As described above, the preferred alternative does not constitute an action meeting the criteria that normally require preparation of an environmental impact statement (EIS). The preferred alternative (selected action) will not have a significant effect on the human environment. Environmental impacts that could occur are limited in context and intensity, with generally adverse impacts that range from localized to widespread, short- to long-term, and negligible to moderate. There are no unmitigated adverse effects on public health, public safety, threatened or endangered species, sites or districts listed in or eligible for listing in the National Register of Historic Places, or other unique characteristics of the region. No highly uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence were identified. Implementation of the action will not violate any federal, state, or local environmental protection law.

Based on the foregoing, NPS has determined that an EIS is not required for this project and thus will not be prepared.

Approved:

2/25/13

John Wessels
Date
Regional Director, Intermountain Region, National Park Service

Errata Sheets

Yellowstone National Park Fire Management Plan
Yellowstone National Park

According to NPS policy, substantive comments are those that 1) question the accuracy of the information in the EA, 2) question the adequacy of the environmental analysis, 3) present reasonable alternatives that were not presented in the EA, or 4) cause changes or revisions in the proposal.

Some substantive comments may result in changes to the text of the EA, in which case, they are addressed in the *Text Changes* section of the Errata Sheets. Other substantive comments may require a more thorough explanatory response and are addressed in the *Response to Comments* section. NPS responds to all substantive comments in either or both of these sections.

Substantive comments to the Yellowstone National Park Wildland Fire Management Plan Environmental Assessment varied, with no single topic commented on by more than one commenter. A few comments, which are addressed below, resulted in minor changes to the text of the EA.

Text Changes

Change lines 17-18, page 10 from "Suppress human caused wildfires in a safe, cost-effective, and environmentally sensitive manner" to "Use suppression as the initial response to human caused wildfires to acknowledge suppression is not the only acceptable response if the wildfire should escape the initial response."

Change text on line 17, page 28 from "5th Level (10 digit) hydrologic units (HUC)" to "4th Level (8 digit) hydrologic units (HUC)."

Add after line 21, page 28 "Yellowstone National Park works with partner agencies throughout the GYA preventing the spread of new AIS populations and notifies these agencies if new AIS populations are discovered or water is transported across boundaries."

Change text on line 9, page 44 from "50 foot wide right-of-way" to "40 foot wide right-of-way."

Add after line 33, page 124 "Although agencies typically only take into account affects to historic properties that are eligible for the National Register, park managers may also consider affects to, and manage cultural resources that are not historic properties."

Change the following terminology throughout the document:

- "Planned fire" has been replaced with "planned ignitions" or "prescribed fire."
- "Unplanned fire" has been replaced with "unplanned ignitions" or "wildfire."
- "Appropriate management response" has been changed to "management response."

Response to Comments

Comment 1 – This is a large document and I may have missed this, but I did not see any reference to making structures less susceptible to fire (i.e. fire proof shake shingles, etc.). This could be a valuable tool in addition to fuel reduction.

Response 1 – The Fire Management Plan EA does not specifically address the use of fire resistant construction materials, but it does reference the International Code Council (ICC). Sections 501 through 507 of the ICC discuss special building construction regulations in the wildland urban

interface. Park fire managers work to ensure these National Park Service required standards are included within all of the park development comprehensive area plans produced for Yellowstone National Park. Yellowstone National Park managers often must make decisions related to various competing resource concerns, and sometimes other criteria may take precedence when choosing materials (i.e. historic significance, location, visual aesthetics).

Comment 2 – Burn Pile Concerns: On previous fuels projects, burn piles within lodgepole canopies have resulted in the death of trees intended to be left intact due to heat stress. Burn piles should be utilized carefully.

Response 2 – Lodgepole pines have shallow root systems, making them very susceptible to blowdown. Park fire managers have determined it is better to complete multiple partial thinning treatments over several years versus a full thinning treatment within one year because of the potential for blowdown. By completing partial treatments over several years, some treatment areas are not always opened up enough to allow standing live trees to not be affected by burn piles. If trees are affected by burn piles (e.g. scorched or killed due to burn pile proximity), these trees will either be left as standing dead for wildlife use, or will be taken down in the next partial thinning treatment. The overall loss of lodgepole pine canopy trees is negligible resulting from pile burning.

Comment 3 – Safety briefings are mentioned for all fire crews. It would be good to include Resource Briefings as well. When a Resource Advisor is dedicated to a fire, we brief all incoming resources on both safety and resource concerns associated with YNP in general as well as the specific fire or camp area. Inclusion of the specific need of these briefings would be beneficial.

Response 3 – All fire resources which come from outside of the Greater Yellowstone Area are required to not only receive a resource briefing, but are required to watch the full bear safety video before engaging in any fireline duties. A member of the resource management staff is contacted during the initial states of a wildfire (see mitigation measures on page 30), and a resource advisor is assigned to every wildfire, though staffing limitations and particularly intense fire seasons may not always make this possible. If a member of the resource management staff is not available to brief outside resources, a member of the fire management staff will assist in giving a resource management briefing.

Comment 4 – It is stated that all equipment will be fueled 150 feet from water sources. This is great, but will it really be implemented or is it even practical. The agricultural pump for instance used on the Cygnet Fire is not easily mobile. Even Mark-3 pumps are unlikely to be disconnected and moved each time they are fueled. By the nature of pumps, they will be in close proximity of water sources. Containment and care is certainly required, just wanted to check on this 150 foot rule. I would support it and distance from water sources and fuel is ideal, just questioning the practicality.

Response 4 – In most instances, when fueling a Mark III pump, no fuel is actually poured from can to can, the empty fuel can is merely swapped with a full fuel can. When using a large agricultural pump (i.e. high volume, low psi pump), it cannot practically be moved 150 feet away from the water source to refuel. Mitigation measures include a fuel containment system be used at all times, and equipment will be fueled at least 150 feet from water sources whenever practical.

Comment 5 – I'm glad to see a limit on the number of people associated with Spike Camps, even 100 is pushing it, but several years ago, we had over 120 on a camp at Crow Pass on the East Entrance Road (against the recommendation of the READ). It did attract a bear and resulted in numerous issues. Spike camps should be limited to small numbers and short duration whenever possible.

Response 5 – Park fire managers agree with the need to keep spike camps small in size, number of people, and as short of duration as possible. Park fire managers are committed to protecting all resources within the park; therefore, all efforts will be made to reduce impacts from spike camps.

Comment 6 – I appreciate the mention of all equipment and vehicles shall be cleaned prior to entering the park, but this does not currently occur. Would it be possible to have this included in the Resource Order so that crews know if this requirement and can ensure they get cleaned prior to arriving?

Response 6 – The park has recently started to include this on resource orders when ordering crews and equipment for park fires, and all vehicles are inspected prior to being dispatched to the fireline.

Comment 7 – A mention is made of a 50 foot corridor for Northwest Energy. I may be wrong, but was under the impression that it was a 40 foot corridor.

Response 7 – You are correct that the corridor for Northwestern Energy is 40-foot. The mention of a 50 foot corridor is incorrect and the text will be changed on page 44 from "50 foot wide right-of-way" to "40 foot wide right-of-way".

Comment 8 – Under the "Additional Conservation Measures Specific to Grizzly Bears" section, a reference is made to Monitoring Exotic Vegetation. This is followed by "If funding is available[6]". Given the significant resources allocated to fire suppression, funding for exotic vegetation should be more of a priority and shouldn't be the only issue limited by funding. Monitoring and control of exotic vegetation has always been an issue and concern related to post-fire funding. Fire accounts are typically closed too soon to fund long term issues such as exotic vegetation monitoring and control which often occur over years if not decades.

Response 8 – Yellowstone National Park implements an invasive vegetation program that focuses on prevention, early detection, survey and treatment of invasive species. Most of the park's efforts occur along park roads and developments and known backcountry areas. During fire activity, the spread of invasive weeds is minimized through efforts of the fire Resource Advisor program (READ). The READ program directs equipment to be cleaned if it came from known weed infested areas, and also collects informal monitoring data regarding conditions of existing and newly discovered populations of exotic plants. Minimum Suppression techniques and fireline rehabilitation are also employed to help prevent the spread of invasive plants associated with fire activity.

Comment 9 – At the end there is a spelling error "Managi Environmental Groups" is written, I would assume "Managing" was the intent?

Response 9 – We assume that the commenter is referring to page 141 of the FMP/EA, where 'Mangi Environmental Group' is included in the list of preparers and consultants. Mangi Environmental Group is the name of the NEPA contractor, and it is not a typographic error.

Comment 10 – Reference Section 1.3.1, bullet two under "Purpose" – "Preserves abundant and diverse wildlife in one of the largest remaining nearly intact wild ecosystem on earth, supporting unparalleled biodiversity."

The let burn policy is contrary to this "Purpose" given the destructive nature of a catastrophic fire [example in the 1988 fire season] which left grazing wild life with insufficient food to maintain wild life through the harsh winter months resulted in starvation and a decline in wild life population. Further, the starvation resulted in massive elk, deer, and bison deaths [expanding upon typical grazing ranges] into the winter throughout the Yellowstone National Park [YNP or Park] and also onto private lands outside, and adjacent to, the Park. The financial burden of disposal was on the private land owner. The objective of the second bullet under "Purpose" was not met. The EA does not address how the Park would address these two issues in the future.

It is unclear how the second bullet under "Purpose" is met: "Provides for the benefit, enjoyment, education and inspiration of this and future generations" with this EA given the destructive nature of fire.

Response 10 – Fire is a well-documented, natural process within park ecosystems. While wildfire can be viewed as destructive to those unfamiliar with certain ecosystems, such as a lodgepole pine ecosystem which relies on fire to regenerate, it is a very important part of the ecosystem within the park. Although some ungulate deaths have been attributed to the 1988 fire season, most ungulates actually benefitted from the renewal of grasses and forbs which followed the fire. Some animals have short term adverse effects to fires because they are displaced and potential food sources are affected. Most of these short term adverse effects to animals are offset by the long term benefits of increased habitat and forage in the years following a fire. By excluding fire from the Yellowstone ecosystem, the National Park Service would not be meeting its purpose of preserving and providing the landscape for future generations.

Comment 11 – Reference Section 1.4 Fire Management Objectives

It would seem a further objective of the fire management goals to coordinate and support a "good neighbor" policy with adjacent land owners as well as "land management agencies" [State, Federal, and Local]. YNP is more than a National [and International] Jewel, it is a neighbor to surrounding States, towns, and land owners, and as such, it should be obligated to act as a neighbor through communication, actions, and policies.

Response 11 – Park fire management strives to exhibit a 'good neighbor' policy through participation in the Greater Yellowstone Area Interagency Fire Management Planning and Coordination Committee. Press releases are submitted for many different fire management activities within the park throughout the year, and the park's website is updated often to assist in disseminating information to the public. The park also holds public meetings in the gateway communities which may be affected by park projects.

Comment 12 – Reference Section 1.5.2 Impact Topics Dismissed From Further Analysis

Floodplain events residing only within the YNP boundaries and having no possible domino effect outside YNP can be limited to a 100-year event; however, the resulting aftermath effects that would extend outside the YNP boundaries should be evaluated and considered and 500-year events, given the destructive natural of floods as a cascading effects/events [vegetation damage, wild life, terrain changing, cascading debris, etc.]. It is myopic [as a good neighbor and Federal

Agency] to consider only events locally and not globally. The aftermath of fires is generally flooding, erosion, and environmental destruction. Flooding as a secondary destructive event [resulting from a fire event] from weather causing erosion from snow and rain is real and fails to meet the "Purpose" requirement outline earlier in the EA. The failure to consider an in-depth analysis of floodplain events within YNP [even if localized] and effects outside the boundary of YNP is criminal and places the public, private property, and public property [State, local, and other Federal] in harm's way.

Unique and Prime Farmlands [Title 7, Chapter 73, Section 4201 (c)(1) of the Farmland Protection Policy Act (FPPA)] – Has consideration been given to the domino effect from fire's aftermath from flooding events that extends outside the YNP boundary and would affect this Act?

Response 12 – Fire is a natural part of the ecosystem within Yellowstone, and there is usually no large scale aftermath of flooding, erosion, and environmental destruction after a wildfire which has occurred within the park, let alone outside of the park. While some small scale erosion may occur after a wildfire, events will be small and localized. Flooding that may occur within, or outside of the park, will not be due to wildfires in most instances, and therefore floodplains were dismissed from full analysis. Unique and prime farmlands was dismissed as an impact topic as there are none within the park, and none outside of the park which would be likely to have any measurable impacts or be affected by wildfires that happen within the park.

Comment 13 – We do have some comments on Section 3.11.2 (Cultural Resources/Methodology) of the EA. In the discussion of determinations of effect to historic properties, particularly "The thresholds of change for the intensity of an impact" on Archeological Resources, Historic Resources, Cultural Landscapes, and Ethnographic Resources (Effect Discussion), the assumption behind the determinations appears to be that all of these resources are Historic Properties as defined at 36 CFR 800.16(l). Clarification that not all of these resources are Historic Properties would strengthen this portion of the EA.

Response 13 – Agencies must consider potential effects of the proposed action to historic properties. The National Historic Preservation Act also defines Historic Properties as those cultural resources evaluated for inclusion to the National Register of Historic Places, and those cultural resources that have not yet been evaluated for their inclusion. The following sentence will be added to the end of the first paragraph of section 3.11.2 Methodology: "Although agencies typically only take into account affects to historic properties that are eligible for the National Register, park managers may also consider affects to, and manage cultural resources that are not historic properties."

Comment 14 – Additionally, while the opening paragraph of 3.11.2 discusses the consultation process under Section 106 of the National Historic Preservation Act, the Effect discussion does not adequately reflect the role of consultation in assessing affects per 36 CFR 800.5(a). In particular, the discussion of the role of Native American consultation in relation to Historic Properties of religious and cultural significance to them (under Ethnographic Resources) should be addressed explicitly.

Response 14 – The park will continue to consult with Native American tribes regarding actions which may affect historic properties, including ethnographic resources and other significant cultural resources. Tribes received scoping letters sent December 12, 2011 asking for input at the beginning of this NEPA process. Tribes also received notice of the availability of YELL FMP EA for comments

that ended October 19, 2012. Should tribes identify resources of religious and cultural significance to them, additional consultation with them regarding affects will be completed.

Comment 15 – Fire Management Objectives: 1) The Fire Management Objectives (pg. 9) do not include an adequate protection objective tiered to the national fire program goals and resource management goals. DO-18 includes the goal "Protect natural and cultural resources and intrinsic values from unacceptable impacts attributable to fire and fire management activities." The Resource Management Plan contains the goal "Preserve the natural and cultural resources of Yellowstone and to allow natural processes and interactions between resources to occur with a minimum of human influence." While the Fire Management Plan lists many important values to be protected within its pages, there is no associated protection objective to address these values in the list of Fire Management Objectives. As a result, it would be difficult to derive an appropriate incident objective to protect these values for a wildfire incident. In other words, if one were to read the list of objectives given, there would be no basis for any kind of protection response, other than to "suppress human caused wildfires." What is the fire management program's objective for protecting values at risk, and how are protection priorities established? Is there a difference between the proposed alternatives in their ability to meet protection objectives for valued resources and infrastructure?

2) The objective of "Suppress human caused wildfires in a safe, cost-effective, and environmentally sensitive manner" is more restrictive than necessary under the 2009 Guidance for Implementation of Federal Wildland Fire Policy, and removes leeway in decision making. The 2009 Guidance directs that the "initial action on human caused wildfire will be to suppress the fire;" however, it does not direct that suppression is the only option should the fire escape the initial response. Yellowstone has in the past used wildfires to accomplish resource objectives even when the ignition source was human caused, and the park should strive to retain that latitude. I am not suggesting that arson fires be allowed to burn, but there is little difference between a lightning-caused fire and a fire caused by a downed powerline, and such fires should not automatically be suppressed without adequate evaluation of their potential benefits and risks. Don't preclude options unnecessarily.

Response 15 – Fire is treated as a natural process within the park. While there is no specific objective within the fire management objectives, this subject is discussed on page 24, under point/zone protection within recommended wilderness. When a wildfire starts, agency administrators, fire management staff, and cultural and natural resource staff take into consideration any possible values at risk (e.g. sensitive natural and cultural resources) when determining what the initial response to the wildfire will be. One of the objectives on page 10 has been reworded to say "Use suppression as the initial response to human caused wildfires to acknowledge suppression is not the only acceptable response if the wildfire should escape the initial response."

Comment 16 – Wildfire Response Strategy: The move from the prescriptive conditions (Alternative 1) to pre-determined resource objectives (Alternative 2) will tie fire management response more closely to the Resource Management Plan as directed by national policy, but will require additional evaluation of fire effects and preplanning to be successful. To be fully implementable, resources and infrastructure with the potential to be affected by exposure to fire should be evaluated to determine what effect fire (at multiple levels of intensity) will have on the these values, what effects are acceptable/unacceptable (as determined by measurable objectives based on desired future conditions), and how conflicts will be prioritized/resolved (e.g., fire can benefit one resource while harming another-which effect takes precedence?) Whether the park has the capacity and

commitment to develop these criteria in an effective timeframe should be addressed in the Environmental Assessment. To be clear, I support Alternative 2 over Alternative 1, but would like to see the park commit to the workload associated with Alternative 2's success.

Response 16 – Yellowstone fire management staff is in the process of a park-wide structure assessment. This means every structure will be rated to determine its defensibility against a wildfire. While this is not the solution to all questions, it is a start by determining what buildings are within the park and the level of work which will be needed should a wildfire threaten any one of them. When a wildfire starts, cultural and natural resource staff are assembled with agency administrators and other staff to determine which values have the highest priority. This is also true of all planned fire management projects (e.g. planned ignitions, hazard fuel treatment); an interdisciplinary team will be used to determine desired future conditions, evaluate potential impacts, and those that are unacceptable, among many other tasks. Using this process, it is determined what the project would look like, how it would be completed, and which values are more important than others. More specific tactical information will be included in the FMP.

Comment 17 – Whitebark Pine: As an example of the issue with the Wildfire Response Strategy as discussed above, whitebark pine has a very complex relationship with fire, and adequately describing the resource objective/desired future condition for whitebark pine in Yellowstone is critical to ensuring that fire management "gets it right." Closer ties with the GYCC Whitebark Pine Strategy and more detail tying fire effects in whitebark pine to management objectives is necessary to adequately protect this species of special concern. In addition to protecting "plus trees," areas suitable for whitebark pine that have been ceded to a subalpine fir cover type due to previous fire suppression should be identified and prioritized for the use of fire to meet resource objectives. The GYCC Whitebark Pine Strategy (2011) states as one of the management strategies, "Before the fire season begins, work with fire management offices to identify locations where fire may be beneficial or detrimental to whitebark pine management goals;" this strategy would be useful for ALL critical resources affected by fire in Yellowstone. The park should commit to this approach and the associated workload on a prioritized basis.

Response 17 – Yellowstone National Park is an active partner with the Greater Yellowstone Coordinating Committee Whitebark Pine Subcommittee. This includes collaboration with monitoring the health of whitebark pine, mapping whitebark pine stands, promoting gene resistance for white pine blister rust and the protection of ten "Plus trees" in the park. Plus trees are trees that have been selected by their indication of having a resistance to rust and because they contribute toward a GYA conservation of this important high alpine landscape. Park biologists and resource managers work with the fire planning team and participate toward management objectives that involve whitebark pine conservation. This would include the premise that wildland fire is an important component of whitebark pine conservation. The park also recognizes the value of Plus trees and takes measures to protect these trees from mountain pine beetle and if feasible, from wildland fire. Park fire managers will meet with resource managers in the spring to determine where the whitebark pine plus trees are, and the areas which need protection.

Comment 18 – Definitions: Several of the definitions integral to the document are incorrect or unsupported by policy or NWCG terminology. "Planned/unplanned fires" are not legitimate terms- ignitions are planned or unplanned, not fires (2009 Guidance for Implementation of Federal Wildland Fire Policy). It is ironic that the term "unplanned fire" appears so pervasively throughout the Fire Management Plan. "Wildland Fire" is defined incorrectly in the outtake box on page 16. The definition not only refers to wildland fires as "unplanned or unplanned," it also precludes

prescribed fire from the definition (which is contradicted by text on the same page). The correct definition (from the NWCG terminology memo #24-2010) is "A general term describing any non-structure fire that occurs in the vegetation and/or natural fuels." The intent of this term is stated in this memo as "A general term that includes both prescribed fire and wildfire.

Response 18 – The document has been changed to reflect the following inadvertent terminology errors:

- All planned fire has been replaced with planned ignitions, or prescribed fire.
- All unplanned fire has been replaced with unplanned ignitions, or wildfire.
- It has been clarified there are two types of wildland fire: wildfire (i.e. unplanned ignitions), and prescribed fire (i.e. planned ignitions).
- All references to appropriate management response have been changed to management response.

Comment 19 – In our letter dated December 20, 2011, we misstated the following recommendation: "that will prohibit water from being transported between 5th Level (10 digit) hydrologic units (HUC) watersheds, unless in an emergency (life or structure loss)." The recommended language should be: ".that will prohibit water from being transported between 4th Level (8 digit) hydrologic units (HUC) watersheds, unless in an emergency (life or structure loss).

Response 19 – The language in bullet four on page 28 has been edited to reflect the revised recommendation.

Comment 20 – We recommended adding the following language to bullet 4: If water is transferred from waters located outside of the Park boundary, the Yellowstone Aquatic Invasive Species staff will contact the Wyoming Game and Fish Department's Aquatic Invasive Species coordinator.

We recommend consulting with WGFD personnel before each fire season. The purpose of this meeting is to identify water's that may contain AIS.

Response 20 – The following language has been added to bullet four on page 28: "Yellowstone National Park works with partner agencies throughout the GYA preventing the spread of new AIS populations and notifies these agencies if new AIS populations are discovered or water is transported across boundaries."

Yellowstone National Park is an active partner with the Greater Yellowstone Coordinating Committee Aquatic Invasive Species Subcommittee. This includes collaboration with prevention of AIS through park outreach, inspections and decontamination of boats entering Yellowstone waters, and survey of Yellowstone waters for new AIS populations. Park biologist and resource managers work with the fire planning team and participate toward management objectives that involve Aquatic Invasive Species prevention. During fire activity, the spread of Aquatic Invasive Species is minimized through the fire Resource Advisor program where water pick-ups and drops are specified within the same drainage system. Water transfer equipment would be cleaned if it came from known AIS areas. Minimum suppression techniques and rehab also help prevent the spread of Aquatic Invasive Species associated with fire activity. The park works with partner agencies throughout the GYA preventing new AIS populations and notifies these agencies if new AIS populations are discovered or water is transported across boundaries.

Comment 21 – It is acknowledged that the forests of Yellowstone are partially dependent on forest fires for forest propagation, however at what point is enough? The Park has been fairly well gutted by fire, so why are natural fires still permitted, even in previously burned areas?

Response 21 – Fire is a natural part of Yellowstone's ecosystem. One of the main objectives is to allow fire to play its ecological role in the park to the greatest extent possible. Some areas of the park have a shorter fire return interval than others, meaning some areas historically burned every 30 years, versus others which many burn every few hundred years. Many, many different variables (e.g. weather, terrain, vegetation) determine if and when an area will burn; the park prefers to allow nature to decide if all of the variables will align and an area will burn.

Comment 22 – As an asthma sufferer, the current forest fire management policy is a real burden to tolerate. It is becoming ever more difficult to recover from months of continual fire stench and city-like air pollution smog during the summer months. Where is the government's concern for the well-being and dignity of the average human person. Yellowstone has become a major industrial complex air pollution source for the entire inter-mountain area.

The air pollution from the mushroom cloud of a forest fire visually surpasses that of a coal fired power plant, thus casting a hypocritical and conflicted light on the government's efforts to control air pollution from snow mobiles.

Response 22 – Fire is a natural part of the Yellowstone ecosystem, and it is well documented that fire is a source of particulate matter and gases within the atmosphere during the summer months, particularly within the Northern Rockies. While some fires within the park do become large and are long in duration (up to several months), a majority of the fires within the park are small and their smoke only affects localized areas. All of the three states the park lies within (MT, ID and WY) regulate and require burn permits for planned ignitions, and in addition, the state of WY requires all unplanned fires over 100 acres to be reported. Most of the smoke, especially during the summer of 2012, was from Northern California and Idaho, not from fires within the park.

Appendix A – Mitigation Measures

The following best management practices (BMPs) and mitigation measures, as presented in the EA, would be used to prevent or minimize potential adverse effects associated with fire management. These practices and measures would be incorporated to reduce the magnitude of impacts and ensure major adverse impacts would not occur. Mitigation measures undertaken during project implementation would include, but would not be limited to, those listed below. The impact analysis in the "Environmental Consequences" section was performed assuming these BMPs and mitigation measures would be implemented as part of all action alternatives.

Fire Management Activities, including Hazard Fuel Reduction Projects

NPS policy requires fire managers and firefighters to select management tactics commensurate with a fire's existing or potential behavior, but which cause as little impact to natural and cultural resources as possible. All fire management activities and fuel reduction projects in Yellowstone would therefore incorporate the minimum impact tactics, to the greatest extent feasible and appropriate for the given situation. Examples of minimum impact tactics to be implemented include:

- The use of any heavy equipment (e.g. dozers, plows) in support of wildfires would require prior approval from the Superintendent's office.
- The use of motorized equipment for hazard fuel reduction projects within recommended wilderness areas would require approval through the minimum requirement analysis process.
- Avoid using fireline explosives in non-forested areas. Keep fireline width as narrow and shallow as possible when it must be constructed.
- Use existing natural fuel breaks and human-made barriers, wet line, or cold trailing the fire edge in lieu of fireline construction whenever possible. Avoid ground disturbance as much as possible, particularly within known natural and archeological/cultural/historic resource locations. When fireline construction is necessary in proximity to these resource locations it would involve as little ground disturbance as possible and be located as far outside of resource boundaries as possible.
- Use water in lieu of fire retardant whenever possible.
- Using soaker hose, sprinklers or foggers in mop-up; avoiding boring and hydraulic action.
- Minimizing cutting of trees when possible.
- Scatter or remove debris as prescribed by the incident commander or project leader.
- Except for emergency actions such as wildfires, search and rescue missions, maintaining equipment that enhances safety (communications, lookouts,) training, etc.; all helicopter landings in recommended wilderness must go through the minimum requirement analysis process. If a helicopter or heavy equipment will be needed for a hazard fuel reduction project, the minimum requirement analysis tool will be utilized.
- All proposed hazard fuel treatment projects will adhere to the Park's Bear Management Area seasonal restrictions to avoid displacement of bears from prime food sources and minimize bear/human habituation and injuries.

Human Health and Safety

Firefighter and public safety is the highest priority in every fire and fuel management activity. In light of this:

- Only fully qualified (i.e. meeting NWCG qualifications and accepted interagency knowledge, skills and abilities for the assigned fire job) personnel would be assigned fire management duties (unless assigned as trainees, in which case they would be closely supervised by an individual fully qualified for the given position).
- No operation would be initiated until all personnel involved have received a safety briefing describing known hazards and mitigating actions, current fire season conditions, and current and predicted fire weather and behavior.
- Wildland fire incident commanders would minimize firefighter exposure to heavy smoke when possible.
- Park neighbors, visitors and local residents would be notified of all fire management events that have the potential to impact them.
- The superintendent or designee may, as a safety precaution, temporarily close parts of the Park to the visiting public.

Property

- To the greatest extent feasible and appropriate, Park infrastructure, any other development, and adjacent non-federal agency land would be protected during all fire management activities.

Air and Water Quality

- The Park would comply with the Clean Air Act, the Clean Water Act, and all other applicable federal, state, and local laws and requirements. Additionally:
    - The wildfire response strategy selected to manage a wildland fire would consider air quality standards. All prescribed fires will follow Department of Environmental Quality air quality standards and reporting requirements.
    - During fire suppression strategies, water would be used in lieu of fire retardant whenever possible. If retardant must be used, bodies of water would be avoided.
    - A 300 foot buffer for retardant around water bodies would be employed. This is a nationally recognized standard (April 2000, Interagency Guidelines for Aerial Delivery of Retardant or Foam near Waterways) which states:
    - When approaching a waterway visible to the pilot, the pilot shall terminate the application of retardant approximately 300 feet before reaching the waterway. When flying over a waterway, pilots shall wait one second after crossing the far bank or shore of a waterway before applying retardant. Pilots shall make adjustments for airspeed and ambient conditions such as wind to avoid the application of retardant within the 300-foot buffer zone.
    - This buffer is understood, and implemented by all fire managers working within Yellowstone.
    - Water would not be transported between 4th Level (8 digit) hydrologic units (HUC) watersheds, unless in an emergency (life or structure loss). If water is transported, Yellowstone Resource Management staff will be contacted to determine if aquatic invasive species (AIS) have been transported and if so, a monitoring plan would be developed and implemented. Yellowstone National Park works with partner

agencies throughout the GYA preventing the spread of new AIS populations and notifies these agencies if new AIS populations are discovered or water is transported across boundaries.

- If equipment is used in an area known to contain AIS or suspected to contain AIS, the equipment would be inspected by Yellowstone Resource Management staff. If aquatic invasive species are found, the equipment would need to be decontaminated. Decontamination may consist of:
  - Draining all water from equipment and compartments, cleaning equipment of all mud, plants, debris, or animals, and dry equipment for five days in summer (June, July & August); 18 days in Spring (March, April & May) and Fall (September, October & November); or three days in Winter (December, January & February) when temperatures are at or below freezing.
  - Using a high pressure (3500 psi) hot water (140° F) pressure washer to thoroughly wash equipment and flush all compartments that may hold water.
- All equipment will be fueled at least 150 feet from water sources. If portable pumps are used near water sources, a fuel containment system will be used at all times.

Natural and Cultural Resources

- Natural and cultural resources would be protected from the adverse effects of fire and fuel management activities. During all management activities, the minimum impact tactics (MIST) policy would be incorporated to the greatest extent feasible and appropriate, employing methods least damaging to Park resources for the given situation.
- Historic structures would be protected from wildland fire via the maintenance of existing defensible space around each, appropriate to the cultural landscape itself.
- Avoiding ground disturbance within known sensitive or unique natural and cultural resource locations. When ground disturbance is necessary in proximity to these resource locations it will involve as little impact as possible and be located as far outside of resource boundaries as possible.
- Prior to prescribed burning and fuel reduction project implementation, an archeologist meeting the Secretary of the Interior's standards would inventory unsurveyed areas for cultural resources, and the Park would ensure compliance with Section 106 of the National Historic Preservation Act.
- Prior to prescribed burning and fuel reduction project implementation, an interdisciplinary team process will be used, which includes the Park's T&E coordinator, to determine if the project will have detrimental effects on T&E species. The USFWS will also be consulted for all non-emergency fire management actions to ensure compliance with Section 7.
- No mechanized heavy equipment would be used within archeological site boundaries.
- A member of resource management staff will be contacted during the initial stages of emergency actions (e.g. wildfire), and a resource advisor may be assigned to the incident. The interdisciplinary team approach will be used to mitigate effects to sensitive resource areas during non-emergency fire management actions (e.g. prescribed fire and hazard fuel treatments).

- Pre-Attack Planning During the Fire Season: The pre-attack plan, part of the Park's fire management program, would be reviewed and revised annually prior to each fire season based on the following priorities: sensitive cultural and natural resource areas and sites, wildland urban interface, timber type, vegetation maps, wildlife habitat, fuel maps, and smoke/air quality impact models.
- A minimum requirement analysis will be completed for all non-emergency mechanical (e.g. helicopter landings) actions proposed to take place within recommended wilderness areas of the Park.
- Fire crews would be trained in and use Best Management Practices for reducing the chances of bear conflicts with wildfire response efforts, including training crews in food storage, actions to prevent encounters on the fire-line, how to react to bear encounters, how to react to charging bears, use of bear spray, and placement and management of front-country fire camps and backcountry spike camps to avoid conflicts with bears. Bear-proof food storage boxes would be used for food and garbage storage in all backcountry fire camps. Bear-proof garbage cans and dumpsters would be used in all front-country fire camps. Best bear management practices are used on all wildland fire incidents within the Park.
- Backcountry firefighter camps will be located greater than one mile from known active lynx dens and wolf dens or rendezvous sites. To minimize human-wildlife interactions, each camp will be attended by a resource advisor who enforces camp protocols. Large firefighter camps (greater than 100 people) will be strictly limited to pre-existing disturbed sites (e.g., baseball fields) in the vicinity of developed areas and roads.
- Avoid implementation of non-fire fuel treatments within one mile of known active lynx den sites and/or suspected denning areas between May 1 and July 31, known grizzly bear den sites between November 15 and April 15, and known active gray wolf den or rendezvous sites between April 15 and August 1.
- Monitor for occurrences and establishment of exotic vegetation invasions following fuel treatments and suppression activities, if sufficient funding is available.
- All non-emergency hazard fuel removal projects will be completed after August 1 every year, outside of the bird breeding period, unless nesting bird surveys are completed within the treatment area.
- During extended attack (non-initial attack), all fire vehicles and equipment will be cleaned and inspected when they enter the Park.
- Firelines, fire camps, and spike camps will be rehabilitated post-fire as necessary.
- Geothermal areas will be avoided as much as possible to protect the sensitive areas and for firefighter safety.
- A landscape architect will review/assist with the proposed treatment plans for each hazard fuel project, as an active member of the interdisciplinary team, and when appropriate by assisting in the marking of trees to be cut in collaboration with the fire management specialists.
- Educate fire personnel about known locations and the cultural resources of the Park, including known cultural landscape resources for avoidance during implementation within the project area. Defensible spaces in historic districts often include vegetation surrounding

buildings and structures, and may also include roads, trails, walkways, fences, rock walls, etc.

- Minimize ground disturbance when possible, including avoidance of fire control lines, new roads, and trails through cultural resources.
- Topsoil: The seeds and mycorrhizae contained in topsoil are the best means for revegetation in disturbed areas. Fragile topsoil will be protected during tree cutting activities in order to ensure all disturbed areas will revegetate and no scars will be left due to the dragging of slash, equipment turn-arounds, and ground compaction. Park topsoil stripping, stockpiling, salvaging, and replacement methods will be followed.
- Screening during hazard fuel projects: ecotone areas (the transition area between meadow and forest) are usually thicker and have more screening potential due to sun exposure at the meadow's edge. For those structures that have been constructed with the intention of utilizing the screen of the ecotone, mechanical thinning should maintain the overall screening characteristic whenever possible.
- Roads and trails during hazard fuel projects: the screening characteristics of vegetation along corridor(s) within the site will be preserved whenever possible.
- Debris will be scattered, such as cut trees, limbs, and brush produced by manual thinning actions; large amounts of debris will not be left in the project area.
- Flush cut stumps as low to the ground as possible, and cover the stumps during the rehabilitation phase.

Appendix B – Non-Impairment Finding

National Park Service's *Management Policies, 2006* require analysis of potential effects to determine whether or not actions will impair park resources. The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adversely impacting park resources and values.

However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service the management discretion to allow certain impacts within park, that discretion is limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. An impact to any park resource or value may, but does not necessarily, constitute an impairment. An impact would be more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park; or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to pursue or restore the integrity of park resources or values and it cannot be further mitigated.

The park resources and values that are subject to the no-impairment standard include:

- the park's scenery, natural and historic objects, and wildlife, and the processes and conditions that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structures, and objects; museum collections; and native plants and animals;
- appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;
- the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and
- any additional attributes encompassed by the specific values and purposes for which the park was established.

Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. The NPS's threshold for considering whether there could be an impairment is based on whether an action will have significant effects.

Impairment findings are not necessary for visitor use and experience, socioeconomics, public health and safety, environmental justice, land use, and park operations, because impairment findings relates back to park resources and values, and these impact areas are not generally considered park resources or values according to the Organic Act, and cannot be impaired in the same way that an action can impair park resources and values. After dismissing the above topics, remaining topics to be evaluated for impairment include air quality, water quality, geological resources, wilderness, vegetation and wetlands, fish and wildlife, threatened and endangered species, and cultural resources.

Fundamental resources and values for Yellowstone are identified in the enabling legislation for the park, the draft Foundation for Planning and Management Statement, and the Long Range Interpretive Plan. Those documents state that the fundamental resources and values come from the Park's geologic wonders, the abundant and diverse wildlife, the 11,000-year-old continuum of human history, and providing for the benefit, enjoyment, education and inspiration of this and future generations. According to these documents, all of the impact topics carried forward in this EA are considered necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park; are key to the natural or cultural integrity of the park; and/or are identified as a goal in relevant NPS planning documents.

- **Air Quality** – The Preferred Alternative will have negligible to moderate, short-term, localized to regional, adverse impacts on air quality depending on fire characteristics such as size, intensity, fuels, and burning conditions. Adverse impacts would be offset over the long-term through reduced potential for unwanted fires, as a suppression strategy response would occur more quickly because of predetermined strategy zones, creating lesser amounts of smoke within these areas. Although air quality is a fundamental resource at the park, the Preferred Alternative will not have any major adverse impacts on air quality; therefore, there will be no impairment to air quality.
- **Water Quality** – The Preferred Alternative will have negligible to minor, short- to long-term, localized, adverse effects on water quality from impacts caused by fire protection, management of wildfires, and fuel management. Overall, adverse impacts on water quality would be reduced due to a faster response to unwanted wildfire because of predetermined suppression strategy zones, and the use of an interdisciplinary team planning process for all prescribed fire and fuel treatments. Although water quality is a fundamental resource at the park, the Preferred Alternative will not have any major adverse impacts on water quality; therefore, there will be no impairment to water quality.
- **Geological Resources** – The Preferred Alternative will have negligible to minor, short- to long-term, local, and adverse impacts on geological resources; and minor to moderate, long-term beneficial impacts. Thermal areas may be adversely affected in the event of a wildfire from deposition of sediment from adjacent burned areas and increased water temperature, which may in turn affect the function, chemistry, and microbiotic communities of the feature. The level of impact would be dependent upon the size of the area burned, proximity of the burn to geothermal areas, and the size of the features. Adverse impacts on paleontological resources could occur from wildfire and subsequent fire management response and rehabilitation activities. Adverse effects from prescribed fire management actions would be avoided through identifying known paleontological sites prior to disturbance and protecting them. The effects on soils from preparation for and implementation of prescribed fire, fuel reduction projects, and

suppression would be adverse. In the long-term, however, the effects of prescribed fires and wildfire on soils would be beneficial due to perpetuation of natural ecosystem processes. Although geological resources are fundamental resources at the park, the Preferred Alternative will not have any major adverse impacts on geological resources; therefore, there will be no impairment to geological resources.

- **Wilderness** – The Preferred Alternative will have negligible to minor, short-term, localized, adverse impacts on recommended wilderness during and immediately after fire management actions, and changes to wilderness character would be small. Using prescribed fire and allowing wildland fire use in recommended wilderness would enhance and maintain many wilderness characteristics. In the long-term, fewer fires would need to be suppressed, resulting in fewer direct impacts associated with protection actions. Flexibility to use wildfire response strategies, including a monitor or point/zone protection strategy with resource goals and objectives would promote the natural role of fire across the landscape. The potential for wildfires outside the range of normal variability could be minimized, benefitting recommended wilderness over the long-term. Although wilderness is a fundamental resource at the park, the Preferred Alternative will not have any major adverse impacts on wilderness; therefore, there will be no impairment to wilderness.

- **Vegetation and Wetlands** – The Preferred Alternative will have negligible to moderate, short- and long-term, adverse effects on vegetation, including invasive species and rare plants, and the severity of the impact depends on the nature and intensity of wildland fire. Sedimentation increase in wetlands could occur, creating minor, short-term, adverse effects. Long-term benefits to vegetation from allowing natural processes to perpetuate through wildland fire would maintain and restore vegetation to its natural ecological function. Although vegetation and wetlands are fundamental resources at the park, the Preferred Alternative will not have any major adverse impacts on vegetation and wetlands; therefore, there will be no impairment to vegetation and wetlands.

- **Fish and Wildlife** – The Preferred Alternative will have negligible to minor, short-term, adverse effects on wildlife and fish associated with fire management activities depending on the nature and intensity of wildland fire. Direct mortality and wildlife displacement due to habitat loss and degradation would occur, although overall wildlife populations in the Park would not be jeopardized. Direct mortality of fish and degradation of fish habitat could occur. Sedimentation increase in fish-bearing streams could occur, creating minor, short-term, adverse effects on fish populations. There would be more short-term adverse impacts with the use of a monitor response strategy, but also greater long-term benefits from allowing natural processes to perpetuate so that natural ecological function would be maintained and restored on more acreage in the Park. Although fish and wildlife are fundamental resources at the park, the Preferred Alternative will not have any major adverse impacts on fish and wildlife; therefore, there will be no impairment to fish and wildlife.

- **Threatened and Endangered Species** – The Preferred Alternative will have negligible to minor, short- to long-term, and adverse or beneficial impacts on threatened and endangered species depending on the species in question. No federally protected species would be harmed by the fire management activities, and many species would benefit from post fire conditions. Some mortality and wildlife displacement due to habitat loss and degradation could occur, although overall wildlife and plant populations in the Park would not be jeopardized. The use of a monitor or point/zone protection response strategy would provide beneficial effects by allowing natural processes to perpetuate so natural ecological function would be maintained and restored on more acreage in the Park. Although threatened and endangered species are fundamental resources at the park, the Preferred Alternative will not have any major adverse

impacts on threatened and endangered species; therefore, there will be no impairment to threatened and endangered species.

- **Cultural Resources** – The Preferred Alternative will have negligible to moderate, short- to long-term, local, and adverse or beneficial impacts on cultural resources depending on the nature and intensity of any wildfire and subsequent fire management response and rehabilitation activities. Adverse effects on cultural resources from prescribed fire and fuel treatment management actions would be avoided through identifying the resources prior to disturbance and protecting the resources. Archeological resources could suffer direct, minor to moderate, long-term, adverse impacts during wildland fire management activities as unidentified archeological sites sometimes cannot be protected. Direct damage to or loss of historic structures and sites from wildfire and wildfire suppression activities would result in long-term, adverse impacts of minor to moderate intensity. The effects on historic structures from fuel reduction projects would be localized, short-term to long-term, minor to moderate, and beneficial. Fire or suppression activities could have short- and long-term, minor to moderate adverse impacts on cultural landscapes as viewshed changes could result in loss of trees and structures, burned vegetation and stumps, exposed soils in fire lines altering the character of the landscape. Fire can also have long-term, minor to moderate beneficial impacts on cultural landscapes as vegetation composition can be altered beneficially. Long-term, minor to moderate, adverse impacts on ethnographic resources would occur if they are lost or damaged by wildland fires or fire suppression strategy activities. There would be long-term, minor to moderate, beneficial impacts on ethnographic resources as fire can be beneficial to culturally important plant species. Although cultural resources are fundamental resources at the park, the Preferred Alternative will not have any major adverse impacts on cultural resources; therefore, there will be no impairment to cultural resources.

In conclusion, as guided by this analysis, good science and scholarship, advice from subject matter experts and others who have relevant knowledge and experience, and the results of public involvement activities, it is the Superintendent's professional judgment that there will be no impairment of park resources and values from implementation of the preferred alternative.

ARTS. PARKS. HISTORY.
Wyoming State Parks & Cultural Resources

State Historic Preservation Office
Barrett Building, 3rd Floor
2301 Central Avenue
Cheyenne, WY 82002
Phone: (307) 777-7697
Fax: (307) 777-6421
http://wyoshpo.state.wy.us

October 3, 2012

Compliance Office
Attn: Fire Management Plan EA
U S D I National Park Service
P.O. Box 168
Yellowstone National Park
Wyoming, 82190

re: Yellowstone National Park, Fire Management Plan Environmental Assessment (SHPO File # 1012RLC002)

Dear Compliance Office:

Thank you for consulting with the Wyoming State Historic Preservation Office (SHPO) regarding the above referenced Environmental Assessment (EA).

Our office supports the Preferred Alternative as the alternative that is least likely to adversely affect historic properties. However, we do have some comments on Section 3.11.2 (Cultural Resources/Methodology) of the EA.

In the discussion of determinations of effect to historic properties, particularly "The thresholds of change for the intensity of an impact" on Archaeological Resources, Historic Resources, Cultural Landscapes and Ethnographic Resources (Effect Discussion), the assumption behind the determinations appears to be that all of these resources are Historic Properties as defined at 36 CFR § 800.16(l). Clarification that not all of these resources are Historic Properties would strengthen this portion of the EA.

Additionally, while the opening paragraph of 3.11.2 discusses the consultation process under Section 106 of the National Historic Preservation Act, the Effect Discussion does not adequately reflect the role of consultation in assessing affects per 36 CFR § 800.5(a). In particular, the discussion of the role of Native American consultation in relation to Historic Properties of religious and cultural significance to them (under Ethnographic Resources) should be addressed explicitly.

We look forward to working with Yellowstone National Park on the implementation of this plan, and will comment on the effects of the undertakings as they are submitted to our office per 36 CFR Part 800.

Please refer to SHPO project #1012RLC002 on any future correspondence regarding this undertaking. If you have any questions, please contact me at 307-777-5497.

Sincerely,

Richard L. Currit
Senior Archaeologist/NEPA Coordinator

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
5353 Yellowstone Road, Suite 308A
Cheyenne, Wyoming 82009

DEC 05 2012

In Reply Refer To:
06E13000/WY12I0385

Memorandum

To: Superintendent, National Park Service, Yellowstone National Park, Wyoming

From: Field Supervisor, U.S. Fish and Wildlife Service, Wyoming Field Office, Cheyenne, Wyoming

Subject: 2012 Yellowstone National Park Wildland Fire Management Plan

Thank you for the September 2012 Environmental Assessment and letter dated September 18, 2012, requesting informal consultation on Yellowstone National Park's (Park) 2012 Wildland Fire Management Plan (hereafter, FMP), Alternative 2. Your letter indicates that the 2012 FMP follows the 2004 FMP but includes policy changes, incorporates new terminology, scientific research, and improved resource and safety (as described in the Environmental Assessment (EA) Chapters 1 and 2). Your letter also indicates that potential effects to federally listed species are very similar to those described in the subsequent 2005 Fire Management Plan Programmatic Biological Assessment (on which the U.S. Fish and Wildlife Service (Service) concurred in our letter referenced as WY9207), including the determination of "may affect, not likely to adversely affect" grizzly bear (*Ursus arctos horribilis*), gray wolf (*Canis lupus*), and Canada lynx (*Lynx canadensis*).

Since completion of the present FMP consultation, however, two major changes have occurred. First, critical habitat for lynx was designated in 2009. Secondly, the gray wolf was delisted from the Endangered Species Act (Act) of 1973; therefore, is not discussed further. The Service has reviewed your information and is providing concurrence for the 2012 FMP, as discussed below, in accordance with section 7 of the Act, as amended 50 CFR §402.13.

The potential impacts to listed species from the FMP's Alternative 2 are described in the EA, pp. 110–114, and are incorporated by reference. The Park will continue to adhere to previously stated avoidance and minimization measures, the Service's Conservation Measures, the national minimum impact tactics for wildland fire, and relevant guidance under the 2007 Northern Rockies Lynx Management Direction. The geographic extent of designated critical habitat for lynx in the Park is congruent with all Lynx Analysis Units (LAU; except Bechler LAU which

was excluded from critical habitat) and effects would be similar to those already described for lynx. In addition, the Park will continue to submit an annual report to the Service that documents effects to listed species from fires and non-fire fuels management and any adverse effects identified under section 7 emergency consultations. Specific prescribed fire and non-fire fuel management projects are not included in this 2012 FMP and would be consulted on separately as appropriate. The Service concurs with your "may effect, not likely to adversely affect" determination for grizzly bear, Canada lynx, and designated critical habitat for lynx.

This concludes informal consultation pursuant to the regulations implementing the Act. The 2012 Wildland Fire Management Plan should be re-analyzed if new information reveals effects of the action may affect listed or proposed species or designated or proposed critical habitat in a manner or to an extent not considered in this consultation; if the action is subsequently modified in a manner that causes an effect to a listed or proposed species or designated or proposed critical habitat that was not considered in this consultation; and/or if a new species is listed or critical habitat is designated that may be affected by this project.

If you have any questions regarding this letter or your responsibilities under the Act, please contact us at the letterhead address or phone Ann Belleman at (307) 578-5116.

cc: WGFD, Statewide Habitat Protection Coordinator, Cheyenne (M. Flanderka)
WGFD, Non-Game Coordinator, Lander (B. Oakleaf)
YNP, Wildlife Biologist, Mammoth, WY (D. Stahler) (dan_stahler@nps.gov)

Appendix E - Hazardous Fuels Treatment Five Year Plan

2014

Fawn Pass Cabin pile burn
Canyon Village government area initial treatment (outside 2004 treatment areas)
Norris blow down dead/down tree removal
Structure Assessments: Grant, South, Bechler

2015

Canyon Village government area pile burn
NE Entrance outer area initial treatment
Norris blow down dead/down pile burn
Structure Assessments: Old Faithful

2016

Grant initial treatment outer area
NE Entrance pile burn
Norris Campground/Ranger Museum/Geyser Basin Museum treatment
Structure Assessments: Madison, West

2017

West Yellowstone entrance station treatment
Mammoth developed area initial treatment (Lower Mammoth and YCC camp)
Canyon concession cabin area (retreat and initial) treatment

2018

Bechler outer area initial treatment
Mammoth developed area pile burn

Every year projects:

Go back to cabins which have been treated and determine if a maintenance treatment is needed. Also do structure assessments while at cabins. Visit cabins which have not been treated to determine if a treatment is needed, and do structure assessments at the same time.

Background Info on Treated Areas

- Norris Area
  - *Treated in 1993, 2005, 2006, 2009. Prescribed burn 2007.*
- Canyon Village
  - *Treated in 1988, 1996, 2004, 2006, 2009, 2013.*
- Roosevelt Lodge area
  - *Treated in 2010*
- Grant Village
  - *Treated 1988. Treated in 1990, 1993, 1995, 2003, 2007, 2008, 2009.*
- Lake government area
  - *Treated in 1995, 1998, 1999, 2001, 2003, 2006, 2009, 2013.*
- Lake Hotel area
  - *Treated in 2009.*
- Bridge Bay area
  - *Fuels management not a protection factor.*

- Snake River Ranger Station/government area
  - *Treated in 2004, 2008.*
- Lamar Ranger Station
  - *Fuels management not a protection factor.*
- Bechler Ranger Station
  - *Treated in 2005. Prescribed burn on south side would promote acceptance of area wildfires.*
- East Entrance
  - *Treated in 2001, 2003, 2007.*
- Northeast Entrance
  - *Treated in 1988, 1996, 2000, 2003, 2007.*
- West Entrance
  - *Treated in 1998, 2000, 2004, 2009.*
- Madison area
  - *Treated in 1995, 1996, 2006.*
- Fishing Bridge
  - *RV Park may need assessment post-renovation.*
- Cougar Creek Cabin
  - *Cabin located in tree island surround by sage flats and 1988 burn. Fuels management not really a protection factor, though assessment is warranted.*
- Buffalo Plateau Cabin
  - *Treated in 1985, 1988, 1999, 2003.*
- Fox Creek Cabin
  - *Treated in 1988, 1989, 1998, 2004.*
- Upper Miller Cabin
  - *Treated in 1988, area burned heavily in 1988.*
- Harebell Cabin
  - *Treated in 1988, area burned heavily in 1988. Treated in2000, 2003, 2013.*
- Crevice Cabin
  - *Treated* in 2003, 2007.
- Lower Slough Creek
  - *Fuels are encroaching from the north, or uphill side. However cabin has metal roof and concrete foundation and is proximate to Slough Creek, an abundant year-round supply of water for protection purposes. Cabin serves no patrol function. Located 2 miles from the trailhead.*
- Cache Creek Cabin
  - *Treated in 1988, Entire area extremely heavily burned in 1988.*
- Elk Tongue Cabin
  - *Treated in 1988, 1999. Entire area extremely heavily impacted by fire in 1988.*
- Heart Lake Cabin
  - *Area heavily impacted by fire 1988. Treated in 1989, 2005.*
- Lamar Mountain Cabin
  - *Cabin relocated from Upper Lamar River to area of sparse fuels 1992.*
- Winter Creek Cabin
  - *Treated in 2003.*
- Sportsman Lake Cabin
  - *Area heavily burned in 1988 (original cabin destroyed by fire).*
- South Riverside Cabin
  - *Treated in 1988, 2005. Entire area extremely heavily burned in 1988.*
- Cabin Creek Cabin
  - *Treated in 1988, 1999, 2001, 2007, 2008. Entire area extremely heavily burned in 1988.*

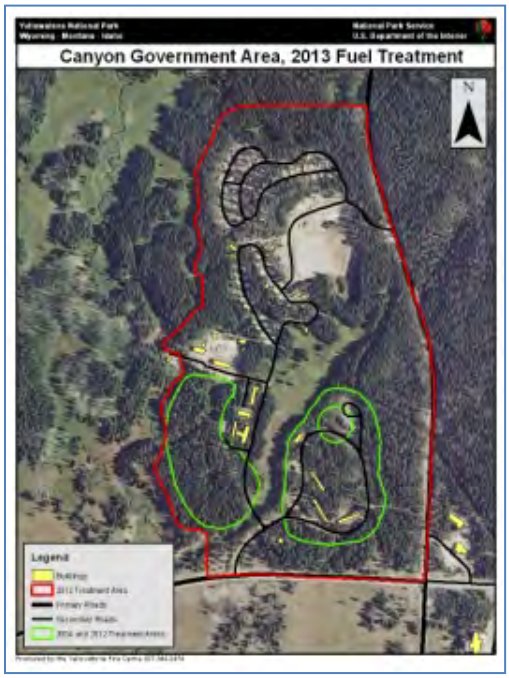
- Outlet Creek Cabin
  - *Fuels management not a protection factor, no ground fuels due to camper scavenging.*
- Cove Cabin
  - *Metal roofing and skirting installed 2009. Fuels management not a significant protection factor.*
- Three River Junction Cabin
  - *Cabin sited for fire protection in 1993. Fuels management not a protection factor.*
- Nez Perce Cabin
  - *Treated in 2008.*
- Daly Creek Cabin
  - *Treated in 2007.*
- Cold Creek Cabin
  - *Area heavily burned in 1988, fuels not a protection factor.*
- Lower Blacktail Cabin
  - *Fuels management not a protection factor.*
- Upper Blacktail Cabin
  - *Area heavily burned in 1988, fuels management not a protection factor.*
- Hellroaring Cabin
  - *Fuels management not a protection factor.*
- Union Falls Cabin
  - *Cabin sub-standard, Bechler Ranger prefers that no fuels management be implemented.*
- Calfee Creek Cabin
  - *Treated in 1988, area heavily burned in 1988.*
- Howell Creek Cabin
  - *Treated in 1988, 2003, 2006, 2007.*
- Mary Mountain Cabin
  - *Treated in 1988, 2006.*
- Thorofare Cabin
  - *Treated in 1987, area heavily burned in 1988. Treated in 1997, 2005.*
- Trail Creek Cabin
  - *Treated in 1988, 1999, 2004, 2007, 2013.*
- Fern Lake Cabin
  - *Treated in 1998, 2007.*
- Peale Island Cabin
  - *Island forest is in a state of decline, fuels treatment not a protection factor.*
- Pelican Springs Cabin
  - *Fuels management not a significant protection factor.*
- Mt. Sheridan Lookout
  - *Fuels management not a protection factor.*
- Mt. Holmes Lookout
  - *Fuels management not a protection factor.*
- Pelican Cone Lookout
  - *Area heavily burned in 1994. Fuels management not a protection factor.*

Appendix F – Fuels Treatment Monitoring Plan

Canyon Fuels Reduction Statement of Work

Description

The Canyon fuel reduction project is located within Yellowstone National Park, at the Canyon Village area. The entire treatment unit is 120 acres. Within the 120 acres, there are two units totaling 24 acres which were treated in 2004 and again beginning in the fall of 2012. The intent is to continue working on the two areas surrounding the Canyon government housing area, and then to expand into the larger unit in 2014. The unit vegetation consists of mature lodgepole pine, with small amounts of whitebark pine, spruce and fir understory.



Project Goal

The first and foremost goal of the treatment is to create defensible space adjacent to structures in order to protect human life, property and resources. Fuel loadings will be reduced so the likelihood of crown fires will be decreased, and surface fires will be easier to control by reducing radiant heat levels so the ignition potential of structures is limited.

Project Objectives

The following project objectives will be monitored by rapid assessment fire effects monitoring plots (HZF monitoring type protocols):

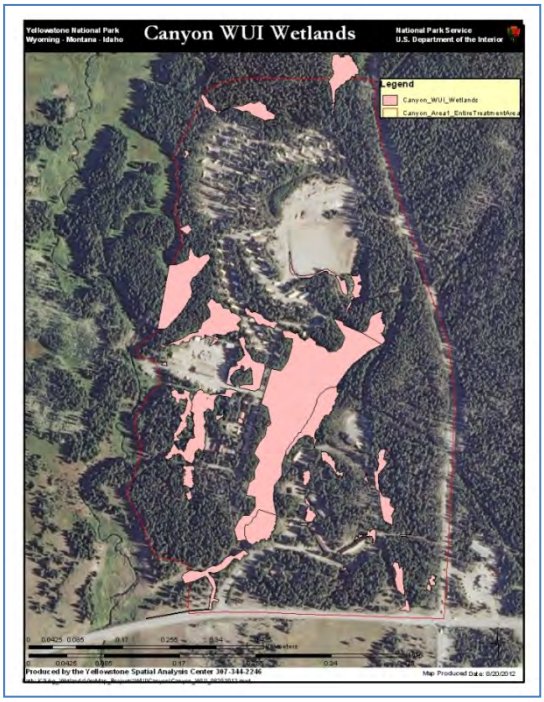
- Reduce total mean treatment area canopy bulk density over the entire life of the project to ≤0.0025 lb/ft^3, as measured from original pre-thin conditions.
- Reduce mean dead and down 100 and 1000 hour fuel loads to ≤10 tons/acre over the entire life of the project (roughly 10 years), as measured from original pre-thin conditions.
- Do not increase the mean relative cover of non-native species by ≥10 percent five and 10 years post-thin, as measured from original pre-thin conditions.
- Monitor specific non-natives, through mean relative cover, for species listed on the park priority weed list.
- Monitor for native species composition change, through mean relative cover.

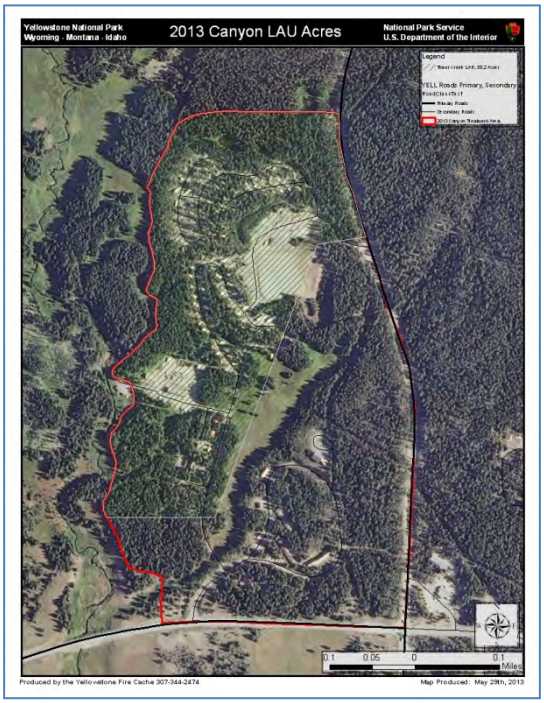
Results from the 2004 and 2013 objective monitoring can be found in Appendix A at the end of this document.

Compliance

Wetland surveys were completed within the 120 acre unit during the summer of 2012 by Yellowstone Vegetation Management employees. Cultural resource surveys were completed during the summer of 2013 by Yellowstone Cultural Resource Management employees. For Section 106 compliance, the Park made a determination of effect of “No Historic Properties Affected”; a request for review was sent to the WY State Historic Preservation Office (SHPO) on July 17, 2013, and the WY SHPO responded by concurring with this determination in a letter dated August 14, 2013. In compliance

with Section 7 of the Endangered Species Act, the Park sent a letter on June 24, 2013 to the US Fish and Wildlife Service (FWS) requesting informal consultation for the proposed Canyon project. The US FWS concurred on August 1, 2013 with the Park's determination of "may affect, but not likely to adversely affect" Canada lynx, designated critical habitat for lynx, and grizzly. A Memo to File was signed by the Park Superintendent for the Canyon project on September 18, 2013. The Canyon project is listed in PEPC as project 48141, and the concurrence letters and the Memo to File can be found in Appendix B at the end of this document.





Methods and Considerations

- Trees to be cut will be marked by Fuels Specialist prior to cutting.
- Comply with International Code Council (ICC) Sections 603 and 604 as directed by RM-18.
- Remove vegetation within 30 feet of structures to make fire spread unlikely. Tree crowns should be maintained to a minimum 10 foot horizontal clearance from structures, and six foot clearance above ground.
- Remove all dead and downed fuels larger than four inches in diameter within 120 feet of structures.
- All attempts will be made to utilize the biomass material off site, such as cutting the woody material into appropriate sizes for fencing/building material, for firewood permit retrieval, for wood chips, or any other product the park may find usable.
- Where it is not appropriate or feasible to haul material to the chipper, slash piles will be created to ensure as much as possible no live trees are harmed during the pile burning process.

Prescription

- Cut all trees marked with BLUE flagging or BLUE paint within unit boundaries. Also, cut/remove any wind fallen trees/slash or other material from other activities within the unit boundary.
- All unit boundaries are flagged in PINK flagging.

- Wetlands are marked in WHITE or WHITE stripped flagging. DO NOT cut or fall any trees into the wetland areas. Trees are not to be dragged across wetland areas. Slash is not to be piled in wetland areas.
- Stumps are to be cut level and as low to the ground as possible; a maximum of four inches above ground level.
- Slash will be drug to the chipper and chipped when possible. Hand piles may be constructed when necessary. Use existing pile burn scars when possible. Cut material to a maximum of four to six feet length. Keep piles tight and neat.
- Products: Post, pole, rails, and firewood may be produced from this project. The general specifications for material size and stacking locations are listed below:
    - Rails: 10' to 16' in 2' increments for length. 4" diameter +/- 1". These will be hauled to Canyon Corral Area; label the end with the product length.
    - Posts: 8' length, 6" diameter +/-1". Haul to Canyon Corral Area
    - Firewood: all remaining material over 6" diameter or other sizes that don't meet post and pole quality. All firewood should be decked in the area behind the Blister Rust Camp in the West Unit or in the maintenance area near the softball field.
    - Woodchips: all woodchips will be hauled to Norris gravel pit or other sites as requested.

Mitigation Measures

- Whitebark pine trees will not be cut within the project area, unless they are within 30 feet of buildings. Whitebark trees within 30 feet of buildings will be assessed on a case by case by case basis.
- Identified wetlands, sensitive areas, and cultural resource sites identified by resource management staff will be avoided.
- Screening considerations will be taken into account and the Fire and Fuels IDT landscape architect will be consulted throughout the project.
- The area district ranger and district maintenance supervisor will be consulted throughout the project to ensure local needs are being met.
- Incorporate minimum impact tactics to the greatest extent feasible and appropriate. This may include using equipment with low ground pressure tires, operating when ground is frozen, hand carrying material from the woods, or winching material to landing areas.
- The park's Bear Management Area seasonal restrictions to avoid displacement of bears from prime food sources and minimize bear/human habituation and injuries will be adhered to.
- No operation would be initiated until all personnel involved have received a safety briefing describing known hazards and mitigating actions.
- Local residents would be notified of all fire management events within the area that have the potential to impact them.
- The Visitor Center supervisor should be notified of all fire management events to assist their employees in fielding questions from visitors. Visitor information signs should be posted in area businesses to inform the public on activities in the area.
- Fire management personnel may temporarily close parts of the area for brief amounts of time (e.g. secondary road closure for a few minutes so a tree can safely be dropped) as a safety precaution.
- All equipment will be fueled at least 150 feet from water sources.
- No mechanized heavy equipment would be used within archeological site boundaries.

- Avoid implementation of non-fire fuel treatments within one mile of known active lynx den sites and/or suspected denning areas between May 1 and July 31, known grizzly bear den sites between November 15 and April 15, and known active gray wolf den or rendezvous sites between April 15 and August 1.
- No falling of trees will occur between May 1 and July 31 every year, during the bird breeding period, unless nesting bird surveys are completed within the treatment area.
- Any tree with a visible nest will be left undisturbed.
- Fragile topsoil will be protected during tree cutting activities in order to ensure all disturbed areas will re-vegetate and no scars will be left due to the dragging of slash, equipment turn-around areas, and ground compaction.
- Screening during hazard fuel projects: ecotone areas (the transition area between meadow and forest) are usually thicker and have more screening potential due to sun exposure at the meadow's edge. For those structures that have been constructed with the intention of utilizing the screen of the ecotone, mechanical thinning should maintain the overall screening characteristic whenever possible.
- Roads and trails during hazard fuel projects: the screening characteristics of vegetation along corridor(s) within the site will be preserved whenever possible.
- Debris will be scattered, such as cut trees, limbs, and brush produced by manual thinning actions; large amounts of debris will not be left in the project area.
- Flush cut stumps as low to the ground as possible.
- All non-park resources' equipment (e.g. vehicles, heavy equipment) will receive a weed inspection upon arrival within the park.
- Any previously undiscovered archeological sites which are discovered during project implementation will be protected and reported to park archeological staff. Work will cease in the immediate area of discovery until consultation with staff has occurred.

Canyon Hazard Fuel Project (HZF Monitoring Type)

The 2004 and 2012 Canyon hazard fuel project consists of two treatment units, located in the Canyon government housing area, totaling 24.1 acres. The first fuel reduction treatment was conducted in 2004; the second entry treatment was completed in the fall of 2013. Three plots were installed in 2004 prior to the first entry. The plots were converted from the FMECH1T99 monitoring type to the hazard fuel (HZF) monitoring type this year to standardize plot sizes and methodology across treatment areas throughout the park.

Monitoring Unit	Management Objective (Hazard Fuel Reduction)	Monitoring Results (80% confidence interval)	Objective Achieved?	Year Analysis Completed; (Range of Years Included)
Canyon Hazard Fuel (HZF)	**Reduce mean treatment area canopy bulk density over the entire life of the project to ≤0.0025 lb/ft^3, as measured from original pre-thin conditions.**	PRE: 0.0132 (±0.0015) lb/ft^3 01YR08: 0.0111 (±0.0017) lb/ft^3 **Difference from PRE to 01YR08: -15.7%** ***(n = 3 plots, 1 treatment)*** 02YR01: 0.0077 (±0.0016) lb/ft^3 **Difference from PRE to 02YR01: -41.1%** ***(n=3 plots, 2 treatments)*** **Critical canopy bulk density: 0.0025 lb/ft^3**	**Not yet**	**2013 (2004-2013)**
	Reduce mean dead and down 100 and 1000 hour fuel loads to ≤10 tons/acre over the entire life of the project, as measured from original pre-thin conditions.	PRE: 4.3 (±3.02) t/ac 01YR08: 9.7 (±2.26) t/ac **Difference from PRE to 01YR08: +124.8%** ***(n = 3 plots, 1 treatment)*** 02YR01: 5.3 (±2.829) t/ac **Difference from PRE to 02YR01: +23.3%** ***(n = 3 plots, 2 treatments)***	**Yes, although objective was achieved before project started and fuel loads have increased from PRE levels.**	**2013 (2004-2013)**
	Monitor species listed on park priority weed list, through relative cover.	**Canyon 7, 02YR01:** 3.8% *Poa pratensis* **Canyon 8, 02YR01:** 0% **Canyon 9, 02YR01:** 2.4% *Poa pratensis*	**Yes; only one species discovered.**	**2013 (2013)**
	Monitor for native species composition change, using mean relative cover.	02YR01: 97.9% (±2.1) native species ***(n = 3 plots, 1 treatment)***	**No, as this was the first year data were collected.**	**2013 (2013)**

In 2012, the objectives were written using the previous monitoring type's FMH-4, which utilizes 0.0025 lb/ft^3 (40 g/m^3) as a critical canopy bulk density to stop crown fire initiation, but more research is warranted within the park utilizing common weather scenarios to fully determine the appropriate critical canopy bulk density. Scott (2003) suggests 0.0062 lb/ft^3 (100 g/m^3) as critical canopy bulk density for horizontal propagation of crown fire; this number is also included on the graph to depict the goal of slowly thinning lodgepole forests to prevent blowdown due to shallow root systems.

Canopy bulk density and surface fuel results are mean percent change of overstory and pole size trees, from pre-treatment (PRE) through one year after the second treatment (02YR01) which includes an eight year read after the initial treatment (01YR08). Priority weed species are relative percent cover, and native vegetation species are mean relative percent cover, using the 02YR01 data as vegetation data were not collected until this most recent read. An underlined number of plots indicate the minimum sample size has been attained for the objective.

Table 1. Canyon HZF Monitoring Results

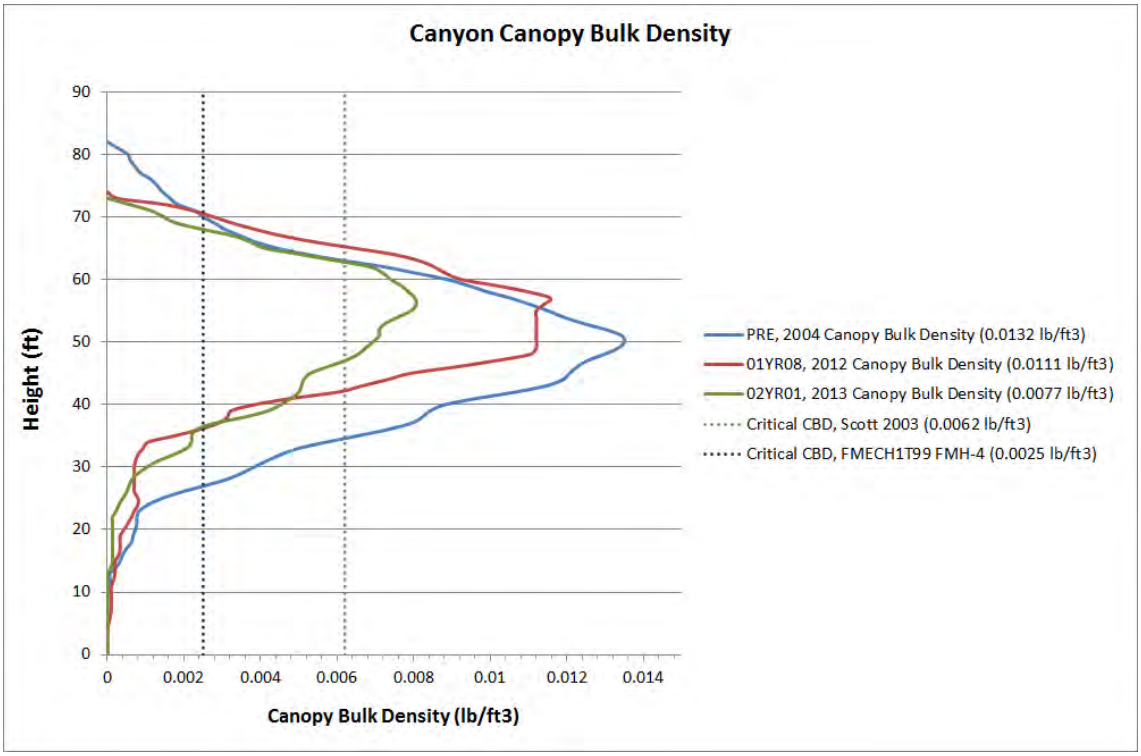
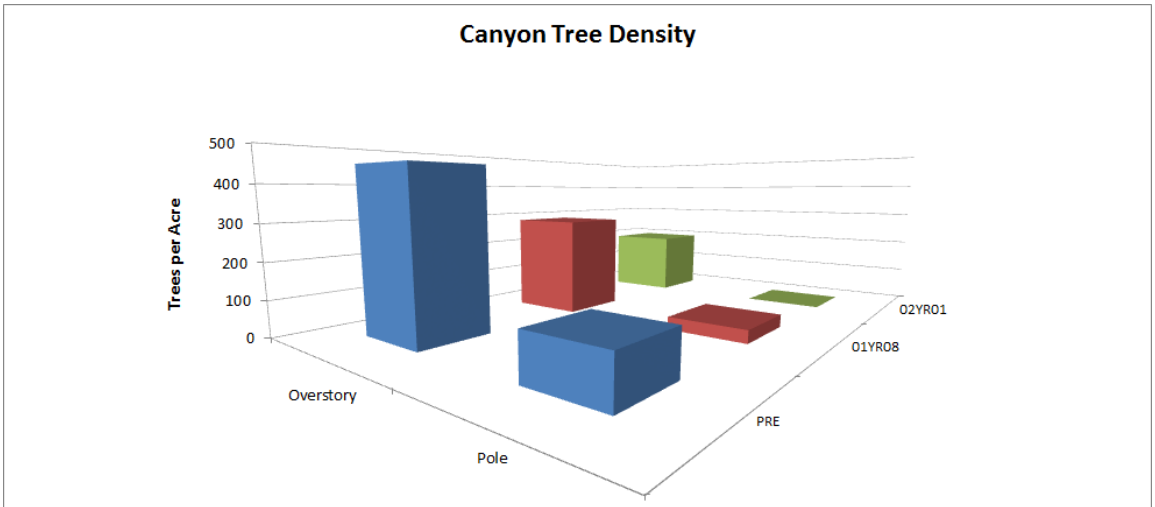


Figure 6: Canyon canopy bulk density trends through two thinning treatments.



	Overstory	Pole
PRE	450	117
01YR08	286	36
02YR01	196	0

Figure 7: Canyon tree density (all PINCON) to give managers an idea of reduction through time of each tree size class.

The above graphs only show overstory and pole sized trees within the plots at Canyon. There is a small component of seedling sized whitebark pine within the understory which is not being cut due to its special status; but currently the seedlings are not dense or large enough to be a major contributor to fire behavior within this unit. Figures below depict one plot through time; pre-cut to one year after the second treatment.

Figure 3: Canyon plot 7, pre-cut (PRE).

Figure 4: Canyon plot 7, eight years post-cut (01YR08).

Figure 5: Canyon plot 7, one year after the second treatment (02YR01).

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
5353 Yellowstone Road, Suite 308A
Cheyenne, Wyoming 82009

In Reply Refer To:
06E13000/WY13I0122

AUG 01 2013

Memorandum

To: Superintendent, National Park Service, Yellowstone National Park, Wyoming

From: for Field Supervisor, U.S. Fish and Wildlife Service, Wyoming Field Office, Cheyenne, Wyoming

Subject: 2013 Canyon Village and Norris Junction Non-Fire Fuels Treatment Projects

Thank you for your letter dated June 24, 2013, received in our office on June 27, requesting informal consultation on Yellowstone National Park's (Park) 2013 Canyon Village and Norris Junction Non-Fire Fuels Treatment Projects (hereafter, Project). The letter provided determinations of "may affect, but not likely to adversely affect" Canada lynx (*Lynx Canadensis*), designated critical habitat for lynx, and grizzly bear (*Ursus arctos horribilis*) for the Canyon Village portion of the Project and the same determinations for the Norris Junction portion except for lynx critical habitat, which will have "no effect."

The U.S. Fish and Wildlife Service (Service) has reviewed your information and is providing concurrence for the Projects, as discussed below, in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended 50 CFR §402.13. While the Service does not provide concurrence for "no effect" determinations, we appreciate receiving your information.

The proposed Project consists of removal or reduction of hazardous ground and ladder fuels up to 30 feet from structures and up to 25% of canopy cover throughout the area, within the wildland urban interface (WUI) at Canyon Village and Norris Junction Developed Areas. The proposed action at Canyon Village encompasses 120 acres, 24.1 acres of which are subsets of acreage previously treated in this area following consultation with the Service in 2012 (Service letter WY12I0362). The proposed action at Norris Junction will cover 2 acres, which is part of a larger unit treated in 2005 (Service letter WY9207). Both Projects will be implemented over a 10-year period and will adhere to the Park's requirement to consult on specific non-fire fuels management projects not included in the Park's 2012 Wildland Fire Management Plan (Service letter WY12I0385). We incorporate all three previous Service consultation documents by reference.

Canada lynx and designated critical habitat: According to your letter, no measurable differences in use or activity have occurred since previous consultations. The Canyon Village site overlaps less than 1% of the75,721-acre Tower Creek Lynx Analysis Unit (LAU), of which 45,402 acres are mapped lynx habitat. This LAU currently has 24,185 acres (53%) of mapped lynx habitat that are transitioning from unsuitable to a suitable condition, primarily due to the large scale 1988 wildfires. Only 55 acres of the 120 acres are designated critical habitat; however, most of this overlaps with existing development. In addition, the area is mid- to old-aged lodgepole pine with little understory; therefore, unlikely to support snowshoe hares, lynx primary prey. Treatments will have insignificant impacts to lynx habitat. The Norris Junction portion of the Projects encompasses only 2 acres, does not occur within a LAU or critical habitat, and effects will be immeasurable. The Service concurs that the proposed Project "may affect, but are not likely to adversely affect" lynx and critical habitat.

Grizzly bear: As mentioned above, there are no measurable differences in use or activity to listed species since previous consultations. In addition, the Park implements Conservation Measures specific to grizzly bears. Temporary displacement to a grizzly bear from Project-related noise and activity from equipment, vehicles, and work crews during WUI fuels treatments is unlikely to occur. These activities will occur in developed areas where the Park has an existing policy of hazing bears. In addition, Project activities will not hinder grizzly bear movement through the Project areas. Grizzly bear mortality from vehicle strikes occurs with very low frequency in the park and Project-related vehicle mortality is unlikely because of posted speed limits and slow vehicular speeds within Park developments. Based on your letter and information provided for previous consultations, the Service concurs that the proposed Projects "may affect, but are not likely to adversely affect" grizzly bears.

This concludes informal consultation pursuant to the regulations implementing the ESA. The Canyon Village and Norris Junction Projects should be re-analyzed if new information reveals effects of the action may affect listed or proposed species or designated or proposed critical habitat in a manner or to an extent not considered in this consultation; if the action is subsequently modified in a manner that causes an effect to a listed or proposed species or designated or proposed critical habitat that was not considered in this consultation; and/or if a new species is listed or critical habitat is designated that may be affected by this project.

If you have any questions regarding this letter or your responsibilities under the ESA, please contact us at the letterhead address or phone Ann Belleman at (307) 578-5116.

cc: NPS, YNP, Wildlife Biologist, Mammoth, WY (D. Stahler; dan_stahler@nps.gov)
WGFD, Statewide Habitat Protection Coordinator, Cheyenne, WY (M. Flanderka)
WGFD, Non-Game Coordinator, Lander, WY (B. Oakleaf)

ARTS. PARKS. HISTORY.
Wyoming State Parks & Cultural Resources

State Historic Preservation Office
2301 Central Ave., Barrett Bldg. 3rd Floor
Cheyenne, WY 82002
307-777-5497
FAX: 307-777-6421
http://wyoshpo.state.wy.us

August 14, 2013

COPY

Daniel N. Wenk
Superintendent
Yellowstone National Park
P.O. Box 168
Yellowstone NP, WY 82190

Re: Proposed 2013 Canyon Fuels Reduction Project, Yellowstone National Park, Park County, WY (SHPO File #0813MKR003)

Dear Mr. Wenk:

Thank you for consulting with the Wyoming State Historic Preservation Office (SHPO) regarding the above referenced undertaking. We have reviewed the associated report and find the documentation meets the Secretary of the Interior's Standards for Archaeology and Historic Preservation (48 FR 44716-42). We concur with your finding that the approximately 118 acres of the area of potential effect in the Canyon government area (as amended by Staffan Peterson in an email dated August 13) will not be adversely affected by the undertaking as planned.

We recommend that the undertaking proceed in accordance with state and federal laws subject to the following stipulation:

> If any cultural materials are discovered during this undertaking, work in the area shall halt immediately, the federal agency and SHPO staff be contacted, and the materials be evaluated by an archaeologist or historian meeting the Secretary of the Interior's Professional Qualification Standards (48 FR 22716, Sept. 1983).

This letter should be retained in your files as documentation of a SHPO concurrence with your finding of no historic properties adversely affected. Please refer to SHPO project #0813MKR003 on any future correspondence regarding this undertaking. If you have any questions, please contact me at 307-777-7566.

Sincerely,

Melissa Robb

Melissa Robb
Historic Architecture Specialist

United States Department of the Interior

NATIONAL PARK SERVICE
P.O. Box 168
Yellowstone National Park
Wyoming 82190

IN REPLY REFER TO:
D18(YELL)

SEP 1 8 2013

Memorandum

To: Project Files, Fuels Program of Work, FY 2013 – Fuels Reduction Treatments at Canyon Village Developed Area and Norris Junction Developed Area

From: Superintendent, Yellowstone National Park

Subject: Adequacy of National Environmental Policy Act Documentation, Yellowstone National Park Wildland Fire Management Plan/Environmental Assessment

This memorandum addresses actions to remove hazardous fuels adjacent to existing structures within the wildland urban interface (WUI) at Canyon Village Developed Area (Canyon) and the Norris Junction Developed Area (Norris Junction) in Yellowstone National Park. At Canyon, 120 acres would be treated including 24.1 acres of which are a subset of acreage previously treated in 2004 and 2012. At Norris Junction, two acres would be treated and are part of a larger unit treated in 2005.

A. Project Description

The proposed FY 2013 Fuels Management Program of Work for Yellowstone National Park includes two treatments. The two planned treatments are tiered from the 2012 Yellowstone National Park Wildland Fire Management Plan/Environmental Assessment or past projects with completed NEPA documentation.

The proposed treatments are designed to protect existing structures and improve visitor, resident, and firefighter safety by creating a "safety zone" around Canyon and Norris Junction. The Canyon treatment site totaling 120 acres is located around the maintenance and residential areas (Figure 1). Project objectives for Canyon are to: (1) remove all hazardous ground and ladder fuels from 0-30 feet of structures, except within wetlands; and (2) remove no more than 25 percent of existing canopy cover throughout entire unit. Also, approximately 50 percent of the downfall and ladder fuels will be reduced. Endangered Species Act candidate species whitebark pine (*Pinus albicaulis*) will not be removed if found within the project area. Because of lodgepole pines' (*Pinus contorta*) shallow root system the project will be completed over the course of 5 to 10 years to help prevent areas of blow down which can occur if trees are thinned too rapidly.

The Norris Junction treatment site totaling two acres consists entirely of blowdown timber and is located near residential areas (Figure 2). The project objective for Norris Junction is to reduce large dead and down woody debris (i.e. 100 and 100 hour fuels) to no more than 10 tons per acre. Only ground fuel will be cut during the Norris Junction project, no trees will be felled.

B. Description of Previous Compliance Documentation

Plan Name: Yellowstone National Park Wildland Fire Management Plan and Environmental Assessment	
PEPC Project Number: 39534	
Is the project still consistent with the approved plan? YES _X_ NO___ **Is the environmental document accurate and up to date?** YES _X_ NO___ **Was the document on public review?** YES_X_ NO___	
EA Public Release Date: September 14, 2012	**FONSI Signed Date:** February 25, 2013

C. Explain how the proposed project was addressed in the existing NEPA document and briefly summarize the environmental impact analysis conclusions as it pertains to the project. Identify mitigation measures that are required for project implementation. Include results of Section 7, 106 consultations, wetland and rare plant surveys.

The preferred alternative in the Wildland Fire Management Plan and EA includes the use of manual and mechanical fuel reduction methods to achieve a desired outcome and project specific objectives in developed areas such as those proposed at Canyon and Norris Junction. As stated in the plan/EA summary, the preferred alternative would have no effect or no measurable effects and there would either be no contribution towards cumulative effects or the contribution would be negligible on floodplains, climate change, park operations, natural soundscape, environmental justice, unique and prime farmlands, and museum objects. The following table represents the summary of impacts from the preferred alternative and how they relate to the proposed projects for FY 2013.

Impact Topic	Summary of Impacts
Air Quality	Some air pollutants would be generated by use of gasoline powered equipment in manual and mechanical fuel reduction projects. Emissions would be produced by machines used for fuel reduction activities including chain saws, chippers, and vehicles used to remove woody biomass and to transport people and equipment. This would contribute to negligible increases in fossil fuel emissions in the area of their use. The adverse effect of these pollutants on air quality, given the small size of the projects and infrequency of activity, would be localized and temporary.
Water Quality	Manual and mechanical reduction of fuel would not generally be conducted adjacent to water resources. If they were conducted near water sources, the potential direct adverse impacts of manual and mechanical fuel reduction would include trampling of stream banks or similar disturbances by felled and/or dragged trees, and by foot or equipment traffic. These effects can be mitigated by avoidance, where possible, and immediate rehabilitation. The indirect adverse effects of manual and mechanical fuel reduction may slightly increase stream flow since there would be less vegetation and thus less transpiration on the treated area.
Geological Resources	Fuel reduction activities would be avoided to the extent possible in or near park active geothermal resources. All non-emergency projects (fuel reduction) would be planned by the ID Team, with efforts to minimize soils compaction, erosion, and other adverse effects. The park's topsoil guidelines and mitigation measures would be followed during hazard fuel projects to lessen the impacts on soils. Effects on soils from pile burning would be localized and negligible.

Wilderness	Mechanical fuels treatments using mechanized equipment would not occur in wilderness without the minimum impact concept analysis being completed and the involvement of the ID Team. Limited hazard fuel treatments using hand tools and hand operated power tools would occur. Fuels management activities would focus on the reduction of fuel loads immediately surrounding fire sensitive features, such as structures and cultural resources.
Vegetation & Wetlands	Disturbance from works crews, removal of individual trees, and thinning would produce short-term, direct, minor effects to vegetation. Some crushing of non-target plants in the treatment could occur, but this would not jeopardize the plant population in the park. Mechanical and manual thinning of trees would result in more open canopies around structures. This could result in an increase in sun-tolerant plant species and a decrease in shade-tolerant species. Non-fire fuel treatments are targeted based on cost effectiveness weighed against the desired outcome of the treatment type. Also, invasive species could become established in disturbed areas. This would have a short-term, moderate effect on vegetation. Overall effects to vegetation from non-fire fuel management to protect structures within the park would be short-term and negligible to moderate. Non-fire fuel management would not take place in wetlands.
Fish & Wildlife	All non-emergency fuel reduction projects would be planned by the ID Team, resulting in benefits to fish and wildlife as all efforts would be made to avoid or minimize adverse impacts. Mechanical and manual thinning in the park would have a negligible, direct, short-term effect on fish and wildlife as well as a negligible benefit to birds, small mammals, and bears.
Threatened & Endangered Species	Impacts would be negligible to minor, short- to long-term, and adverse or beneficial. It is unlikely any federally protected species would be harmed by fuel reduction activities, and may benefit from post fire conditions. Some displacement due to fire management activity, habitat loss and degradation would occur, although impacts would be short-term and not jeopardize continued existence of species. Short-term benefits would also occur from managing vegetation and habitat for natural resource objectives. Habitat could be enhanced or created, and is likely to have long-term benefits to listed species. Avoidance measures and mitigation would be used to protect federally listed species.
Visitor Use & Experience	All non-emergency fuel reduction projects would be planned by the ID Team, resulting in benefits to visitor use and experience as all efforts would be made to implement projects during low visitation and as expeditiously as possible so as to cause minimal disruptions.
Cultural Resources	All non-emergency fuel reduction projects would be planned by the ID Team, resulting in benefits to archeological resources as all efforts would be made to avoid or protect know archeological sites.
Socioeconomics	Manual and mechanical hazard fuel reduction treatments could benefit local economies through increases in local spending to support work crews as well as higher incomes to local contractors. However these expenditures, while beneficial, would be limited to the duration of individual fuel reduction projects and would not be expected to substantially contribute to increased indirect and induced employment or income in the regional economy. All non-emergency fuel reduction projects would be planned by the ID Team.

Mitigation measures from page 26-30 of the plan/EA that may be applicable to the project include:

- Use of motorized equipment for hazard fuel reduction projects within recommended wilderness areas would require approval through the minimum requirement analysis process.
- If a helicopter or heavy equipment would be needed for a hazard fuel reduction project, the minimum requirement analysis tool would be utilized.
- All proposed hazard fuel treatment projects would adhere to the park's Bear Management Area seasonal restrictions to avoid displacement of bears from prime food sources and minimize bear/human habituation and injuries.
- No operation would be initiated until all personnel involved have received a safety briefing describing known hazards and mitigating actions.
- All equipment would be fueled at least 150 feet from water sources.
- Natural and cultural resources would be protected from the adverse effects of fire and fuel management activities.
- During all management activities, the minimum impact tactics (MIST) policy would be incorporated to the greatest extent feasible and appropriate, employing methods least damaging to park resources for the given situation.
- Avoid ground disturbance within known sensitive or unique natural and cultural resource locations. When ground disturbance is necessary in proximity to these resource locations it would involve as little impact as possible and be located as far outside of resource boundaries as possible.
- Prior to fuel reduction project implementation, an archeologist meeting the Secretary of the Interior's standards would inventory unsurveyed areas for cultural resources, and the park would ensure compliance with Section 106 of the National Historic Preservation Act.
- Prior to prescribed burning and fuel reduction project implementation, an ID Team process would be used, which includes the park's T&E coordinator, to determine if the project will have detrimental effects on T&E species.
- No mechanized heavy equipment would be used within archeological site boundaries.
- The interdisciplinary team approach would be used to mitigate effects to sensitive resource areas during non-emergency hazard fuel fire management actions.
- Avoid implementation of non-fire fuel treatments within one mile of known active lynx den sites and/or suspected denning areas between May 1 and July 31, known grizzly bear den sites between November 15 and April 15, and known active gray wolf den or rendezvous sites between April 15 and August 1.
- Monitor for occurrences and establishment of exotic vegetation invasions following fuel treatments and suppression activities, if sufficient funding is available.
- All non-emergency hazard fuel removal projects would be completed after August 1 every year, outside of the bird breeding period, unless nesting bird surveys are completed within the treatment area.

Additional mitigation measures and/or stipulations the ID Team specified for these projects include:

- Whitebark pine trees would not be cut within the project area, unless they are within 30 feet of buildings. Whitebark pine trees within 30 feet of buildings would be assessed on a case by case basis.
- Screening considerations would be taken into account; the Fire and Fuels ID Team Landscape Architect would be consulted throughout the project.
- The area District Ranger and District Maintenance Supervisor would be consulted throughout the project to ensure local needs are being met.

- Minimum impact tactics would be incorporated to the greatest extent that is feasible and appropriate. Tactics may include using equipment with low ground pressure tires, operating when ground is frozen, hand carrying material from the woods, or winching material to landing areas.
- Fragile topsoil would be protected during tree cutting activities in order to ensure all disturbed areas will revegetate and no scars would be left due to the dragging of slash, equipment turn-around areas, and ground compaction.
- Flush cut stumps as low to the ground as possible.
- All non-park resources' equipment (vehicles, heavy equipment) would receive a weed inspection upon arrival within the park.
- Any previously undiscovered archeological sites which are discovered during project implementation would be protected and reported to park archeological staff. Work would cease in the immediate area of discovery until consultation with staff has occurred.
- Archeological sites 48Ye 43 and 48Ye 725 will be flagged by the park archeologist prior to commencement of work in those areas. Work will avoid impacts to the sites by avoiding them entirely.
- Impacts to structures 48Ye 826, 1374, 1376, 1378, 1379, and 1380 will be avoided entirely.

In compliance with Section 7 of the Endangered Species Act, the park sent a letter on June 24, 2013 to the U.S. Fish and Wildlife Service requesting informal consultation for the proposed projects. The U.S. Fish and Wildlife Service on August 1, 2013 concurred with the NPS determination of "may affect, but not likely to adversely affect" Canada lynx, designated critical habitat for lynx, and grizzly bear for the Canyon Village project. The same determination for the Norris Junction portion was given with the exception for lynx critical habitat, which will have "no effect."

For Section 106, NPS has made a determination of effect of "No Historic Properties Affected" for the Canyon project. A request for review of the determination was sent to the WY State Historic Preservation Office (SHPO) on July 17, 2013 , and WY SHPO responded by concurring with this determination in a letter dated August 14, 2013. For the Norris project, NPS has made a determination of effect of "No Historic Properties Affected". A request for review of the determination was sent to the WY SHPO on Aug. 15 2005, and WY SHPO responded by concurring with this determination in a letter dated August 25, 2005.

Wetlands and rare plants were surveyed and mapped in 2004 and 2012 at Canyon. The Norris Junction treatment area was mapped and surveyed in 2005. Since fuel treatment projects would not occur within wetlands or where rare plants occur there would be no impacts to wetlands or rare plants. To ensure protection of wetlands and rare plants, project areas would be marked with white stripped flagging. Trees would not be cut or felled, dragged across, and slash would not be piled or burned in these identified areas.

D. Conclusion and Signatory

The ID Team discussed the FY 2013 projects on March 4, 2013. After review of the EA/plan, the team concurs the previous document adequately describes and analyzes the impacts for these two projects, there is no change to project scope, and the description of impacts (context, intensity and duration) remain as described in the EA/Plan. No additional public involvement is required. Because neither the original EA, nor this evaluation, resulted in any major adverse effects to NPS resources and values, there would be no impairment to National Park System resources and values from implementation of this project. This assessment is consistent with the original decision document signed on February 25, 2013.

As a result, this Memorandum to the files has been prepared and the NEPA process has been satisfied.

Recommended:

NEPA
Jennifer Carpenter

Date: 9/18/13

NHPA
Tobin Roop

Date: 9/18/13

Approved:

Superintendent:

Daniel N. Wenk
for

Date: 9/18/2013

Fire Danger Rating Operating Plan

National Park Service

Yellowstone National Park

Effective December 1, 2013

Prepared by: Becky Smith, Yellowstone N.P. Fire Ecologist and Jessica Page, Yellowstone N.P. Fire Effects Lead

Recommended:

12/1/2013

John Cataldo, Fire and Aviation Management Officer — Date

Approved:

Deputy Superintendent 12/9/2013

For Daniel N. Wenk, Superintendent — Date

1. Introduction

The National Fire Danger Rating System (NFDRS) preparedness activities are designed to ensure an appropriate level of protection related to the local fire conditions to prevent wildland fire damage. They are also designed to be used as a tool to achieve land and resource management goals and objectives in wildland fire management.

2. Roles and Responsibilities

ITEM	PERSON/POSITION
Program Management	
Fire Weather - The Riverton, WY office of the National Weather Service provides fire weather forecasts and fire danger products.	Fire Weather Meteorologist
Fire Danger Operating and Preparedness Plan - Prepare, review and update plan annually (or as needed).	FMO
Weather Station Maintenance and Operation	
Instrument calibration and rehab	RAWS Depot (Boise)
Maintains all weather station equipment	Lead Fire Effects
Responds to malfunctioning weather stations within three days	Lead Fire Effects
Collection and input of weather data into WIMS	Lead Fire Effects/Dispatch
Updates Station Catalogs	Lead Fire Effects
Seasonal NFDRS Outputs	Lead Fire Effects
NFDRS Products	
Provides periodic Seasonal Outlook products to park management	FMO/AFMO
Updates pocket cards at minimum, every two years (or as necessary)	Lead Fire Effects
Communication	
Ensures adherence to Preparedness Level and Dispatch Level procedures as outlined in this plan	FMO and/or Duty Officer
Notification to the park's Communication Center of Adjective Fire Danger Rating	Duty Officer
Notify the different locations for updating Fire Danger signs (entrance stations, visitor centers, etc.)	Duty Officer
Public awareness and prevention notifications	FMO/PAO
Educational messages for park publications	Fire Ecologist
Communicate with dispatch for radio announcements	Duty Officer
Notification of neighbors and coordination of closures & restrictions	Duty Officer

3. Fire Danger Inventory

A. Planning Area

The planning area for this guide encompasses all 2.2 million acres of Yellowstone National Park (Yellowstone, park) located in northwestern Wyoming and portions of Idaho and Montana. The park is part of the Greater Yellowstone Area (GYA) and, in addition to compliance with this plan, will adhere to the GYA preparedness plan and the park preparedness plan.

B. Fire Occurrence

Fire occurrence data from the entire park from 1991 through the current year is used for the analysis that supports this operating plan.

C. Weather Stations

There are currently six Remote Automated Weather Stations (RAWS) and four manual weather stations in operation within the park. Historical weather records are also available from three additional stations, which are shown in grey below. See Appendix A for a map with all station locations within the park. A station summary is provided below:

Station Name	WIMS#	Auto or Manual	Years of Record	Elevation (feet)	Site	Aspect	NFDRS Fuel Model
Quadrant	480115	Auto	1990 - present	7,925	Ridge	S	7G, 7H
Cabin Creek	480118	Auto	2007 - present	8,680	Ridge	S	7G, 7H
Bechler	480101	Auto	1999 - present	6,415	Valley	Flat	7G, 7H
Soda Butte	480119	Auto	2008 - present	8160	Mid-slope	S	7G, 7H
Grebe	480120	Auto	2011 - present	7880	Valley	E	7G, 7H
Thorofare	480114	Auto	1989 - 2007	8,380	Mid-slope	SE	n/a
Mammoth	480111	Auto	1965 - present	6,239	Mid-slope	Flat	7G, 7T
Canyon	480112	Manual	1982 - present	7,749	Valley	Flat	7H, 7G, 7T
Mt. Washburn	480106	Manual	1965 - present	10,243	Ridge	Flat	7G, 7H, 7T
East	480113	Manual	1989 - present	6,951	Valley	Flat	7G, 7H
Old Faithful	480107	Manual	1965 - present	7,367	Valley	Flat	7G, 7H
Mt. Holmes	480104	Manual	1965 - 2007	10,336	Ridge	Flat	7G, 7H
Sheridan	480105	Manual	1965 - 2007	10,308	Ridge	Flat	7G, 7H

D. Topography

Yellowstone occupies a large mountainous plateau in the northern Rocky Mountains. Elevations range from 5,200 feet to over 11,000 feet. The park is characterized by several broad, forested volcanic plateaus surrounded by the Absaroka Mountain Range on the east, the Gallatin Mountain Range on the north, and the Red Mountains on the south. Lakes such as Yellowstone, Shoshone, Lewis, and Heart are prominent

features in the park as are the Yellowstone, Snake, Lewis, Madison, Gibbon, Firehole, Gardner, and Lamar rivers. Water covers 101,235 acres of the park, or approximately four percent of the total area.

E. Climate Class

NFDRS Climate Class 3 – Humid (Forests) covers the majority of the park. Some lower grass and sage portions of the park may be considered Climate Class 2.

F. Vegetation and Fuels

Yellowstone's mountains and high plateaus are generally covered by coniferous forests and moist meadows. Following the retreat of the last glacial period, about 11,000 years ago, tundra gave way to a cold climate coniferous forest. Whitebark pine and subalpine fir forests were eventually invaded by lodgepole pine. Most of Yellowstone's present forests became established between 1450-1860 and show past evidence of extensive fires. The Yellowstone and Lamar River valleys are covered by dry grasslands and sagebrush steppe communities with Douglas-fir found on the north facing slopes.

Vegetation covers 95 percent of the park; of which 81 percent is forested. The forested areas are dominated by coniferous species, while sagebrush and grasslands cover 14 percent of the park. Lodgepole pine covers approximately 1,802,841 acres, or 76.5 percent of the forested area, while whitebark pine covers 218,684 acres (12.1 percent), Douglas-fir covers 104,276 acres (5.8 percent), and spruce/fir covers 100,075 acres (5.6 percent).

4. Climatic Breakpoints and Fire Business Thresholds

A. Decision Points

Climatic breakpoints and fire business thresholds are established to provide NFDRS based decision points for all appropriate management responses. Climatological breakpoints are points based on the historical averages of either fire weather observations or fire danger indices, without regard to associated fire occurrence or fire business.

Fire business thresholds are values of one or more fire weather or fire danger indices that have been statistically related to occurrence of fires (fire business). Generally, fire business thresholds are a value or range of values where historical fire activity has significantly increased or decreased.

Climatic breakpoints and fire business thresholds are determined using Fire Family Plus software and are applied to appropriate NFDRS processors such as WIMS. The agency directed climatological breakpoints of 90 percent and 97 percent do not correlate well to fire business within the park, so it has been decided to utilize fire business Thresholds to determine staffing classes. The Yellowstone thresholds are identified in the table below.

Activity, Event or Fire Operation	NFDRS Component or Index used	Fire Business Thresholds	Reference data used for analysis
Staffing Class	ERC's (from Quadrant RAWS)	SL 1 = <16 SL2 = 17 – 32 SL3 = 33 – 51 SL4 = 52 – 62 SL5 = 63+	See Appendix B
Severity Requests	ERC's, 1000hr fuel moisture content, special circumstances		
Adjective Fire Danger Rating (Public)	Based on ERC's (from Quadrant RAWS)	see Section 1.08.3 of PMS 932 (NFES 2665)	
Public Restrictions and Closures	see Staffing Class Table (Appendix C)		

5. Fire Danger Pocket Cards

Pocket cards are developed and implemented according to NWCG guidelines (posted at http://fam.nwcg.gov/famweb/pocketcards/default.htm). The park FMO is responsible for ensuring the development and distribution of pocket cards to all fireline supervisors in the park is completed at least every two years. The Lead Fire Effects Monitor is responsible for updating the pocket cards with current weather and fire data, at a minimum of every two years. See Appendix D for the current Yellowstone Pocket Card.

A. Station, Fuel Model and NFDRS Index Used

Yellowstone will create and distribute one pocket card for the entire park using the Quadrant weather station, fuel model 7G, and ERC as an index. The daily forecasted ERC's will be communicated to all fire staff at daily morning briefings. Radio broadcasts to field personnel will match this station, fuel model, and index to provide the necessary context for use of the pocket card.

The Quadrant station was chosen because it has the best correlation between weather conditions and fire business within the park, and because it has more than 15 years of weather data. The historic records of this station have been reviewed to ensure no gross errors are present that would skew the data distribution. The particular fuel model and index were chosen after completing a fire business analysis using Fire Family Plus software.

B. Years to Remember

The two years currently overlaid on the Yellowstone pocket card are 2003 and 2010. 2003 was an active year in the park with number of fires and total acres burned being well above average. 2010 was an average to below average year in the park, but the Antelope fire burned vigorously into October.
Three memorable fires are also currently plotted on Yellowstone Pocket Cards: East, Arnica, and Antelope. Significant fires can occur below the 90th percentile dashed threshold value, and are therefore included. The fires selected have weather data associated with the date the fire started to ensure they are correctly plotted.

The width of the red/yellow/green background bands have been adjusted to reflect local conditions where red means "stop", or "direct control by any means is not likely"; yellow means "caution" or "this is your upper limit of effectiveness"; green means "go" or "proceed but always be wary of change".

C. Critical Local Thresholds

Critical threshold values for temperature, relative humidity, wind and live fuel moisture conditions have been determined for the Quadrant station through analysis of fire business using Fire Family Plus. The park fire management leadership identified values commonly present for these measures at the time of large fires. Other critical threshold values, for measures such as 1000 hour fuel moisture, have also been determined and added to the narrative. Yellowstone includes the following in this section:

> *"Combinations of any of these factors can greatly increase fire behavior: 20 foot wind speed over 15 mph, relative humidity less than 20 percent, temperature over 80 degrees, and 1000 hour fuel moisture less than 14 percent."*

D. Past Experience

This text is a very important part of the card. The intent of this section is to supplement, if necessary, information shown on the adjacent "Years to Remember" chart and to highlight unique local events that influence fire danger and large fire potential.

Yellowstone currently includes the following in this section:

"The 71% critical threshold represents the break between staffing levels 3 and 4 where fires generally show more active fire behavior.

- *East Fire 8/11/2003 (18,762 acres), ERC 69, 1000 hr 9%*
- *Arnica Fire 9/23/2009 (10,700 acres), ERC 60, 1000 hr 12%. Average fire growth over the first three operational periods was 500 acres. This growth occurred without significant wind.*
- *Antelope Fire 9/14/2010, (5,510 acres), ERC 36, 1000 hr 18%. Wind driven fire in LP0. Late season fire with some extreme fire behavior.*

- *Fires in Yellowstone are usually wind driven. LP0 will burn similar to a shrub fuel model with sustained winds of 10 mph or greater."*

E. Updates

Yellowstone Lead Fire Effects Monitor updates the pocket card at minimum, every two years, or as necessary.

F. Printing and Distribution

Cards are printed and distributed to all park fire personnel. Cards are distributed to fire personnel with an interpretive briefing to ensure success as a situational awareness tool for firefighters. When fireline supervisors brief crews, they must ensure firefighters understand Pocket Cards do not predict fire behavior for a specific area, but only capture general trends.

6. Operational Procedures

A. WIMS Station Catalog Settings

See Appendix E for station catalogs for all of the Yellowstone weather stations.

B. Daily Schedule

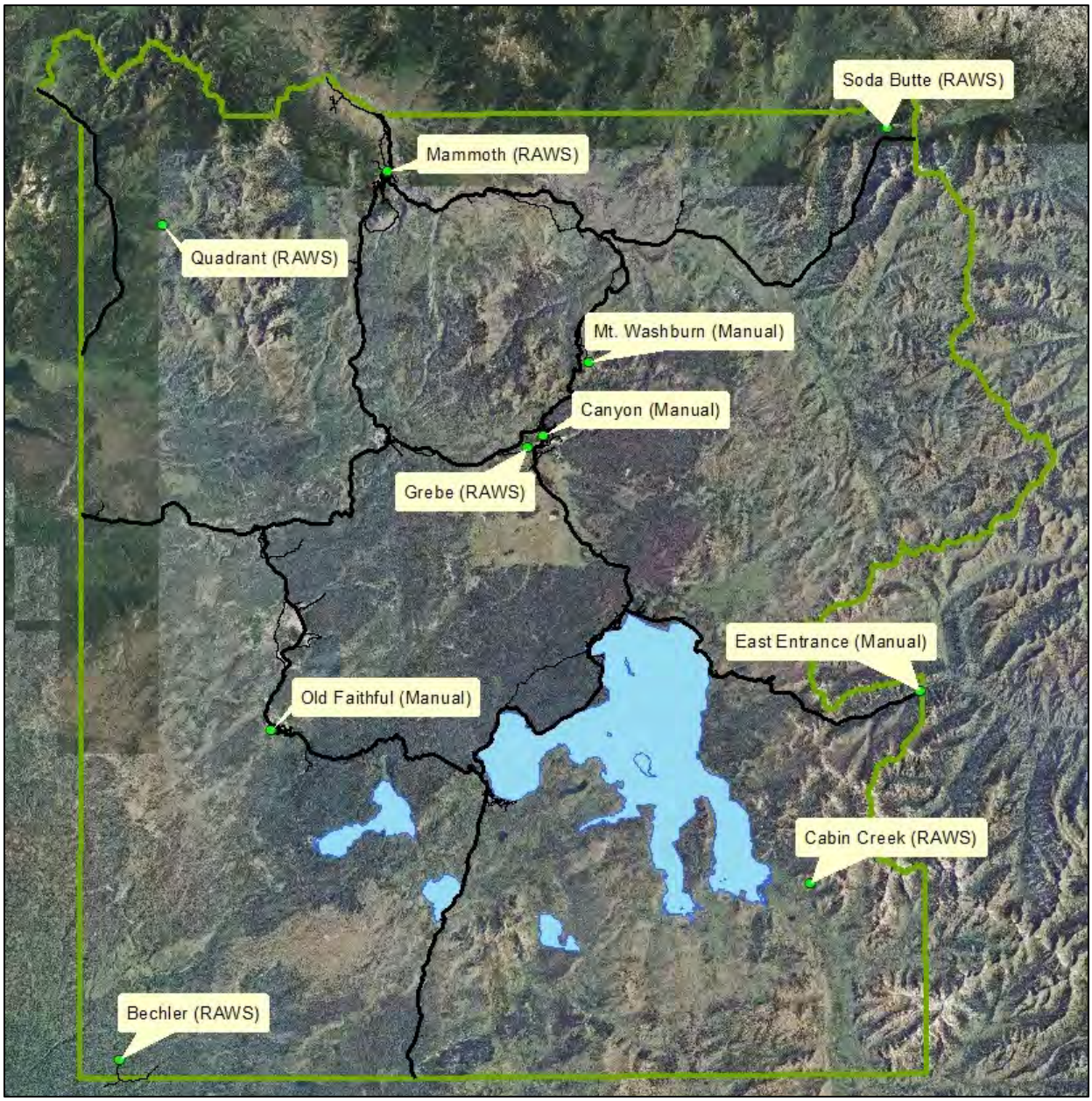
- Manual stations collect weather observations at 1300 hours
- Observations are phoned in to the fire weather phone number
- Dispatch staff (from Memorial Day to Labor Day), and Fire Ecology staff (anytime other time of year outside of Dispatch's commitment) compile observations and enter them into WIMS
- Dispatch or Fire Ecology staff prints out daily indices and posts them on the info board in the fire office. In addition, the ERC and adjective rating are e-mailed to the park Communications Center whenever it changes.
- Fire Ecology staff update the ERC chart, located in the fire cache training room, with the new info and a new chart is printed out as needed.

C. Annual RAWS Checklist

Task	Responsible Party
Pregreen – Start WIMS data entry (30 to 45 days prior to fire season)	Lead Fire Effects
Calibrate/replace sensors (update inventory)	Lead Fire Effects
Set-up Manual Stations (by June 1)	Lead Fire Effects

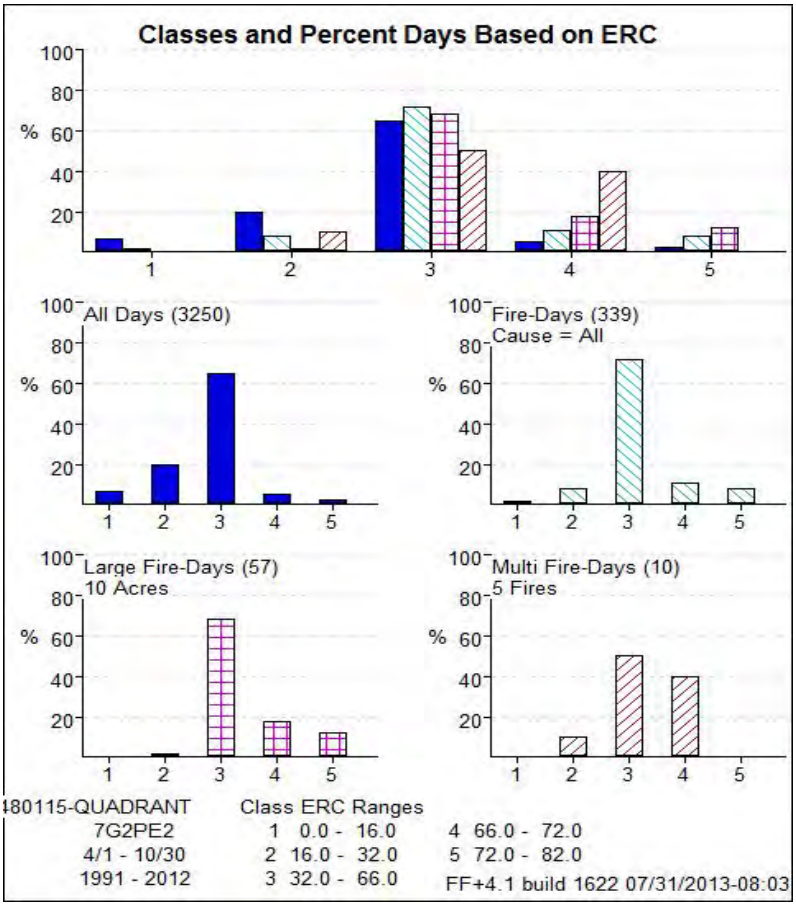
Green-up date	Lead Fire Effects
Periodic Quality Checks (weekly)	Lead Fire Effects
Freeze or dormancy date – Stop WIMS data entry	Lead Fire Effects
Take-down Manual Stations	Lead Fire Effects

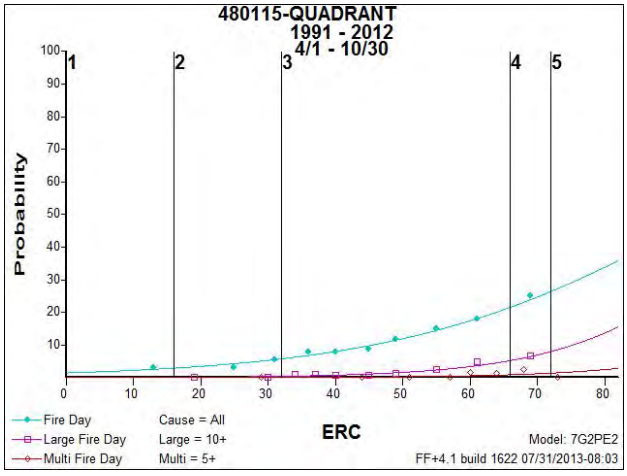
Appendix A. Map of WIMS Weather Stations

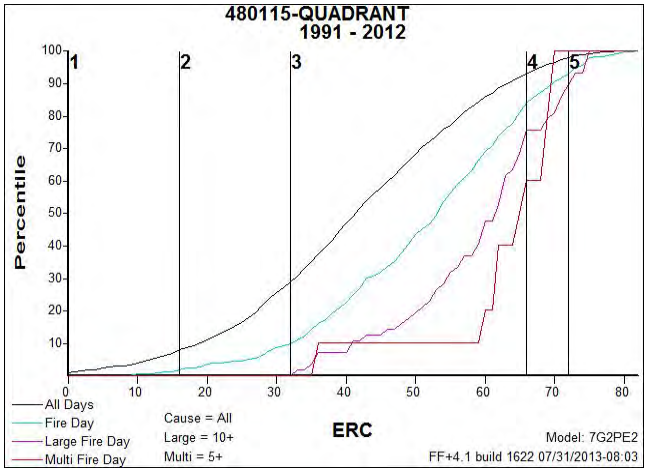


APPENDIX B. Climatic Breakpoints and Fire Business Breakpoints

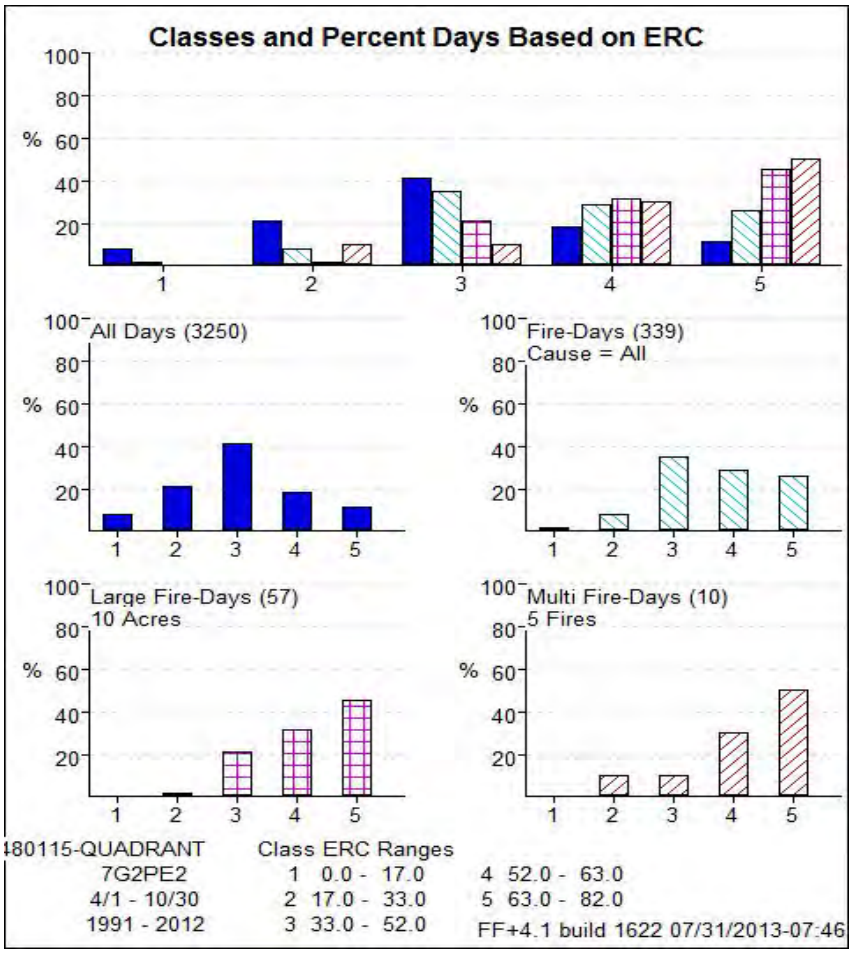
Climatic Breakpoints from Quadrant RAWS (90% and 97%)

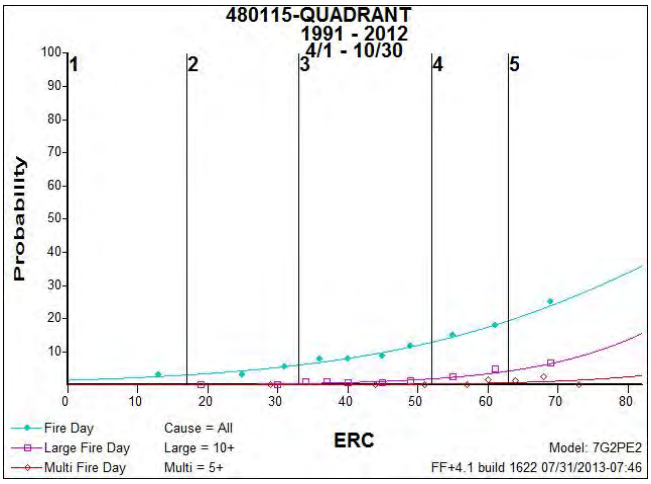


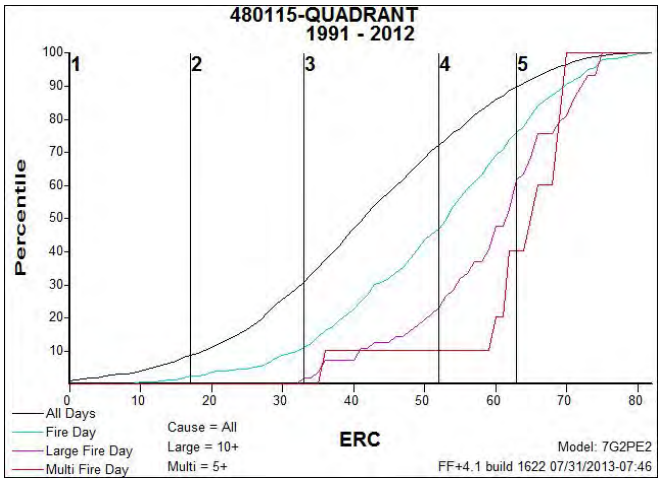




Fire Business Breakpoints from Quadrant RAWS







APPENDIX C. Step-up Staffing Plan

Staffing Class / Preparedness Level	Energy Release Component (ERC)	General Description Of Park-wide Conditions	Recommended / Authorized Duty Officer Actions
1 - Low	0 - 16	• 1000 hour fuels wet (>20% FMC) • Annual and perennial vegetation still green • Fire growth potential is low	• Normal work tours • RAWS maintained and operational • Fuels sampling program on schedule
2 - Moderate	17 - 32	• 1000 hour fuels drying (15–20% FMC) • Annual and perennial vegetation are curing	• Duty Officer designated daily – Single Resource Boss & ICT4 minimum • Fire Danger Rating posted on morning report • Rating updated on our fire danger signs
3 - High	33 -51	• 1000 hour fuels drying (12–14% FMC) and will begin to carry fire • Live herbaceous fuels are 75% cured	• 7 day staffing of Fire and Aviation Dispatch • 7 day staffing of our exclusive-use helicopter (minimum 1 HMGB & ICT4 + 2 HECM) • 7 day staffing of our Type VI Engine (minimum 1 ENOP & ICT5 + 1 FFT2) • 7 day staffing of the Mt. Washburn lookout • Aerial detection flights if warranted • Duty Officer = TFLD & ICT4 minimum
4 - Very High	52 -62	• Live herbaceous fuels are 100% cured • 1000 fuels (10- 12% FMC) will carry fire • Ignition Component is high • Potential for moderate fire growth; fire will burn intensely with short-range spotting probable	• Extended staffing tours (hours and days) • Consider backcountry campsite fire restrictions • Type 3 minimum helicopter with crew (minimum 1 HMGB & ICT4 + 2 HECM) committed to park • Duty Officer = DIVS(t), ICT3(t) minimum
5 - Extreme	>63	• 1000 hour fuels are extremely dry (<10% FMC) • Potential for large fire growth with long-range spotting	• Consider backcountry campsite and front country campground fire restrictions • Duty Officer = DIVS(t), ICT3(t) minimum

APPENDIX D. Weather Station Catalogs

Station: 480101 Name: BECHLER NESDIS: FA627352
Type: 4 (RAWS S NFDRS) Create/Mod Date: 17-Jun-2013
Obs Time/Z: 12/MST Assoc Man: 480105 Prev Stn: 480116 Fcst Zone: 140
State: 56-WY County: 013-Fremont
Lat/Lon: 44 8 57, 111 2 41
Obs Agy: 3 (USDI NPS) Unit: YELL Mnemonic: BCHLR
FS Reg: 4 Fuel Stk: _____ Wdy FM Mea: _____
Site: 1 Elev: 6400 Asp: 0 Ann Prec: 25.00 Season: 4
Ltng scale: 1.00 Hum code: 2 Temp code: 1 Pres code: 1
Wind Spd code: 1 KBDI: 100 One/Ten Fl: N
User: NPS1576 Acc Lst: YELL FIRE

Comments: UPGRADED TO HANDAR 555 DCP 6/03/03. DATA NOW TRANSMITTED HOURLY. 7/9/03 480116 CHANGED TO 480101. RAWS WAS FORMERLY KNOWN AS 480116. RAWS INSTALLED 1999. FUNCTIONAL IN 2000. 480101 MANUAL STATION RAN CONCURRENTLY UNTIL 2002. M CELDERY NOT WORKING FROM 12/31/07 TO 06/25/08. REPAIRED ON 06/25/08. 06/08/2009 TREE FELL ON STATION KNOCKING OFF WS/WD AND TIPPING BUCKET. ATTEMPTE D REPAIRS ON 06/12-DETERRED BY LIGHTNING. NEW 403A TOWER SET UP. 06/17/2009 BECHLER STATION OPERATIONAL AGAIN UPGRADED TO FTS 300BD STATION ON 07/14/2011

			**78 NFDRS Only **								Staffing Index Breakpoints			
											Low		High	
Pri	FM	HS	Herb Date	Grnup Date	88 sb	slp	Grs	Cli	SI	DC	SI%	Val	SI%	Val
1	7G	T	24-Jun-13	1-Jun-13		1	P	3	BI	5	90	44	97	49
2	7G	T	24-Jun-13	1-Jun-13		3	P	3	BI	5	90	44	97	49
3	7H	T	24-Jun-13	1-Jun-13		1	P	3	BI	5	90	14	97	17
4	7H	T	24-Jun-13	1-Jun-13		3	P	3	BI	5	90	14	97	17

NESDIS	S#	Description	SHEF
FA627352	9	Rain Accumulation, Inches	PC
FA627352	10	Windspeed, Miles per Hour	US
FA627352	11	Wind Direction, Degrees	UD
FA627352	12	Air Temperature, Standard Placement, Deg	TA
FA627352	14	Relative Humidity, Percent	XR
FA627352	15	Battery Voltage, volts	VB
FA627352	17	Wind Direction, Peak, Degrees	UX
FA627352	18	Windspeed, Peak, Miles per Hour	UP
FA627352	19	Solar Radiation, watts per meter squared	RD

Station: 480106 Name: MT WASHBURN NESDIS: _____
Type: 2 (Man NFDRS) Create/Mod Date: 20-Jul-2013
Obs Time/Z: 13/MST Assoc Man: _____ Prev Stn: _____ Fcst Zone: 140
State: 56-WY County: 029-Park
Lat/Lon: 44 47 52, 110 25 59
Obs Agy: 3 (USDI NPS) Unit: YELL Mnemonic: WASH
FS Reg: 4 Fuel Stk: _____ Wdy FM Mea: _____
Site: 3 Elev: 10243 Asp: 0 Ann Prec: 18.00 Season:
Ltng scale: 1.00 Hum code: 2 Temp code: 1 Pres code: 1
Wind Spd code: 1 KBDI: One/Ten Fl: N
User: NPS1576 Acc Lst: YELL FIRE

Comments: 2008-LOOKOUT ACTIVATED BEHIND SCHEDULE DUE TO SNOW ON ROAD. 1ST DAY IN SERVICE FOR FIRE WEATHER 07-04-08. USUALLY ACTIVE JUNE 15. TJK. JUNE 18, 2009-LOOKOUT SET UP SEPTEMBER 28, 2009 LOOKOUT CAME DOWN-SNOW ON SEPT 30.

78 NFDRS Only

											Staffing Index Breakpoints			
											Low		High	
Pri	FM	HS	Herb Date	Grnup Date	88 sb	slp	GRS	Cli	SI	DC	SI%	Val	SI%	Val
1	7G	T	22-Jul-13	30-Jun-13		3	P	3	BI	5	90	70	97	85
2	7H	T	22-Jul-13	30-Jun-13		3	P	3	BI	5	90	27	97	34
3	7T	T	22-Jul-13	30-Jun-13		3	P	3	BI	5	90	57	97	63

Station: 480107 Name: OLDFAT NESDIS: _____
Type: 2 (Man NFDRS) Create/Mod Date: 17-Jun-2013
Obs Time/Z: 13/MST Assoc Man: _____ Prev Stn: _____ Fcst Zone: 140
State: 56-WY County: 039-Teton
Lat/Lon: 44 27 25, 110 49 56
Obs Agy: 3 (USDI NPS) Unit: YELL Mnemonic: _____
FS Reg: 4 Fuel Stk: _____ Wdy FM Mea: _____
Site: 1 Elev: 7367 Asp: 0 Ann Prec: 20.00 Season:
Ltng scale: 1.00 Hum code: 2 Temp code: 1 Pres code: 1
Wind Spd code: 1 KBDI: 100 One/Ten Fl: N
User: NPS1576 Acc Lst: YELL FIRE

Comments: 6/3/2009 STATION SET UP FUEL STICKS NEW
06/15/2009 STATION GREENED
09/16/2009 STATION CURED

78 NFDRS Only

											Staffing Index Breakpoints			
											Low		High	
Pri	FM	HS	Herb Date	Grnup Date	88 sb	slp	GRS	Cli	SI	DC	SI%	Val	SI%	Val
1	7G	T	2-Jul-13	8-Jun-13		1	P	3	BI	9	90	39	97	51
2	7G	T	2-Jul-13	8-Jun-13		3	P	3	BI	9	90	39	97	51
3	7H	T	2-Jul-13	8-Jun-13		1	P	3	BI	9	90	18	97	23
4	7H	T	2-Jul-13	8-Jun-13		3	P	3	BI	9	90	18	97	23

Station: 480111 Name: MAMMOTH NESDIS: 32842174
Type: 4 (RAWS S NFDRS) Create/Mod Date: 13-May-2013
Obs Time/Z: 12/MST Assoc Man: _____ Prev Stn: _____ Fcst Zone: 140
State: 56-WY County: 029-Park
Lat/Lon: 44 58 37, 110 41 46
Obs Agy: 3 (USDI NPS) Unit: YELL Mnemonic: _____
FS Reg: 4 Fuel Stk: _____ Wdy FM Mea: _____
Site: 2 Elev: 6239 Asp: 0 Ann Prec: 15.28 Season:
Ltng scale: 1.00 Hum code: 2 Temp code: 1 Pres code: 1
Wind Spd code: 1 KBDI: 100 One/Ten Fl: N
User: NPS1576 Acc Lst: YELL FIRE

Comments: 4-8-2009 HUMIDITY CODE CHANGED TO 2 SINCE HYGROTHERMOGRAPHS OUTPUT RH NOT WB
5/27/2009 STATION PUT INTO GREEN UP
3/23/10 STATION PUT INTO PREGREEN
5/8/2012 SOLAR RADIATION SENSOR RETURNED AND RECALIBRATED

** 78 NFDRS Only **

											Staffing Index Breakpoints			
											Low		High	
Pri	FM	HS	Herb Date	Grnup Date	88 sb	slp	GRS	Cli	SI	DC	SI%	Val	SI%	Val
1	7G	C	18-Aug-13	13-May-13		3	P	2	EC	5	59	52	85	65
2	7T	C	18-Aug-13	13-May-13		1	P	2	BI	9	90	34	97	43
3	7T	C	18-Aug-13	13-May-13		3	P	2	BI	9	90	34	97	43
4	7G	C	18-Aug-13	13-May-13		1	P	2	EC	5	59	52	85	65

NESDIS	S#	Description	SHEF
32842174	9	Rain Accumulation, Inches	PC
32842174	10	Windspeed, Miles per Hour	US
32842174	11	Wind Direction, Degrees	UD
32842174	12	Air Temperature, Standard Placement, Deg	TA
32842174	14	Relative Humidity, Percent	XR
32842174	15	Battery Voltage, volts	VB
32842174	17	Wind speed peak, Miles per Hour	UP
32842174	18	Soil Moisture, Percent	MS
32842174	19	Barometric Pressure, Inches of Mercury	PL
32842174	20	Solar Radiation, watts per meter squared	RD

Station: 480112 Name: CANYON NESDIS: _____
Type: 2 (Man NFDRS) Create/Mod Date: 27-Jun-2013
Obs Time/Z: 13/MST Assoc Man: _____ Prev Stn: _____ Fcst Zone: 140
State: 56-WY County: 029-Park
Lat/Lon: 44 44 5, 110 29 35
Obs Agy: 3 (USDI NPS) Unit: YELL Mnemonic: _____
FS Reg: 4 Fuel Stk: _____ Wdy FM Mea: _____
Site: 1 Elev: 7749 Asp: 0 Ann Prec: 20.00 Season:
Ltng scale: 1.00 Hum code: 2 Temp code: 1 Pres code: 1
Wind Spd code: 1 KBDI: 100 One/Ten Fl: N
User: NPS1576 Acc Lst: YELL FIRE

Comments: STATION SET UP 6/2/08 NEW FUEL STICKS OUT

** 78 NFDRS Only **

											Staffing Index Breakpoints			
											Low		High	
Pri	FM	HS	Herb Date	Grnup Date	88sb	slp	GRS	Cli	SI	DC	SI%	Val	SI%	Val
1	7H	T	8-Jul-13	16-Jun-13	_	1	P	3	BI	9	90	27	97	34
2	7H	T	8-Jul-13	16-Jun-13	_	3	P	3	BI	9	90	27	97	34
3	7G	T	8-Jul-13	16-Jun-13	_	1	P	3	BI	9	90	39	97	51
4	7T	T	8-Jul-13	16-Jun-13	_	1	P	3	BI	9	90	34	97	43

Station: 480113 Name: EAST NESDIS: _____
Type: 2 (Man NFDRS) Create/Mod Date: 17-Jun-2013
Obs Time/Z: 14/MST Assoc Man: _____ Prev Stn: _____ Fcst Zone: 140
State: 56-WY County: 029-Park
Lat/Lon: 44 29 17, 110 0 11
Obs Agy: 3 (USDI NPS) Unit: YELL Mnemonic: _____
FS Reg: 4 Fuel Stk: _____ Wdy FM Mea: _____
Site: 1 Elev: 6951 Asp: 0 Ann Prec: 20.00 Season:
Ltng scale: 1.00 Hum code: 2 Temp code: 1 Pres code: 1
Wind Spd code: 1 KBDI: 100 One/Ten Fl: N
User: NPS1576 Acc Lst: YELL FIRE

Comments: 6/8/2009 STATION SET UP FOR SEASON FUEL STICKS NEW

** 78 NFDRS Only **

											Staffing Index Breakpoints			
											Low		High	
Pri	FM	HS	Herb Date	Grnup Date	88sb	slp	GRS	Cli	SI	DC	SI%	Val	SI%	Val
1	7G	T	7-Jul-13	15-Jun-13	_	2	P	3	BI	9	90	66	97	78
2	7H	T	7-Jul-13	15-Jun-13	_	2	P	3	BI	9	90	66	97	78

Station: 480115 Name: QUADRANT NESDIS: FA4012AE
Type: 4 (RAWS S NFDRS) Create/Mod Date: 17-Jun-2013
Obs Time/Z: 12/MST Assoc Man: 480111 Prev Stn: _____ Fcst Zone: 140
State: 56-WY County: 029-Park
Lat/Lon: 44 55 39, 110 59 24
Obs Agy: 3 (USDI NPS) Unit: YELL Mnemonic: _____
FS Reg: 4 Fuel Stk: _____ Wdy FM Mea: _____
Site: 3 Elev: 7900 Asp: 4 Ann Prec: 20.00 Season:
Ltng scale: 1.00 Hum code: 2 Temp code: 1 Pres code: 1
Wind Spd code: 1 KBDI: 100 One/Ten Fl: N
User: NPS1576 Acc Lst: YELL FIRE

Comments: STATION UPGRADED TO FTS 300BD F6 LOGGER ON 07/15/2011

** 78 NFDRS Only **

											Staffing Index Breakpoints			
											Low		High	
Pri	FM	HS	Herb Date	Grnup Date	88sb	slp	GRS	Cli	SI	DC	SI%	Val	SI%	Val
1	7G	C	16-Aug-13	10-Jun-13		2	P	2	EC	5	71	51	88	62
2	7H	C	16-Aug-13	10-Jun-13		2	P	2	BI	9	90	27	97	34

NESDIS	S#	Description	SHEF
FA4012AE	9	Rain Accumulation, Inches	PC
FA4012AE	10	Windspeed, Miles per Hour	US
FA4012AE	11	Wind Direction, Degrees	UD
FA4012AE	12	Air Temperature, Standard Placement, Deg	TA
FA4012AE	14	Relative Humidity, Percent	XR
FA4012AE	15	Battery Voltage, volts	VB
FA4012AE	17	Wind Direction, Peak, Degrees	UX
FA4012AE	18	Windspeed, Peak, Miles per Hour	UP
FA4012AE	19	Solar Radiation, watts per meter squared	RD

Station: 480118 Name: CABIN CREEK NESDIS: FA45D070
Type: 4 (RAWS S NFDRS) Create/Mod Date: 20-Jul-2013
Obs Time/Z: 12/MST Assoc Man: 480113 Prev Stn: 480114 Fcst Zone: 140
State: 56-WY County: 029-Park
Lat/Lon: 44 18 40, 110 9 .7
Obs Agy: 3 (USDI NPS) Unit: YELL Mnemonic: _____
FS Reg: 4 Fuel Stk: _____ Wdy FM Mea: _____
Site: 3 Elev: 8650 Asp: 4 Ann Prec: 25.00 Season:
Ltng scale: 1.00 Hum code: 2 Temp code: 1 Pres code: 1
Wind Spd code: 1 KBDI: One/Ten Fl: N
User: NPS1576 Acc Lst: YELL FIRE

Comments: REPLACES 480114 THOROFARE.

** 78 NFDRS Only **

											Staffing Index Breakpoints			
											Low		High	
Pri	FM	HS	Herb Date	Grnup Date	88sb	slp	GRS	Cli	SI	DC	SI%	Val	SI%	Val
1	7G	C	24-Jul-13	20-Jun-13		2	P	3	EC	5	90	73	97	78
2	7H	C	24-Jul-13	20-Jun-13		2	P	3	EC	5	90	41	97	45

NESDIS	S#	Description	SHEF
FA45D070	9	Rain Accumulation, Inches	PC
FA45D070	10	Windspeed, Miles per Hour	US
FA45D070	11	Wind Direction, Degrees	UD
FA45D070	12	Air Temperature, Standard Placement, Deg	TA
FA45D070	14	Relative Humidity, Percent	XR
FA45D070	15	Battery Voltage, volts	VB
FA45D070	17	Wind Direction, Peak, Degrees	UX
FA45D070	18	Windspeed, Peak, Miles per Hour	UP
FA45D070	19	Solar Radiation, watts per meter squared	RD

Station: 480119 Name: SODA BUTTE NESDIS: AAB02110
Type: 4 (RAWS S NFDRS) Create/Mod Date: 20-Jul-2013
Obs Time/Z: 12/MST Assoc Man: _____ Prev Stn: _____ Fcst Zone: 140
State: 56-WY County: 029-Park
Lat/Lon: 45 0 50, 110 2 19
Obs Agy: 3 (USDI NPS) Unit: YELL Mnemonic: _____
FS Reg: 4 Fuel Stk: _____ Wdy FM Mea: _____
Site: 2 Elev: 8160 Asp: 4 Ann Prec: 25.00 Season:
Ltng scale: 1.00 Hum code: 2 Temp code: 1 Pres code: 1
Wind Spd code: 1 KBDI: One/Ten Fl: N
User: NPS1576 Acc Lst: YELL FIRE

Comments: STATION MOVED FROM THE STAGING AREA AT LAMAR BUFFALO RANCH WHERE IT H
AS BEEN TRANSMITTING SINCE JULY 2010 TO THE SELECTED SITE ON A SLOPE ABOVE WARM
CREEK PARKING AREA ON 8/11/2010.

** 78 NFDRS Only **

											Staffing Index Breakpoints			
											Low		High	
Pri	FM	HS	Herb Date	Grnup Date	88sb	slp	GRS	Cli	SI	DC	SI%	Val	SI%	Val
1	7G	C	19-Aug-13	15-Jun-13		2	P	3	EC	5	90	69	97	74

NESDIS	S#	Description	SHEF
AAB02110	9	Rain Accumulation, Inches	PC
AAB02110	10	Windspeed, Miles per Hour	US
AAB02110	11	Wind Direction, Degrees	UD
AAB02110	12	Air Temperature, Standard Placement, Deg	TA
AAB02110	14	Relative Humidity, Percent	XR
AAB02110	15	Battery Voltage, volts	VB
AAB02110	17	Wind Direction, Peak, Degrees	UX
AAB02110	18	Windspeed, Peak, Miles per Hour	UP
AAB02110	19	Solar Radiation, watts per meter squared	RD

Station: 480120 Name: GREBE NESDIS: 328457E4
Type: 4 (RAWS S NFDRS) Create/Mod Date: 27-Jun-2013
Obs Time/Z: 12/MST Assoc Man: _____ Prev Stn: _____ Fcst Zone: 140
State: 56-WY County: 029-Park
Lat/Lon: 44 43 9, 110 30 48
Obs Agy: 3 (USDI NPS) Unit: YELLOWSTO Mnemonic: YNP
FS Reg: 4 Fuel Stk: _____ Wdy FM Mea: _____
Site: 1 Elev: 7900 Asp: 2 Ann Prec: 25.00 Season:
Ltng scale: 1.00 Hum code: 2 Temp code: 1 Pres code: 1
Wind Spd code: 1 KBDI: One/Ten Fl: N
User: NPS1576 Acc Lst: YELL FIRE

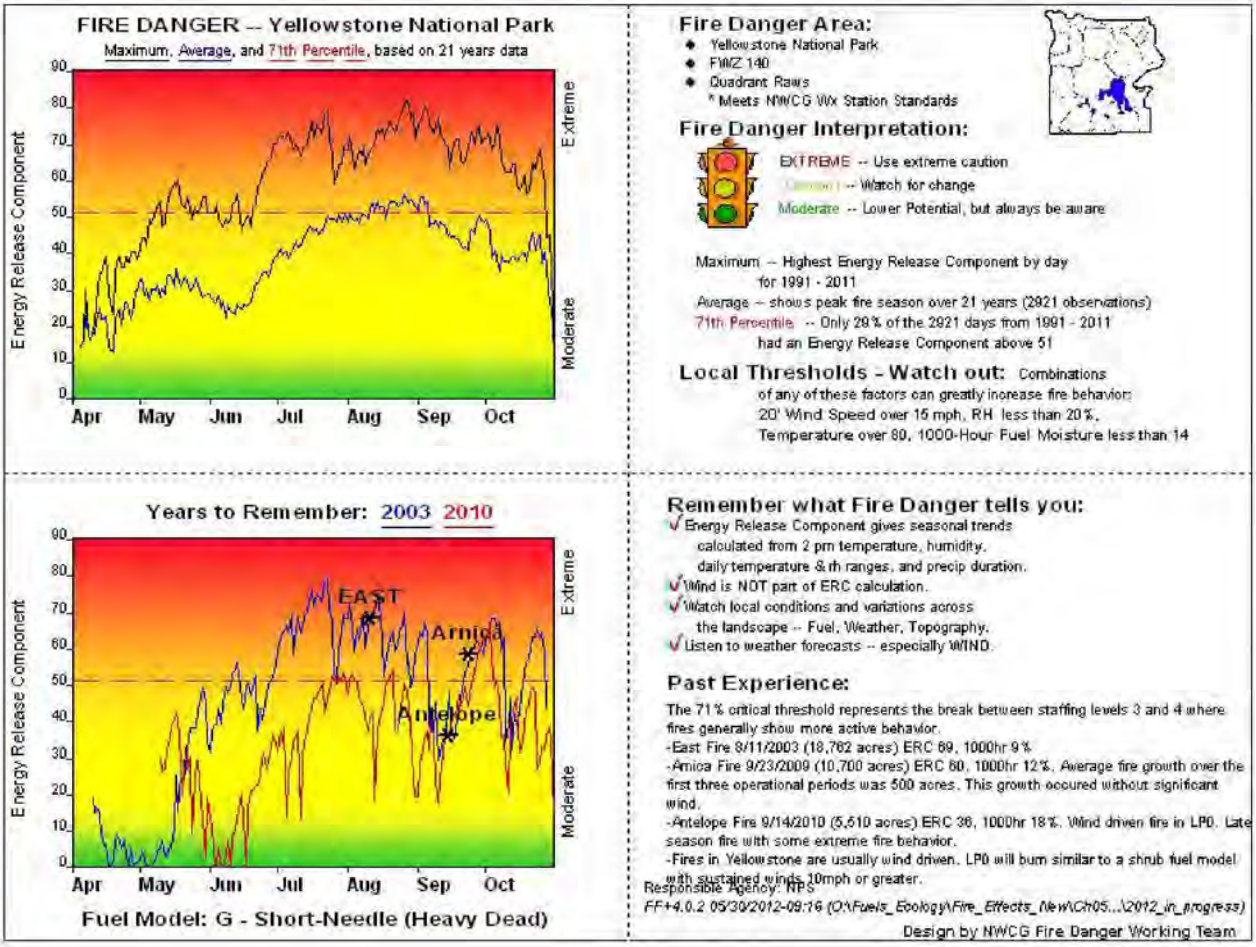
Comments: STATION WAS INSTALLED 07/13/2011. IT IS A FTS STATION LOCATED ~300' O
FF OF THE GREBE PIT ROAD

** 78 NFDRS Only **

											Staffing Index Breakpoints			
											Low		High	
Pri	FM	HS	Herb Date	Grnup Date	88sb	slp	GRS	Cli	SI	DC	SI%	Val	SI%	Val
1	7G	T	14-Jul-13	10-Jun-13		2	P	2	EC	5	90	52	97	56

NESDIS	S#	Description	SHEF
3284570000	9	Rain Accumulation, Inches	PC
3284570000	10	Windspeed, Miles per Hour	US
3284570000	11	Wind Direction, Degrees	UD
3284570000	12	Air Temperature, Standard Placement, Deg	TA
3284570000	14	Relative Humidity, Percent	XR
3284570000	15	Battery Voltage, volts	VB
3284570000	17	Wind Direction, Peak, Degrees	UX
3284570000	18	Windspeed, Peak, Miles per Hour	UP
3284570000	19	Solar Radiation, watts per meter squared	RD

APPENDIX E. Current Fire Danger Pocket Card



Appendix G – Preparedness Plan, Duty Officer Roles and Responsibilities

Appendix G – Preparedness Plan

YELLOWSTONE NATIONAL PARK
DUTY OFFICER ROLES and RESPONSIBILITIES

A Park Duty Officer is the responsible officer with authority to make operational decisions regarding initial fire management actions based on observed and forecasted conditions. Several operational documents guide initial decisions such as the Fire Management Plan, Step-up staffing plan, and the Red Book.

His/Her first responsibility is to the safety of the staff dedicated to the implementation of fire actions by either direct, indirect means or by personnel support. The Duty Officer is also the primary person responsible for ensuring fire management actions are appropriate and minimize impacts and safeguard natural and cultural resources at risk. Also reference the annual Park Duty Officer delegation memo from the Superintendent.

The Park Duty Officer:

- Is on call 24 hours a day, until relieved or the duty is accepted by another qualified person that is identified to the Fire and Aviation Dispatch Center (700F).
- Coordinates daily with 700F and all assigned resources, and is directly available to the dispatch center by radio, cell phone, or other means.
- Is responsible for ensuring adequate initial attack forces are available to meet identified needs based on current and forecasted conditions and sets priorities for wildland fire responses.
- Ensures resource availability and status is updated, known, and passed on to fire dispatch. Compiles information and provides a briefing and documents resource availability and status on the crew work roster.
- Ensures all incidents are managed in a safe and cost-effective manner.
- Documents all decisions and actions in preparation for transitioning to next Duty Officer.
- Assesses current conditions and implements authorized activities outlined in the Park's step-up plan.
- Recommends wildland fire response actions to the Fire Management Officer, Chief Park Ranger, and Superintendent.
- Completes reporting requirements to Park management and IMRO fire staffs.
- Assures that only fully qualified personnel are used in wildland fire operations.
- Monitors fires that are in transition phase to ensure plans are complete and the incident command system is clear and functioning.

- Monitors incidents to ensure the complexity is within the incident commander's qualifications.
- Coordinates, prepositions, sends, and orders fire and aviation resources in response to current and anticipated fire conditions.
- Reviews and approves Fire Program Supervisor's requests of overtime, comp. time, hazard pay, and other premium pay for work performed on wildland fires.
- Authorizes the use of management directed time-off to ensure the well being and safety of wildland fire personnel, as specified in the Interagency Incident Business Management Handbook and NWCG Work/Rest Guidelines.
- Represents Yellowstone National Park in the local Greater Yellowstone Area Coordinating Group in setting priorities and allocating resources for fire emergencies. Coordinates daily with GYA Cooperators during Planning Levels 3-5.
- Coordinates and provides all fire and prevention information needs to inform internal and external customers with necessary information.
- Monitors Parkwide fire behavior conditions, and oversees distribution of severity and step-up funding for Park wildland fire activities.
- Provides leadership in the development of Wildland Fire Decision Support System (WFDSS) as necessary.
- Authorizes the hiring of emergency firefighters in accordance with the Department of Interior Pay Plan for Emergency Workers.

Scheduling of the Duty Officer will be coordinated by the Park FMO or their acting. The Duty Officer can not leave the unit for another assignment or be directly assigned to a going incident without arranging for a replacement.

Please remember that the key reason for daily designation, during the fire season, is to ensure someone who is qualified and capable is available and will recognize changes in fire parameters that could pose a significant hazard to resources assigned in or adjacent to the Park. You are the goto person during activity to make decisions, set priorities, and relay information.

The following information specifies duties for the YELL Duty Officer and the timeframes needed:

1. Specify Duty Officer by name during morning briefing. This also may be accomplished utilizing a weekly Duty Officer schedule.
2. Review Fire Management Officer delegation to ensure any applicable tasks are completed.
3. Check staffing and ensure it is commensurate with fire weather and wildland fire indices as specified in the Park's step-up staffing plan.

4. Ensure Park fire resources notify 700F of their status and location if changes are not noted on the daily work roster.

5. Advise Park management, Chief Park Ranger, of any significant fire activity within or immediately adjacent to the Park. Ensures intelligence updates are made to IMRO Fire Duty Officer.
   - IMR Staff – FMO- Mike Davin, Dep. FMO-Brent Woffinden, Supervisory Fire Ecologist-Cody Wienk, Fuels Specialists- Andy Bundshuh and Jeff Hickerson.

6. Keep current on resource status including local interagency initial attack resources and incoming resources. Brief incoming Duty Officer of status of all resources and filled/unfilled resource orders. Ensure clear and effective transition from one Duty Officer to the other and 700F is notified upon change of DO.

7. Ensure incoming resources have received a good safety and situational briefing.

8. Ensure significant weather updates (i.e. severe thunderstorm watch/warning, hazardous weather outlook) as well as Fire Weather watches and Red Flag warnings issued by Riverton NWS Office will be broadcast on Park repeater to resources in the field as received. Confirm that resources received the messages.

9. Authorize extended staffing if necessary according to the Step-up plan, i.e. lightning forecast, red flag warnings, current fire activity.

Remember the key purpose of daily designation for this position, during the fire season, is to ensure someone who is qualified and capable is available and will recognize changes in fire parameters that could pose a significant hazard to resources assigned in or adjacent to the Park. You are the go to person for activity to make decisions, set priorities, and relay information.

2013 Duty Officers for the Park include:

John Cataldo, Assistant Fire Management Officer (Acting FMO)
X2182 office, 406-581-1890 cell

Wendy Hafer, Helicopter Program Manager
X2183 office, 406-581-9058 cell, 406-333-4760 home

Bill Mayer, Fuels Specialist
X2483 office, 406-579-9271 cell

Becky Smith, Fire Ecologist
X2474 office, 406-581-2413 cell

Tim Reid, Chief Ranger
X2170 office, 406-581-9543 cell

Appendix G – Preparedness Plan, Duty Officer Delegation

United States Department of the Interior
NATIONAL PARK SERVICE

YELLOWSTONE NATIONAL PARK
P. O. BOX 168
YELLOWSTONE NATIONAL PARK, WYOMING 82190

IN REPLY REFER TO:

Y14 (YELL 1573)

April 1, 2013

MEMORANDUM

To: Tim Reid, John Cataldo, Becky Smith, Wendy Hafer, and Bill Mayer

From: Superintendent, Yellowstone National Park

Subject: 2013 Yellowstone National Park Duty Officer

This memorandum is the delegation of authority for you to act in the capacity of the Park Duty Officer for the Wildland Fire Management program in Yellowstone National Park Wildland, when assigned. The Park Duty Officer is responsible for implementation of all aspects of the Wildland Fire Program.

The Park Duty Officer:

- Is on call 24 hours a day, until relieved or the duty is accepted by another qualified person that is identified to the Fire and Aviation Dispatch Center (700F).
- Coordinates daily with 700F and all assigned resources, and is directly available to the dispatch center by radio, phone, or other means.
- Is responsible for ensuring adequate initial attack forces are available to meet identified needs based on current and forecasted conditions.
- Sets priorities for wildland fire responses.
- Ensures resource availability and status is updated and known and serves as the primary contact for resource orders, and resource needs requested by the Park.
- Compiles information, provides daily briefings, and documents resource availability and status on the crew work roster.
- Ensures all incidents are managed in a safe and cost-effective manner.
- Coordinates all prescribed fire activities in Yellowstone National Park, in accordance with approved plans.
- Assesses current conditions and implements authorized activities in the Park's step-up staffing plan.
- Recommends actions to the Fire Management Officer, Chief Park Ranger and Superintendent.

- Completes reporting requirements to Park management and IMRO fire staffs.
- Updates the WFMI (fire reporting) database as needed.
- Assures that only fully qualified personnel are used in wildland fire operations.
- Monitors fires that are in transition phase to ensure plans are complete and the incident command system is clear and functioning.
- Monitors incidents to ensure the complexity is within the incident commander's qualifications.
- Coordinates, prepositions, sends, and orders fire and aviation resources in response to current and anticipated fire conditions.
- Reviews and approves Fire Program requests of overtime, compensation time, hazard pay, and other premium pay for work performed on wildland fires.
- Authorizes the use of management directed time-off to ensure the wellbeing and safety of wildland fire personnel, as specified in the Interagency Incident Management Handbook and Work/Rest Guidelines.
- Represents Yellowstone National Park in the local Greater Yellowstone Area Coordinating Group in setting priorities and allocating resources for fire emergencies. Coordinates daily with GYA Cooperators during Planning Levels 3-5 and as needed to promote positive relationships.
- Coordinates and provides all fire, prevention, and fire danger information needs to inform internal and external customers with necessary information.
- Monitors park-wide fire behavior conditions, and oversees distribution of severity funding for park wildland fire activities.
- Leads the team in the development of Wildland Fire Decision Support System (WFDSS) as necessary.
- Authorizes the hiring of emergency firefighters in accordance with the Department of Interior Pay Plan for Emergency Workers.

Scheduling of a qualified Duty Officer will be coordinated by the Park FMO or their acting. The minimum fire qualifications required for the Duty Officer at the Park's five staffing levels is identified in the Step-up Staffing Plan as Appendix O of the Park's Fire Management Plan. The Duty Officer cannot leave the unit for another assignment or be directly assigned to an active incident without arranging for a replacement.

Please remember that the key reason for daily designation, during the fire season, is to ensure someone who is qualified and capable is available and will recognize changes in fire conditions that could pose a significant hazard to resources assigned in or adjacent to the park. You are the go to person during activity to make decisions, set priorities, and relay information.

Thank you for your dedication to the program.

For Daniel N. Wenk
Superintendent, Yellowstone National Park

Appendix G – Preparedness Plan, FMO Delegation

Delegation of Authority
for
Yellowstone National Park
Fire & Aviation Management Officer

The Fire Management Officer for Yellowstone National Park is delegated authority to act on behalf of the Park Superintendent and Chief Ranger for the following duties and actions related to aviation, wildland fire and fuels management activities.
Items in italics and underlined are expectations of acting Duty Officers.

- *Ensure all incidents are managed in a safe and cost-effective manner.*
- *Coordinate all prescribed fire activities in Yellowstone National Park, in accordance with approved plans.*
- Formulate work plans and direct the implementation of non-fire fuels management activities in accordance with approved project proposals.
- *Assure that only fully qualified personnel are used in wildland fire operations.*
- Approve Red Cards in accordance with NWCG, NPS policy, and guidance identified in the most current version of "Interagency Standards for Fire and Fire Aviation Operations."
- Complete fire management preparedness reviews annually.
- Review and approve all debris disposal activities involving fire as the primary disposal method. (ref. RM-18, ch.7, Section 6.7)
- *Coordinate, preposition, send and order fire and aviation resources in response to current and anticipated fire conditions.*
- Request and oversee distribution of severity funding for park wildland fire activities and coordinate submissions with interagency partners.
- *Review and approve Fire Program Supervisor's requests of overtime, comp. time, hazard pay and other premium pay for work performed on wildland fires.*
- *Authorize the use of management directed time-off to ensure the well being and safety of wildland fire personnel, as specified in the Interagency Incident Management Handbook and Work/Rest Guidelines.*
- *Represent Yellowstone National Park in the local Multi-Agency Coordinating Group in setting priorities and allocating resources for fire emergencies. Coordinate daily with Greater Yellowstone Area Fire Management Cooperators during Planning Levels 3-5.*
- *Coordinate and provide all fire and prevention information needs to inform internal and external customers with necessary information.*

- Coordinate all fire funding accounts to assure agency and departmental fiscal guidelines are adhered to and targets are met.
- *Lead team in the development of Wildland Fire Decision Support System (WFDSS) as necessary.*
- *Authorize the hiring of Emergency Firefighters in accordance with the Department of Interior Pay Plan for Emergency Workers.*
- Serve as the Park's aviation officer overseeing implementation of the aviation management plan and day-to-day operations of the program.
- Serve as the uniform coordinator for the wildland fire program to approve the design and purchase of summer "fire T-shirts, ball caps and sweatshirts, using fire program analysis funds" per the Red Book, this cost shall not exceed $100.00 per person.

In the FMO's absence, the acting FMO will be delegated all responsibilities listed above.

Signature and Approval for 2013 Delegation of Authority for Yellowstone National Park
Fire and Aviation Management Officer

Prepared by: _____ Date: 4/2/13
Acting Fire Management Officer

Approved by: _____ Date: 4/10/2013
Chief Ranger

Approved by: _____ Date: 4/11/2013
Acting Superintendent

Appendix G – Preparedness Plan, Wildfire Initial Response Plan

Yellowstone National Park

Wildland Fire and Aviation Management Office

Wildfire Initial Response Plan

The following actions will be undertaken by the Fire Duty Officer in the event of a report of a wildfire in or that may imminently cross into or out of the Park. Time is critical if we are to retain a multitude of options as to how we ultimately manage a wildfire. Use your best judgment.

1- If the report comes from any source other than 700Fox Wildland Fire and Aviation Dispatch, call 700Fox and bring them immediately into the communication loop that we may have a new start in or adjacent to the Park. Stay in constant communication with 700Fox throughout this process as more information tends to trickle in after the initial report is received. Keep 700Fox updated and vice versa.

2- As long as the report seems somewhat credible based on reporting party and general account, send a text message to alert the Deputy Superintendent and Chief Park Ranger advising them of the potential new start. Include general smoke location and initial impression. This is currently Steve Iobst (406-581-4875) and Tim Reid (406-581-9543) respectively. If unable to contact them then contact Superintendent Dan Wenk (307-699-4976) and/or Deputy Chief Park Ranger Bonnie Schwartz (406-640-1550). One Park Agency Administrator (Supt. or Deputy Supt.) and the Chief Ranger's Office must participate in the initial fire response strategy meeting; it is critical to bring them into the conversation immediately. Err on the side of sending this text immediately and cancelling the alert later if the report is a false alarm. If the fire is adjacent to the Park or may leave the Park during it's lifespan, contact the Duty Officer and Agency Administrator with jurisdiction to ascertain their preferred management strategy for the incident, and establish good communication early on. The most effective way to locate the Duty Officer on an adjacent unit is to have 700Fox call their dispatch center and inquire. Most units have a multitude of Duty Officers and a lot of time can be wasted calling the wrong persons first. The Duty Officer will know who their Agency Administrator is on-call at the time.

3- For Park fires, next ascertain if the smoke report is indeed a wildfire and obtain a complete size-up by the least risky, practical manner possible. Due to the vastness of

the Park, this generally involves an IC flying out to the area of the smoke report in a helicopter for reconnaissance, but occasionally we get fires close enough to a road to hike in to them or get a size-up from a fixed-wing aircraft that is passing through or working in the Park. If the fire report is from a highly credible source and the location is likely fairly accurate you may move onto step 4 while the complete size-up is still being obtained. Generally speaking, location and time of year are the most important elements when determining the response to a wildfire. Whether the fire is a quarter acre or 2 is vastly less important at this point in the overall process.

4- Once the wildfire is confirmed, consult the first page of the Yellowstone-specific wildfire decision support tool located in the Duty Officer guide. If the fire is inside the Park, determine if it must be suppressed due to proximity to values at risk or any other element on page 1 of the tool. As the fire Duty Officer you always have the delegated authority from the Superintendent to suppress a fire that may threaten life or safety. If the fire must be suppressed, call 700Fox, notify them of this decision, and coordinate the appropriate suppression response through them. 700Fox also has a standing list of notifications that they make in the event of a new fire including the affected District Ranger and others. Confirm with 700Fox that these notifications are being made.

5- Whether the fire is in the Park or adjacent to it, the next step is to contact the Deputy Superintendent and Chief Park Ranger or their designee(s) and let them know if you consider the fire a candidate for long-term management under a monitoring or point protection strategy or if it should be immediately suppressed. If the fire is a candidate for long-term management schedule an initial response strategy meeting with them immediately to review page 2 of our wildfire decision support tool, and obtain the necessary Agency Administrator signatures. Ideally this meeting will take place within one hour of the initial smoke report. Additionally, the NWCG Risk and Complexity Assessment (RCA), also found in the Park's Duty Officer guide, should be completed at this time to help best inform this decision with the best available information for the incident.

6- Ensure that the text message and email notification regarding the new fire start has gone out to the established personnel list that is attached to this document. Everyone on that list is invited to partake in the initial response strategy meeting with the Agency Administrator and the CRO. However, few ever do outside of YCR staff, and, in the interest of time, the strategy meeting should not be delayed to accommodate additional participants outside of the CRO and Agency Administrator.

7- Based on the outcome of the meeting, coordinate the next operational step in the wildfire response through 700Fox for Park fires or contact the Duty Officer and Agency Administrator with jurisdiction with our decision whether or not to accept their fire onto the Park or vice versa.

8- Remember that all type 1, 2, and 3 fires in the Park must be entered into WFDSS and that any type 4 or 5 fire managed under a strategy other than suppression must be entered as well. 700Fox will make the initial WFDSS entry but the Duty Officer, FMO, IC, LTAN, SOPL, and/or Agency Administrator bear the brunt of the WFDSS workload from there forward.

9- Send an email to the *NPS YELL All Employees* and *NPS YELL Seasonal Employees* mailing lists by the end of the day which briefly describes the location of the new fire and how we intend to manage it.

YELL New Fire Notification E-mail List	
Name	E-mail
Al Nash	Al_Nash@nps.gov
Allison Klein	allison_klein@nps.gov
Amy Bartlett	amy_bartlett@nps.gov
Ann Rodman	ann_rodman@nps.gov
Becky Smith	becky_smith@nps.gov
Bill Mayer	Bill_Mayer@nps.gov
Bonnie Schwartz	bonnie_schwartz@nps.gov
Brandon Lipke	brandon_lipke@nps.gov
Carrie Guiles	cguiles@facebook.com
Dagan Klein	dagan_klein@nps.gov
Dan Hottle	dan_Hottle@nps.gov
Dan Reinhart	dan_reinhart@nps.gov
Dan Wenk	dan_wenk@nps.gov
David Hallac	david_hallac@nps.gov
Ed Folts	Ed_Folts@nps.gov
Ed Stark	holdenfire@aol.com
Georgia McAdams	georgia_mcadams@nps.gov
Ivan Kowski	ivan_kowski@nps.gov
John Cataldo	john_cataldo@nps.gov
Laura Dooley	laura_dooley@nps.gov
Roy Renkin	roy_renkin@nps.gov
Steve Iobst	Steve_Iobst@nps.gov
Tim Reid	Tim_Reid@nps.gov
Wendy Hafer	Wendy_Hafer@nps.gov
YELL Communications Center	yell_communications_center@nps.gov
YELL Public Affairs Office	Yell_public_affairs@nps.gov
IMR Duty Officer	nps.imr.fire@gmail.com

Appendix G – Preparedness Plan, Preparedness Timeline

Yellowstone N. P. - Office of Wildland Fire and Aviation

Annual Preparedness Timeline

Date	Preparedness Activity	Responsible Party
1st week of January	RT-130 and WCT schedule finalized	Dispatch
1st week of March	Ready Type 6 engines for response to pre-green up fires	AFMO
2nd week of March	Finish annual updates to aviation plans, waivers, & enhancements	FMO
1st week of April	Begin fuel sampling in Mammoth (weather permitting)	Fire Ecology
1st week of April	Annual duty officer delegations signed	FMO
1st week of April	Seasonal hiring completed	First-line supervisors
2nd week of April	Name plates for personal cubbies and t-shirts ordered	FMO
2nd week of April	18/8 STF employees EOD (PP10)	First-line supervisors
1st week of May	EMS kits reviewed for completeness	Helitack
1st week of May	JHA and MSDS binders updated as needed	AFMO
1st week of May	Begin fuels sampling Parkwide (weather permitting)	Fire Ecology
1st week of May	Fuel/weather intelligence board cleared of last season's data	Fire Ecology
1st week of May	13/13 STF employees EOD (PP11)	First-line supervisors
2nd week of May	Fire Cache Operations Guide updated and published	All / Dispatch
2nd week of May	Fire season outlook completed	FMO / Fire Ecology
2nd week of May	Handheld and mobile radio programming completed	Dispatch
2nd week of May	All fire vehicles in service at cache for summer	All
3rd week of May	Seasonal employees EOD (PP12)and receive program orientation	First-line supervisors
4th week of May	All cabin protection kits, mop-up kits, and pumps checked	Engine Foreman
1st week of June	Begin RAWS maintenance & update NFDRS plan and pocket card	Fire Ecology
1st week of June	Update step-up staffing plan if need be	FMO
1st week of June	Preparedness reviews	AFMO
1st week of June	Booster rotation schedule is posted and maintained	Duty Officer

1st week of June	Annual Interagency agreements/operating plans finalized with cooperators, and 7-day coverage staffing plan is finalized	FMO
1st week of June	Updated IQCS Cards issued to all fire cache staff	Dispatch
2nd week of June	Mammoth helibase and all interior helispots checked & in service	Helitack
2nd week of June	Handy Dandy, Type 3,4,5 Incident Organizer, Duty Officer Guide, Expanded Dispatch Plan, Aviation Mishap Plan, & call lists updated	Dispatch
2nd week of June	GVW of WCF Engines and Helitack vehicles checked & documented	Foremen
June 15	Exclusive-use Helicopter comes on contract , 7-day dispatch and duty officer coverage begins, 7-day staffing board is maintained	Duty Officers, Dispatch, & Helitack
June 15	Mt. Washburn lookout is staffed	Lookout
3rd week of June	LIBI pre-season meeting, delegations ,and FMP updates completed	AFMO
4th week of June	Submit annual FMP update and preparedness checklists to IMR RO	FMO
4th week of June	Complete RAWS maintenance	Fire Ecology
July 1st	Helitack training completed for STEP and short-haul	Helitack Foreman
September 30	Exclusive-use helicopter goes off contract	Helitack Foreman
September 30	Mt. Washburn lookout is winterized	Lookout
September 30	Seasonal COB if fire, step-up, or severity account not available	First-line supervisors

Appendix G – Preparedness Plan, Incident Delegation of Authority Example

Date:

Subject: Delegation of Authority

To: , Incident Commander

As of _____ hours on _____, I delegate the authority and responsibility for the management of

the _____ to Incident Commander
_____.

This delegation of authority carries with it the full range of responsibilities associated with the management of the continuing wildland fire response (contain, confine, control, monitoring, and/or point-protection strategies) and the necessary rehabilitation of effects directly related to these operations within the scope of applicable law, policy, and guideline.

You will have full authority and responsibility for managing the fire activities, strategies, and corresponding tactics in the framework of laws, agency policy, and direction provided by the agency administrator and /or his acting. Your primary responsibility is to organize and direct your assigned resources for the safe, efficient, and effective management the incident. You are accountable to Deputy Superintendent Steve Iobst or his acting.

Specific direction for this incident, covering management and environmental concerns, is:

1. Protection of human life, infrastructure, property, visitor experience, and developments is our highest priority task. Give special consideration for firefighter safety, especially with respect to aviation operations, vehicle driving, working with or near hazard trees, and potential entrapment. When in doubt, sacrifice acres not safety, in your strategic and tactical decisions. Conduct reconnaissance to locate and protect private lands, members of the public, and commercial outfitters. Limit public exposure to the incident by controlling road and trail accesses in and near the fire area as needed. Allowing fire to play it's natural role in the ecosystem is a high priority for the Park and should be encouraged, but not at the expense of safety and increased risk to life.

2. Use appropriate strategy and tactics to hold the fire within the boundaries of Yellowstone National Park, unless prior written approval and concurrence from the adjacent Agency Administrator is obtained for the incident to cross our shared boundary.

3. You are expected to execute a strategy that may include the full range of options (contain, confine, control, monitoring, and/or point-protection). Employ Minimum Impact Suppression Tactics (MIST). Chainsaws, fire-line explosives, and pump use are approved for use. Use of aerial retardant and foam will been approved through the Resource Advisor on a situational basis. Keep retardant and foam more than 300 feet away from any water source. Aquatic Invasive Species issues associated with aerial water delivery should be coordinated with the Resource Advisor.

4. Adhere to the Northern Rockies Work Environment Policy which defines the work environment as a healthy, productive, harassment-free environment where ALL employees, contractors, and the public we serve are valued and treated with dignity and respect.

5. Be cost effective; commensurate with values at risk.

6. Public information, including permittees in the immediate area, will be a responsibility of the Yellowstone Public Affairs Office (AL Nash) and/or their representative assigned to the complex. All news releases shall be vetted through the Superintendent's Office prior to release. Ensure prompt and accurate communication with YNP Public Affairs Office and contacts identified by that office. Also, GIS information and data needs to be passed along to the Yellowstone Spatial Analysis Center, (contact Ann Rodman) as time allows.

7. Monitor cumulative fatigue, ensure all assigned incident personnel receive adequate rest as outlined in the NWCG 2:1 work/rest policy. Any operational period in excess of 16 hours requires documentation along with measures initiated to reduced fatigue. Shifts in excess of 24 should be avoided.

8. Notify us of any accidents or unusual events such as Safecoms, Safenets, or close calls.

9. Rehabilitation of lines and disturbances caused by fire operations will be planned and initiated before release of the IC and/or incident management team. These standards will be provided to you by the Yellowstone Resource Management Staff.

10. Because this is occupied grizzly bear habitat, follow bear safety guidelines.

11. Provide opportunities for training assignments when appropriate.

12. We expect you to place a high priority on property accountability. Loss of durable property from the cache system should not exceed 8%. All durable property from the cache system should be returned for credit. Durable property losses must be identified and discussed with Line Officer Reps or IBAs prior to close-out. The location, identifiers, and ownership of durable property left in the field upon re-delegation to the Park will be documented via list and/or map.

13. Incident Management and Environmental Sustainability. Seek opportunities to reduce unnecessary waste and limit impacts associated with management actions. This may be accomplished, for example, by promoting recycling through the Park's Green Team and minimizing the dependency on bottled water.

Key contacts:

- Agency Representative / FMO: John Cataldo, 406 581-1890
- Agency Administrator / Deputy Superintendent: Steve Iobst, 406-581-4875
- Chief Park Ranger: Tim Reid, 406-581-9543
- District Ranger for the incident area:
- Primary Resource Advisor: Dan Reinhart, 307-344-2145, 406-581-9992
- Public Affairs Officer: Al Nash, (307) 344-2010, 406-223-7158

- Injured Firefighter Patient Advocate Team Leader: Tara Ross, 307-344-2881, 406-581-1644

_____

Dan Wenk YELL Superintendent Date

_____

Incident Commander Date

Wildland Fire Incident Organizer

Yellowstone National Park

Incident Name:		
Initial Report	Date:	Time:
Location (WGS84):	LAT:	LONG:
Fire Code:		

INCIDENT COMMANDER DOCUMENTATION:		
Name:	Date:	Time:
Name:	Date:	Time:
Name:	Date:	Time:

SIGNATURES:	
IC #1:	Date:
IC #2:	Date:
IC #3:	Date:
Return to FMO upon completion	

8/14/2019

Initial Action Fire Size-Up (transmit to dispatch in order given)

Fire Name: ____________ Fire Code: ____________

Date of Initial Action: ________ Time: ________ Elevation: ____________

Location(WGS84) Lat: ________ Long: ________

A. Character **% of Perimeter that is active:** ____

Smoldering Running Spotting Creeping Crowning Torching

B. Size: 0.1 acre 0.25—1 acre 1—5 acres 5+ acres

C. Wind Speed: None 0-5 mph 5-10 mph 10–20 mph 20+ mph Max Gust (mph)

D. Wind Direction: Down canyon Downslope Variable Up canyon Upslope

Direction: ____________

E. Fuel Type: Grass Douglas-fir Spruce/Fir Sagebrush Lodgepole

Whitebark Pine Reprod. Other (slash, P/J) ____________

F. Adjacent Fuel Grass Douglas-fir Spruce/Fir Sagebrush Lodgepole

Whitebark Pine Reprod. Other (slash, P/J) ____________

G. Aspect: North South East West NE NW SE SW Flat Ridgetop

H. Slope (%): Flat 0-20% 20-40% 40+

I. Position on Slope

Flat/Rolling Lower 1/3 Middle 1/3 Upper 1/3 Ridgetop Valley/Canyon Bottom

J. Spread Potential

Low Moderate High Extreme

K. Estimated # of Personnel to Control: ____________

L. Equipment Needs:

M. Special Information (structures threatened, special hazards, control problems, access):

N. ERC for Fuel Type ________ **Current Fire Danger** L M H VH E

O. What will you do for a lookout?____________

P. Will you have commo from and on the fire?____________

Q. What are your escape routes?____________

R. Where are your safety zones?____________

Incident Complexity Analysis (Type 3, 4, 5)

Fire Behavior	Y	N
Fuels extremely dry and susceptible to long-range spotting, or you are currently experiencing extreme fire behavior.		
Weather forecast indicating no significant relief or worsening conditions.		
Current or predicted fire behavior dictates indirect control strategy with large amounts of fuel within planned perimeter.		
Firefighter Safety		
Performance of firefighting resources is affected by cumulative fatigue.		
Overhead overextended mentally and/or physically.		
Communication is ineffective with tactical resources or dispatch.		
Organization		
Operations are at the limit of span of control.		
Incident action plans, briefings, etc. missing or poorly prepared.		
Variety of specialized operations, support personnel or equipment.		
Unable to properly staff air operations.		
Limited local resources available for initial attack.		
Heavy commitment of local resources to logistical support.		
Existing forces worked 24 hours without success.		
Resources unfamiliar with local conditions and tactics.		
Values to be protected		
Urban interface; structures, developments, recreational facilities, or potential for evacuation.		
Fire burning or threatening more than one jurisdiction and potential for unified command with different or conflicting management objectives.		
Unique natural resources, special-designation areas, critical municipal watershed, T&E species habitat, cultural value sites.		
Sensitive political concerns, media involvement, or controversial fire policy.		

If you have checked "Yes" on 3 or more of the analysis boxes, consider requesting the next level of incident management support.

BRIEFING CHECKLIST

SITUATION
☐ Fire name, location, map orientation, other incidents in area:
☐ Terrain influences
☐ Fuel type and conditions
☐ Fire weather (previous, current and expected): Winds, RH, temp, etc.
☐ Fire behavior (previous, current and expected):
Time of day, alignment of slope and wind, etc.
MISSION/EXECUTION
☐ Command:
- Incident Commander/Immediate supervisor
☐ Commander's intent:
- Overall strategy, Objectives
☐ Specific tactical assignments:
☐ Contingency plans:
COMMUNICATIONS
☐ COMMUNICATION plan:
- Tactical, command, air-to-ground frequencies
Cell phone numbers
☐ Medivac plan:
SERVICE/SUPPORT
☐ Other resources:
- Working adjacent and those available to order
- Aviation operations
☐ Logistics:
- Transportation, Supplies and equipment
RISK MANAGEMENT
☐ Identify known hazards and risks:
☐ Identify control measures to eliminate hazards/reduce risk:
☐ - **MANDATORY – Anchor point and LCES**
☐ Identify trigger points for disengagement/re-evaluation of operational plan:

Questions or Concerns? Ask for Feedback!

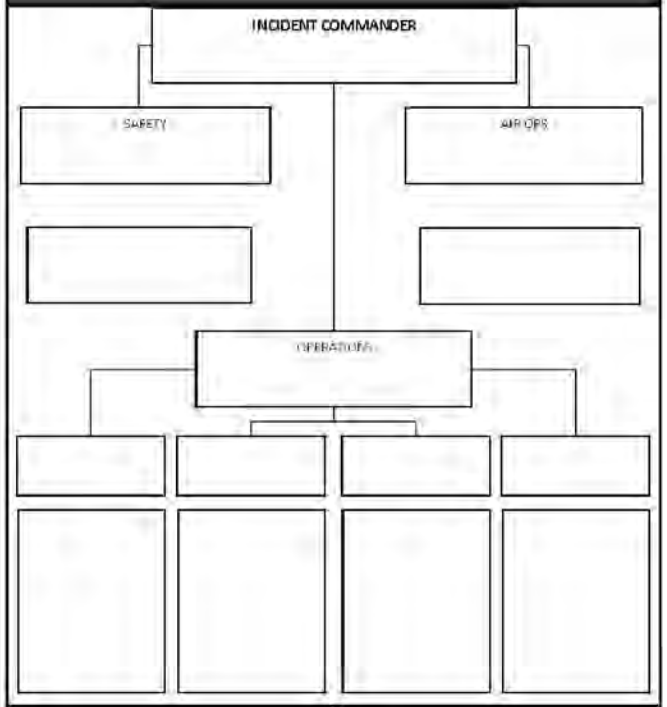
IC'S SHALL CONDUCT SAFETY INSPECTIONS ON EACH FIRE FOR COMPLIANCE W/ 10 STANDARD FIRE ORDERS & MITIGATION OF 18 WATCH OUT SITUATIONS AND DOCUMENT BELOW:

Evaluate	FIRE ORDERS
	Keep informed on fire weather conditions and forecasts.
	Know what your fire is doing at all times.
	Base all actions on current and expected behavior of the fire.
	Identify escape routes and safety zones, and make them known.
	Post lookouts when there is possible danger.
	Be alert. Keep calm. Think clearly. Act decisively.
	Maintain prompt communication with your forces, your supervisor, and adjoining forces.
	Give clear instructions and be sure they are understood.
	Maintain control of your forces at all times.
	Fight fire aggressively, having provided for safety first.
Present? **Mitigated**	**18 FIRE SITUATIONS THAT SHOUT "WATCH OUT"**
	Fire not scouted and sized up.
	In country not seen in daylight.
	Safety zones and escape routes not identified.
	Unfamiliar w/ weather & local factors influencing fire behavior.
	Uninformed on strategy, tactics and hazards.
	Instructions and assignments not clear.
	No communications link with crewmembers or supervisor.
	Constructing line without a safe anchor point.
	Building fireline downhill with fire below.
	Attempting frontal assault on fire.
	Unburned fuels between you and fire.
	Cannot see main fire, not in contact with anyone who can.
	On a hillside where rolling material can ignite fuel below.
	Weather is becoming hotter and drier.
	Wind increases and/or changes direction.
	Getting frequent spot fires across the line.
	Terrain and fuels make escape to safety zones difficult.
	Taking a nap near fireline.
MITIGATION ACTIONS TAKEN:	

INCIDENT OBJECTIVES

1. Provide for Firefighter and Public Safety
2.
3.
4.

INCIDENT ORGANIZATION



(8)

MAP SKETCH

Prepared by:	Position:	Date/Time:

ICS 214 - Resource Summary

(Check work/rest status; clock starts at time duty day starts)

Resource Ordered	Time Ordered	Resource Assigned	Time On Scene	Location & Assignment	Duty Hours Start Time	Time Off Shift	Hours on Duty	Released Time & Date

ICS 214 Date: Operational Period:

TIME	ACTIONS

IC SIGNATURE:

Spot Weather Observations & Forecast Request

Requesting agency will furnish information for blocks 1 – 12

1. Name of Incident or Project	2. Control Agency	3. Request Made	
		Date:	Time:

4. Location: (Latitude, Longitude)	5. Drainage Name	6. Exposure/Aspect

7. Size of Incident or Project (ac.)	8. Elevation		9. Fuel Type	10. Project On:
	Top:	Bottom:		

11. Weather Conditions at Incident, project, or from RAWS:

Place	Elev.	Observation Date/Time	Wind Direction/ Velocity		Temperature				Sky Condition
			20 ft	Eye level	Dry bulb	Wet bulb	RH	DP	

Yellowstone Aviation Risk Analysis

Method	Y	N
Is this flight necessary?		
Is the mission plan in writing?		
Are all the participants current in appropriate aviation safety training?		
Are communications adequate?		
Is flight following established?		
Is this the best way to accomplish project objectives?		
Have all passengers and cargo been manifested?		
If a backcountry landing is anticipated, have you secured approval?		
Medium		
Is there potential for airspace conflict? Has it been mitigated?		
Are all the hazards identified and have you made them known?		
Can mission objectives be achieved without flying below 500 feet?		
Is predicted visibility within established flight minimums?		
Are predicted winds within established acceptable ranges?		
Can the mission be accomplished in the allotted time?		
Man		
Is the pilot carded for the mission?		
Is the pilot comfortable with mission requirements?		
Are you comfortable with the pilot's ability to complete the mission?		
Is one individual in charge of the requesting party? Who?		
You are not driven by an overwhelming sense of urgency?		
Can you justify your actions?		
Do you have your escape route?		
Has a load calculation been completed?		
Do all passengers have appropriate PPE?		
Will the flight be conducted within the pilot's duty limitations?		
Are adequate numbers of personnel assigned to conduct the mission?		
Have all participants received an aircraft briefing from the pilot?		
Has the pilot been adequately briefed to mission goals and the route?		
Is everyone involved comfortable with all portions of the mission?		
Has everyone had the opportunity to review the mission plan?		
Is everyone involved aware the pilot is in command of the mission?		
Is everyone aware they need not tolerate unsafe acts by the pilot?		
Machine		
Do you have adequate fuel?		
Is the aircraft carded for the mission?		
Is aircraft maintenance current and documented?		
If each of the questions can be answered "Yes", the mission has adequate planning and is a "go". If a "No" is recorded, the situation must be mitigated or the mission is a "no go".		

Medical Emergency Procedure

1. Determine the nature of the emergency.

2. If the emergency is a medical injury/illness, determine if the injury/illness is life threatening.

3. If the injury is life threatening, then clear designated frequency for emergency traffic.

4. Identify the on-scene point of contact by position and last name (i.e. TFLD Smith).

5. Ensure that the Medical Unit Leader is contacted immediately.

6. Identify number injured, patient assessment(s) and location (geographic and/or GPS coordinates).

7. Identify on-scene medical personnel by position and last name (i.e. EMT Jones).

8. Identify preferred method of patient transport.

9. Determine any additional resources or equipment needed.

10. Document all information received and transmitted on the radio or phone.

11. Document any changes in the on-scene point of contact or medical personnel as they occur.

Medical Emergency Pre-Plan

LANDING ZONES

Best EMS LZ (Lat/Long)_____/_____ Night OK? Y / N
Physical Description _____ Elev _____

Alternative EMS LZ: _____/_____ Night OK? Y / N
Physical Description _____ Elev _____

COMMUNICATIONS

Primary Radio Channel _____ Secondary _____

Cell Service? Y/N Best Cell Number _____

Sat Phone? Y/N Sat Phone # _____

GROUND ACCESS

Ground Access

Closest Trail: _____

Closest Trailhead/Vehicle Access: _____

Equipment/personnel needs for ground evac and misc info:

_____

_____

EQUIPMENT ON SCENE

___ EMT Jump Kit
___ Oxygen
___ Backboard
___ Wheeled Litter
___ Epi-Pen
___ AED
___ _____
___ _____

EMS PERSONNEL ON SCENE

Level	Name

Medical Incident Log

Date:____Time:_____Medical IC/POC:_____Contact #_____

EMS Provider:_____EMS Level_____

Location (Physical and/or Lat/Long):_____

Patient Information

Patient #_____ of _____

Age _____Weight _____Height _____Sex _____

IMMEDIATE or **DELAYED** **MEDICAL** or **TRAUMA**

Patient Medical Considerations

Time of Accident/Onset _____

Chief Complaint/Mechanism of Injury : _____

_____

LOC (A&O): x1 x2 x3 x4 UNRESPONSIVE

Vitals: Pulse_____ Resp _____BP _____O2Sat _____

Cap Refill_____ Pupils _____ Skin _____

Past Medical Hx: _____

Allergies: _____

Meds: _____

Physical Exam: _____

Treatment in Progress: _____

Preferred Method of Transport: _____

Additional Resources Needed: _____

Environmental Considerations

Current Weather: _____

Winds: _____ Visibility: _____ Temp: _____

Sunrise or Sunset: _____

Medical Incident Log

Date:____Time:_____Medical IC/POC:_____Contact #_____

EMS Provider:_____EMS Level_____

Location (Physical and/or Lat/Long):_____

Patient Information

Patient #_____ of _____

Age _____Weight _____Height _____Sex _____

IMMEDIATE or **DELAYED** **MEDICAL** or **TRAUMA**

Patient Medical Considerations

Time of Accident/Onset _____

Chief Complaint/Mechanism of Injury : _____

_____

LOC (A&O): x1 x2 x3 x4 UNRESPONSIVE

Vitals: Pulse_____ Resp _____BP _____O2Sat _____

Cap Refill_____ Pupils _____ Skin _____

Past Medical Hx: _____

Allergies: _____

Meds: _____

Physical Exam: _____

Treatment in Progress: _____

Preferred Method of Transport: _____

Additional Resources Needed: _____

Environmental Considerations

Current Weather: _____

Winds: _____ Visibility: _____ Temp: _____

Sunrise or Sunset: _____

Medical Incident Log

Date:_____Time:_____Medical IC/POC:_____Contact #_____

EMS Provider:_____EMS Level_____

Location (Physical and/or Lat/Long):_____

Patient Information

Patient #_____ of _____

Age _____Weight _____Height _____Sex _____

IMMEDIATE or **DELAYED** **MEDICAL** or **TRAUMA**

Patient Medical Considerations

Time of Accident/Onset _____

Chief Complaint/Mechanism of Injury : _____

_____

LOC (A&O): x1 x2 x3 x4 UNRESPONSIVE

Vitals: Pulse_____ Resp _____BP _____O2Sat _____

Cap Refill_____ Pupils _____ Skin _____

Past Medical Hx: _____

Allergies: _____

Meds: _____

Physical Exam: _____

Treatment in Progress: _____

Preferred Method of Transport: _____

Additional Resources Needed: _____

Environmental Considerations

Current Weather: _____

Winds: _____ Visibility:_____ Temp: _____

Sunrise or Sunset: _____

Appendix G – Preparedness Plan, Return of Incident Delegated Authority Example

United States Department of the Interior

NATIONAL PARK SERVICE
Yellowstone National Park
P.O. Box 168
Yellowstone National Park, WY 82190

RETURN OF DELEGATED AUTHORITY

The signing of this document returns the authority and responsibility for the management of the _____ incident to the Unit Administrator having protection responsibility for the land on which the fire is located.

It is mutually agreed, the objectives and management direction have been met and the _____ IMT/Incident Commander is hereby released.

Effective _____ _____

Date Time

_____

Incident Commander

_____

Agency Administrator

Appendix G – Preparedness Plan, Step-up Staffing Plan

WY-YNP Step-up Staffing Plan

Staffing Class / Preparedness Level	Energy Release Component (ERC)	General Description Of Park-wide Conditions	List of Authorized Duty Officer Actions
1 - Low	0 - 16	• 1000 hour fuels wet (>20% FMC) • Annual and perennial vegetation is still green • Fire growth potential is low	• Normal work tours • RAWS maintained and operational • Fuels sampling program on schedule
2 - Moderate	17 - 32	• 1000 hour fuels drying (15– 20% FMC) • Annual and perennial vegetation is curing	• Fire Duty Officer designated daily – Single Resource Boss & ICT4 minimum • Fire Danger Rating posted on Park's morning report • Rating updated on our fire danger signs at the Park entrances
3 - High	33 -51	• 1000 hour fuels drying (12–14% FMC) and will begin to carry fire • Live herbaceous fuels are 75% cured	• 7 day staffing of Fire and Aviation Dispatch • 7 day staffing of a Type 3 helicopter (minimum 1 HMGB & ICT4 + 2 HECM) • 7 day staffing of a Type VI Engine or IA module (minimum 1 ICT5 + 2 FFT2) • 7 day staffing of the Mt. Washburn lookout • Aerial detection flights if warranted • Fire Duty Officer = TFLD & ICT4 minimum
4 - Very High	52 -62	• Live herbaceous fuels are 100% cured • 1000 fuels (10- 12% FMC) will actively carry fire • Ignition Component is high • Potential for moderate to high fire growth; fires burn intensely with short-range spotting probable	• Extended staffing tours (hours and days) • Consider Stage 1 (backcountry campsite) fire restrictions • Fire Duty Officer = DIVS(t), ICT3(t) minimum
5 - Extreme	>63	• 1000 hour fuels are extremely dry (<10% FMC) • Potential for large to extreme fire growth with long-range spotting	• Consider Stage 2 (backcountry campsite and front country campground) fire restrictions and area closures • Fire Duty Officer = DIVS(t), ICT3(t) minimum

The agency directed climatic breakpoints of 90% and 97% do not correlate well to fire business; therefore fire business thresholds have been utilized to help determine staffing class. Fire business thresholds are values of one or more fire weather and fire danger indices which have been statistically related to the occurrence of fires (fire business). Data are for the Quadrant RAWS from April 1 through October 31 from 1991 through 2012. All of the staffing classes are cumulative. Actions authorized in a lower staffing class are authorized during all of the subsequent higher staffing classes. Special

circumstances which may prompt and authorize the Fire Duty Officer to elevate the Staffing Class and corresponding Preparedness Level include but are not limited to:

1- Forecasted Red Flag weather conditions in the Park or adjacent lands
2- Forecasted Lightning Activity Level (LAL) of 2 or higher for the Park
3- Depleted primary Park firefighting resources
4- Holiday weekend or other high visitor use event
5- Suspected or confirmed arsonist operating within the GYA

Appendix G – Preparedness Plan, Park Specific Wildfire Decision Tool

Yellowstone N.P. Wildfire Decision Support Tool - Page 1

Page 1 is a checklist to assess whether or not the situation warrants continuation to Page 2. A "Yes" response to any element on this checklist indicates that the initial response should be to implement a suppression strategy.

	Incident Name and Number:	_____	

Decision Element	**Yes**	**No**
Is fire human caused?		
Is the fire located in a predetermined Suppression Zone identified in the Fire Management Plan?		
Will choosing to not fully suppress this wildlfire fail to meet fire management plan objectives?		
Will the fire adversely affect a developed area in a manner that can not be mitigated?		
Will the fire likely pose an unacceptably high threat to firefighter or public safety, property, or resources that cannot be mitigated to the satisafaction of the Duty Officer, Chief Ranger's Office, or Superintendent's Offce?		
Are there any other Park management issues (socio-political, resource, management) that preclude the successful long-term management of this wildlfire under a strategy other than full suppression?		
Is there other proximate incident activity in or near the park which limits or precludes the successful management of this wildfire?		
Will the fire likely spread out of the Park and onto an adjacent landowner whom is unwilling to accept the fire onto their lands?		

Recommended Action (initial appropriate box)		
	Implemenent a suppression strategy	
	Continue to Page 2 of this Yellowstone N.P. Wildfire Decision Support Tool	

Agency Administrator's name:_____Title:_____

Agency Administrator's Signature:_____Date:_____

Note: In the interest of time, suppression actions may be intiated without Agency Administrator signature

Yellowstone N.P. Wildfire Decision Support Tool - Page 2												
Circle Best Response to each category												
Current and anticipated location of the fire												
			Favorable				Unfavorable					
Yellowstone NP Staffing Level (based on Quadrant RAWS ERC)			ERC 0-51				ERC 52-Max (SL4 & SL5)					
			(SL1, 2, 3)									
			Favorable				Unfavorable					
Time of year							July and August					
			Anytime other than July and August									
			Favorable				Unfavorable					
National Preparedness Level			1, 2, 3				4, 5					
			Favorable				Unfavorable					
1000 hour fuel moisture at nearest representative log weighing station			> 12				≤ 12					
			Favorable				Unfavorable					
Drought intensity http://www.drought.unl.edu / dm/monitor.html			none, abnormaly dry, moderate				severe, extreme, or exceptional					
			Favorable				Unfavorable					
Live fuel moisture of fire carrier (whortleberry, sedge, grass, sage, timber)							Below average					
			Above average to average									
			Favorable				Unfavorable					
Anticipated Incident Complexity Level derived from RCA			3,4, and 5				1 and 2					
			Favorable				Unfavorable					
Recommended wildfire response is as follows: Confine, Contain, and /or Control Strategy *: ≥ 5 unfavorable conditions* *Monitoring and/or Point Protection Strategy: 4 or less unfavorable conditions* *Attach additional documentation if responding in a manner that is inconsistent with this matrix's recommendation. Upload this entire document into WFDSS.*											**Total # Unfavorable Conditions**	
The recommended response for this fire is:												
Agency Administrator's's Name_____ Title_____												
Agency Administrator's Signature_____Date_____												

Appendix I Part A – Fire Prevention Plan

Fire Prevention Plan

GENERAL ACTIONS

The following general action items have been identified as elements in the Yellowstone Park Fire Prevention Program. The fire prevention analysis identified actions that will be taken to address the major causes of human caused fires in Yellowstone in the past. The main causes of human-caused fires in Yellowstone National Park are unattended campfires, discarded smoking material, and power line related issues.

The responsibility for implementation of the Fire Prevention Action Plan will reside with the Wildland Fire Management Office. Additionally the Fire Management Officer should enlist the assistance of pertinent park staff and subject matter experts such that fire prevention is a Park-wide program with broad based ownership supported by adequate management and technical expertise.

1. **General Prevention Message Dissemination**
   A general fire prevention message will be developed and may be included in the Park newspaper, fishing regulation handout, broadcast on the Park radio, included on the Park internet website, and/or posted on the bulletin board of each campground, fire wood concession woodshed, and visitor centers.

2. **Backcountry User Provision**
   A general fire prevention message will be developed for users of the backcountry. This message will, be incorporated into the Backcountry Office's informational and educational programs. It should be included in the backcountry permitting process, posted at trailheads, included in the "Beyond Roads End" booklet, and included into the backcountry video program and internal backcountry situation report.

3. **Outfitters and other Special Use Groups**
   A general fire prevention message will be developed targeting outfitters and special use groups.

4. **Prevention Message Posting Locations**
   Fire danger signs will be located at entrance stations and the current fire danger adjective class and any fire restrictions will be included in the morning report. Fire danger information will be included in fire information and media releases throughout the fire season. This information may also be posted in the visitor centers at the bottom of the daily weather forecast and at trailhead registration locations during periods of "Very High" or worse fire danger.

5. **Training**
   Fire prevention training courses will be pursued as time and funding allows. All initial attack incident commanders will strive to take the 6-hour FI-110 course, Wildland Fire Observations and Origin Scene Protection for First Responders. A fire prevention message may be incorporated into the seasonal employee orientation program.

6. **Prevention Outreach**
   Fire prevention programs may be developed and presented to local schools, communities, and private landowners. These efforts will be coordinated with the U.S. Forest Service fire prevention program in the surrounding Yellowstone area.

7. **Power Line Consideration**
   A Memorandum of Understanding will be developed with Montana Power Company to address inspection and removal of hazard trees along the power line corridor, pursue conversion of above-ground power lines to underground, installation of fault interruption equipment, and a plan for patrol of the power line corridor following major wind events to detect trees across lines.

8. **Fire Restrictions Guide**
   A fire restrictions guide for the Park was developed in 2013 and is valid until superseded. It outlines the standing general fire restrictions and escalating stages of fire restrictions for the Park. It will serve to guide the implementation of fire restrictions in the Park.

Yellowstone National Park

Office of Wildland Fire and Aviation Management

Fire Restrictions Guide

valid until replaced

Prepared by : _____ Date: 7/26/13
Fire and Aviation Management Officer

Reviewed by: _____ Date: 8/23/2013
Chief Park Ranger

Approved by: _____ Date: 8/23/2013
Superintendent

Authorization

Authorization for the implementation of fire restrictions within the Park resides within 36 Code of Federal Regulations (CFR). 36 CFR 1.3 (penalties), 1.5 (closures and public use limits), 2.13 (fires), 2.21 (smoking), and 2.38 (explosives).

Park Fire Duty Officers are authorized to implement fire restrictions at wildland fire preparedness levels 4 and 5 of the Step-up Staffing Plan in the Park's Fire Management Plan.

Background

Fire restrictions help land management agencies reduce fire risk and prevent wildfires during periods of elevated fire danger. The Park is currently part of the Northern Rockies Coordinating Group's South Central Montana Restriction Coordination Area. However, an argument could be made that the Park should coordinate its fire restrictions and timing with any of the Forests, Parks, Refuges, and Lands that form the membership of the Greater Yellowstone Coordinating Committee. Accordingly, these guidelines and the language within them will attempt to enable the Park to coordinate, as well as possible, with all of our surrounding cooperators and partners.

Due to the fundamental differences in the activities permitted within the Park, simply adopting the language of our cooperators verbatim is a poor option. Much of the language in Forest Service restrictions, for example, addresses activities the public may not engage in within the Park. The following restrictions keep the language consistent with our cooperators to the extent possible, and honor the Park's differences in mission, vision, and values.

It is not uncommon for our fire restrictions to share space in a news release about the Park's fire situation and/or current fire danger level. In light of that, the restrictions herein are organized in a simple bullet format to the extent possible to facilitate inclusion into notices, reports, and releases. This will result in improved consistency in our message.

Process

All fire restriction notices will be developed in conjunction with the Public Affairs Office (PAO) and routed through the Superintendent's Office for approval prior to release and distribution by the PAO. The Fire Management Officer or designee serves as the Park's representative to the surrounding land management agencies in terms of fire restrictions timing and coordination.

General Restrictions

Yellowstone National Park visitors and residents are never permitted to engage in any of the the following activities which could lead to a wildland fire:

1. Discharge of fireworks or firearms
2. Use of explosives or pyrotechnic devices
3. Abandoning or failing to attend a campfire
4. Driving a vehicle off-road
5. Smoking in all thermal areas and all posted and designated areas such as trails
6. Wood fires at the Fishing Bridge RV Park, Shoshone Lake backcountry campsites or any backcountry campsite without a provided rock or metal fire ring.

Visitors are reminded that negligently starting a wildland fire may result in fines and/or imprisonment. Open fires are only permitted in designated fire rings, grills, barbecue, or grates in the eleven developed campgrounds, some backcountry campsites, and employee residential areas. Self-contained gas and charcoal grills are permitted. Charcoal and ash must be wetted, stirred, extinguished, and cold to the touch prior to leaving a campfire or grill unattended.

Stage 1 (Partial Fire Restrictions)

All of the general restrictions apply, with the addition of:

- Charcoal or wood fires of any sort that may produce ash or embers are prohibited at the Park's backcountry campsites. There is no restriction on fires in the eleven developed campgrounds, day-use picnic areas, and employee residential areas. The developed campgrounds are located in Madison, Mammoth, Norris, Tower Falls, Bridge Bay, Slough Creek, Canyon, Indian Creek, Pebble Creek, Lewis Lake, and Grant.

- Stoves and lanterns that use pressurized liquid, jellied petroleum, or gas fuel, and fully enclosed, sheep-herder type stoves with a ¼ inch spark-arrestor screen are permitted parkwide in areas which are barren or cleared of all overhead and surrounding flammable materials within three feet of the device.

- Smoking is not permitted except in an enclosed vehicle, single-family dwelling, developed campground, day-use picnic area, or within a three foot diameter area that is barren or cleared of all flammable material. Smoking is prohibited in the backcountry, except immediately adjacent to the provided fire ring or in the aforementioned barren or cleared area.

Stage 2 (Full Fire Restrictions)

All of the general restrictions apply, with the addition of:

- Charcoal or wood fires of any sort that may produce ash or embers are prohibited at the Park's backcountry campsites, eleven developed campgrounds, day-use picnic areas, and employee residential areas.

- Stoves and lanterns that use pressurized liquid, jellied petroleum, or gas fuel, and fully enclosed, sheep-herder type stoves with a ¼ inch spark-arrestor screen are permitted parkwide in areas which are barren or cleared of all overhead and surrounding flammable materials within three feet of the device.

- Smoking is not permitted except in an enclosed vehicle, single-family dwelling, developed campground, day-use picnic area, or within a three foot diameter area that is barren or cleared of all flammable material. Smoking is prohibited in the backcountry, except immediately adjacent to the provided fire ring or in the aforementioned barren or cleared area.

- Employees, concessionaires, permittees, contractors, and persons operating within the Park who are engaging in spark-producing activities including, but not limited to, road-side mowing, welding, grinding, blasting, powersaw, or heavy equipment operation in any area that is not barren or cleared at least 10 feet in diameter of all burnable vegetation shall consult with the Fire Management Office (307-344-2182) prior to starting their project to ensure adequate wildfire prevention measures are being taken. One round-point shovel with an overall length of at least 36 inches, a chemical pressurized fire extinguisher with a minimum rating of at least 2A, and a patrol of the work area for one hour after activities have ceased are recommended wildfire prevention measures.

- All internal and external combustion engines must have a spark arresting device in effective working order.

Closures

All of the general and stage 2 restrictions apply, with the addition of:

- During periods of extreme fire danger or incidents, areas of the Park will be closed to help eliminate the potential for a human-caused wildfire.

Appendix L Part A – 2013 YNP-GNF Annual Operating Plan

FY 2013
ANNUAL OPERATING PLAN

BETWEEN THE

U.S. DEPARTMENT OF AGRICULTURE
GALLATIN NATIONAL FOREST

AND THE

U.S. DEPARTMENT OF THE INTERIOR
YELLOWSTONE NATIONAL PARK

5/2/2013
Date

Daniel N. Wenk, Park Superintendent
Yellowstone National Park

3/29/13
Date

Mary Erickson, Forest Supervisor
Gallatin National Forest

Date of Last Revision: March 7, 2013

Expires on December 31, 2013

1

I. PURPOSE

The purpose of this agreement is to define a framework of cooperation for the operating procedures and responsibilities for wildland fire management between the USDI National Park Service, Yellowstone National Park and the USDA Forest Service, Gallatin National Forest, under the provisions of the Montana Cooperative Fire Management and Stafford Act Response Agreement (Montana Six-Party Coop Fire Agreement) and the Greater Yellowstone Area Interagency Fire Management Planning and Coordination Guide. Specifically, this plan outlines areas where operationally the two agencies can reduce redundancy, create the most effective geographic placement of resources, maximize skill base, skill level and knowledge, create a seamless response to incidents, create consistency in the fire program in terms of messages, policy, tactics, response and management, create seamless and boundary-less project planning, and utilize creative tools to support joint operations and shared resources.

II. RECITALS (As stated in the Montana Six-Party Coop Fire Agreement)

A. The Agencies each maintain wildland fire protection organizations and wish to improve efficiency, effectiveness and limit duplication in wildland fire protection.

B. The Federal Agencies have entered into a National Interagency Agreement for Fire Management to cooperate in all aspects of fire management.

C. It is to the benefit of the Agencies to coordinate efforts on all wildland fire and aviation protection activities including, but not limited to: prevention, detection, suppression, training, aviation, dispatch, prescribed fire, and fuels management.

III. GENERAL PROVISIONS:

DUTY OFFICERS: Duty Officers (D.O.) that serve as on-call leadership and supervision for fire suppression response and that have the responsibility to provide oversight and support to personnel engaged on emergency incidents, shall be required to meet the following Interagency Fire Program Management (IFPM) qualifications: Incident Commander Type 3 (ICT3) and Division Group Supervisor (DIVS). The D.O. need not be currently qualified in the above positions; however, they must have been qualified in the positions at one time. Duty Officers for Park assignments must meet the criteria in the Park's step-up staffing plan (FMP appendix O.), and the Park is responsible for identifying the current required qualifications when requesting assistance.

It is recognized that there are differences in policy, procedures and personnel that make a unilateral decision to accept the other agency duty officer difficult. This plan will identify qualified and trainee duty officers for both agencies and opportunities to host a "guest duty officer" will be sought. A list of approved Duty Officers is found in Appendix B – Qualifications.

NPS Duty Officer requirement: Duty Officers will not fill any ICS incident command functions connected to any incident. In the event that the D.O. is required to accept an incident assignment, the FMO will ensure that another authorized D.O.is in place prior to the departure of the outgoing D.O. In the case of multiple unstaffed fires, both agencies agree that a duty officer may retain responsibility for assigning resources to these unstaffed fires. Each incident that has personnel assigned must have a designated incident commander that does not have duty officer responsibility. These and additional expectations of NPS duty officers can be found in the 2013 Redbook, Interagency Standards for Fire and Aviation Operations, Page 03-13. Per the Redbook, a delegation of authority should be obtained for guest duty officers serving on NPS lands.

INCIDENT INFORMATION: The agencies have jointly created talking points for the 2013 fire season. These talking points apply to both units and their approach to fire management. Both agencies agree to use and accept these unified messages to ensure consistency with information presented to media, the public, and other constituency groups. These messages are found in Appendix E.

Both agencies agree to share information resources, as needed and available, to meet initial and extended attack information needs. A list of qualified and trainee information officers and contact information is also found in Appendix E. Normal dispatching procedures shall apply to information resources to help ensure safety and accountability for these assets.

Work Capacity Test Administration: Work Capacity Test Administrators from either agency may conduct the WCT. All procedures identified in the "Work Capacity Test Administrator's Guide" must be adhered to. Where discrepancies exist, the employees' hiring agency policy must be followed.

COMMUNICATIONS: The agencies are permitted to utilize each other's radio frequencies as well as access to internet via government computers and telephones for safety and wildland fire operations. All applicable security rules and clearance will be adhered to. Some areas on Forest Service land may have poor to non-existent radio communications through Bozeman dispatch. Forest Service firefighters may contact Yellowstone Fire and Aviation Dispatch (700F) or the Yellowstone Communications Center (700) at any time. The same applies for NPS firefighters using Bozeman dispatch.

On mutual aid incidents, the host agency will decide which frequency to use. Options for tactical frequencies are listed in Appendix D.

Clear text should be used. No call signs, numbers, etc. The person calling dispatch shall use their last name and identify themselves as a Gallatin or Yellowstone employee for the initial contact. Afterward, use only their last name.

DISPATCH CENTER: It will be the responsibility of both agency dispatch centers to have updated contact information for both wildland fire programs.

DETECTION AND DISPATCHING PROCEDURES: Ground and air patrols will cooperate in fire patrols and in the exchange of information on fires detected by or reported to them.

The agency receiving notification of a fire will immediately notify the jurisdictional agency. The respective agency dispatch offices will coordinate requests for movement of resources and equipment across agency and unit boundaries.

PROCUREMENT: Unless assigned to an incident, agency employees may not use their purchase card to support operations for the other agency.

SUPERVISION: While day to day supervision may be directed by either Forest Service or National Park Service employees, the official employee performance rating must be completed by the hiring agency unit supervisor.

VEHICLE OPERATION: Both agencies agree to accept the driving requirements of the other, thereby allowing Forest Service fire personnel to operate National Park Service vehicles and National Park Service fire personnel to operate Forest Service vehicles. All applicable state driving laws are still in effect. For example Commercial Driving Licenses requirements will apply to both agencies.

INTERAGENCY ENGINE MODULE: Both agencies have agreed to staff a type 6 engine with Forest Service and National Park Service personnel. The engine currently is owned by the NPS but the operating base for the engine may be at a Forest Service, National Park Service or State, County or local/municipal fire station. The engine module will go in-service with both (FS and NPS) dispatch centers and be supervised by a FS or NPS duty officer. The duty officers will be responsible for coordinating project work and fire assignments for this module.
**NPS-ENOP qualification. Both agencies agree to accept the NPS minimum standard for engine module configuration for in-park assignments. The 2013 red-book, page 03-14, recognizes the minimum qualifications on a type 6 engine as ENOP, FFT2. For out-of-Park assignments the minimum staffing shall be a qualified ENGB plus two FFT2 for a minimum of 3 personnel.

APPENDIX A

MUTUAL AID

MUTUAL AID AREAS and INITAL RESPONSE: The party or agency responsible for providing direct fire protection in a given area is referred to as the Protecting Agency or agency with jurisdiction. A party providing suppression assistance, or other support/resources to the Protecting Agency, is referred to as a Supporting Agency.

The Protecting Agency will not be required to reimburse the Supporting Agency for initial response actions taking place within a mutual response area within the first twenty-four (24) hours following initial dispatch of suppression resources. Any agreed upon assistance by the supporting agency beyond the initial 24 hours will be reimbursed and will follow the guidelines established in the Montana Six-Party Coop Fire Agreement.

INCIDENT COMMAND: For the purposes of initial attack the first Incident Commander (IC) on scene, qualified at any level *for either agency*, will assume the duties of initial attack incident commander. The IC will assume the duties and responsibility for all fire management efforts, up to their level of qualification, until relieved by an IC qualified at a level commensurate with incident complexity, arrives on scene.

UNIFIED COMMAND: When there is more than one agency with incident jurisdiction or when incidents cross political jurisdictions a unified command structure will be established. Unified command may be established at any level of incident management.

DISTANCE AND BOUNDARIES: Use of the closest forces concept, regardless of host agency is the goal of this agreement. For example, National Park Service employees may be the closest firefighting force for wildland fires in the Cooke City area and Forest Service employees may be the closest resources to West Yellowstone for west side fires.

COST SHARE AGREEMENTS: A Cost Share Agreement will be prepared by the responsible unit administrators or their authorized representatives when there is (1) a multi-jurisdictional incident or (2) and incident which threatens or burns across direct protections boundaries.

WILDLAND FIRE DECISION SUPPORT SYSTEM (WFDSS): Agency policy requires that each new wildland fire be entered into the Wildland Fire Decision Support System (WFDSS) program. Responsibility for development of WFDSS shall be the joint responsibility of the Agency Administrator from the agency with jurisdiction.

APPENDIX B

QUALIFICATIONS

DUTY OFFICERS

John Cataldo	YNP AFMO	406-581-1890
Bill Mayer (t)	YNP Fuels Specialist	406-579-9271
Mike Gagen	GNF FFMO	406-587-6717
Fred Jones	GNF FMO	406-522-2545
Ashley Sites	GNF FMO	406-823-6075

WORK CAPACITY TEST ADMINISTRATORS * List is not all inclusive

John Cataldo	YNP AFMO	406-581-1890
Wendy Hafer	YNP Helicopter Pgm. Mgr.	307-344-2183
Blake Chartier	YNP Lead Helo. Crew	307-344-2789
Bill Mayer	YNP Fuels Specialist	406-579-9271
Todd Opperman	GNF AFMO	406-823-6063
Tim Brickell	GNF AFMO	406-522-2546
Jeff Shanafelt	GNF Engine Crew Sup	406-823-6077

APPENDIX C

PHONE NUMBERS

Gallatin National Forest			
ADDRESS: P.O. Box 130 Bozeman, MT 59771		**NIGHT or 24 HOUR NUMBER:** 1-800-326-2454 (Answering service)	
ELECTRONIC ADDRESS: First initial last name@fs.fed.us		**TOLL FREE NUMBER:** 1-800-326-2454	
FIRE PHONE NUMBER: 406-587-6719/6718		**FAX:** 406-587-6977	
Name/Title	**Work Phone**	**Cell Phone**	**Home**
Mike Gagen Forest FMO	406-587-6717	406-223-1243	406-222-3393
Julie Shea Fire/Fuels Planner	406-587-6706	406-580-6717	406-585-7810
Fred Jones West Zone FMO	406-522-2545	406-580-5279	406-209-4909
Anna Anderson West Zone AFMO	406-823-6974	406-580-0448	406-646-4808
Tim Brickell West Zone AFMO	406-522-2546	406-580-3875	406-570-5478
Ashley Sites East Zone FMO	406-222-1892	406-223-0143	406-222-4498
Todd Opperman East Zone AFMO	406-823-6063	406-223-0322	406-581-2099
Greg Juvan East Zone AFMO	406-222-1892	406-570-6758	406-333-2250
Steve Christman Forest Aviation Officer	406-587-6893	406-539-3630	406-285-4286
Gaylen Yeates Dispatch Center Mgr	406-587-6921	406-539-7131	406-581-2264
Dennis Sheridan Asst. Disp. Center Mgr	406-587-6718	406-581-2681	
Scott Barndt Staff Officer	406-587-6711	406-581-2937	
Mary Erickson Forest Supervisor	406-587-6702	406-581-0711	

7

Yellowstone National Park			
ADDRESS: P.O. Box 168 Yellowstone National Park, WY 82190-0168		**NIGHT or 24 HOUR NUMBER:** (307) 344-2640	
ELECTRONIC ADDRESS: first_last name@nps.gov		**TOLL FREE NUMBER:**	
FIRE PHONE NUMBER: (307) 344-2181		**FAX:** 307-344-2184	
Name/Title	**Work Phone**	**Cell Phone**	**Home**
Vacant Fire Management Officer	307-344-2180		
John Cataldo AFMO	307-344-2182	406-581-1890	
Bill Mayer Fire Mgt. Spec. /Fuels	307-344-2483	406-579-9271	307-690-7509
Laura Dooley Fire Dispatcher	307-344-2181	406-581-4234	307-344-6577
Ed Folts Asst. Fire Dispatcher	307-344-2188	406-224-0705	406-848-7612
Wendy Hafer Helicopter Prgm. Mgr.	307-344-2183	406-581-9058	
Ryan Tripp Engine Foreman	307-344-2575	406-224-1727	
Becky Smith Fire Ecologist	307-344-2474	406-581-2413	
Tim Reid Chief Ranger	307-344-2170	406-581-9543	
Steve Iobst Dep. Park Supt.	307-344-2002/3	406-581-4875	
Dan Wenk Park Superintendent	307-344-2002/3	307-699-4976	307-344-9080

APPENDIX D

PRIMARY RADIO FREQUENCIES

AVIATION FREQUENCIES

	RECEIVE	TRANSMIT	MODE
	FREQ/TONE	FREQ/TONE	
National Flight Following	168.650/ 110.9	168.650/ 110.9	Narrow
Air Guard	168.625	168.625/ 110.9	Narrow
Air to Air- I.A. #1 (MT09)	127.2750	127.2750	
Air to Air- I.A. #2 (MT09)	127.9750	127.9750	
Air to Air- I.A. #3 (MT09)	133.7750	133.7750	
Air to Ground- I.A. #1(MT09)	168.0125	168.0125	Narrow
Air to Ground- I.A. #2 (MT09)	167.7000	167.7000	Narrow
TAN – Air to Ground-EMS-Lifeflight	155.340	155.340	Wide
Shenango Helibase	122.900	122.900	Victor-AM
West Yellowstone Tanker Base	123.975	123.975	Victor-AM

GALLATIN NATIONAL FOREST

		PRIMARY		REPEATER	
		RECEIVE	TRANSMIT	TRANSMIT	
		FREQ/TONE	FREQ/TONE	FREQ/TONE	MODE
West Zone	**Direct** - Bozeman	164.8250	164.8250/123.0		Narrow
	Direct Hebgen Lake	164.8250	164.8250/131.8		Narrow
	Bridger West	164.8250		169.9250/103.5	Narrow
	Cinnamon	164.8250		169.9250/146.2	Narrow
	Garnet	164.8250		169.9250/156.7	Narrow
	Horse Butte	164.8250		169.9250/136.5	Narrow
	Hyalite	164.8250		169.9250/110.9	Narrow
	Lone Mountain	164.8250		169.9250/123.0	Narrow
	Skyline	164.8250		169.9250/131.8	Narrow
	WZ - Tactical	168.6125	168.6125		Narrow
East Zone	**Direct** - Big Timber	171.5500	171.5500/110.9		Narrow
	Direct - Livingston	171.5500	171.5500/123.0		Narrow
	Direct - Gardiner	171.5500	171.5500/131.8		Narrow
	Bridger East	171.5500		164.1250/103.5	Narrow
	Contact	171.5500		164.1250/136.5	Narrow
	Crazy Mtn.	171.5500		164.1250/156.7	Narrow
	Eaglehead	171.5500		164.1250/123.0	Narrow
	Mill Cr.	171.5500		164.1250/107.2	Narrow
	Monument Peak	171.5500		164.1250/146.2	Narrow
	Sheep Mtn.	171.5500		164.1250/100.0	Narrow
	Tin Can	171.5500		164.1250/167.9	Narrow
	Trail Creek	171.5500		164.1250/110.9	Narrow
	Washburn	171.5500		164.1250/131.8	Narrow
	EZ - Tactical	163.7125	163.7125		Narrow

Note- GNF Tactical Frequency is the same as NPS Common Frequency listed below.

YELLOWSTONE NATIONAL PARK - NARROW BAND FREQUENCIES

		PRIMARY		REPEATER	
		RECEIVE	TRANSMIT	TRANSMIT	
		FREQ/TONE	FREQ/TONE	FREQ/TONE	MODE
FIRE CACHE OPS		172.500/103.5	172.500/103.5		Narrow
NORTH	Direct	166.3250/167.9	166.3250/167.9		Narrow
	North Rptr	166.3250/167.9		166.9250/167.9	Narrow
LAMAR	Direct	166.3750/192.8	166.3750/192.8		Narrow
	Lamar Rptr	166.3750/192.8		166.9750/192.8	Narrow
	Cooke Rptr	166.3750/179.9		166.9750/179.9	Narrow
SOUTH	Direct	165.5875/110.9	165.5875/110.9		Narrow
	South Rptr	165.5875/110.9		164.8000/110.9	Narrow
	Top Notch Rptr	165.5875/118.8		164.8000/118.8	Narrow
	Bechler Rptr	165.5875/127.3		164.8000/127.3	Narrow
WEST	Direct	166.8750/136.5	166.8750/136.5		Narrow
	West Rptr	166.8750/136.5		169.4000/136.5	Narrow
	Holmes Rptr	166.8750/146.2		169.4000/146.2	Narrow
SOA	Direct	167.1500/206.5	167.1500/206.5		Narrow
	SOA 1 Rptr	167.1500/206.5		163.1250/206.5	Narrow
	SOA 2 Rptr	167.1500/218.1		163.1250/218.1	Narrow
	SOA 3 Rptr	167.1500/229.1		163.1250/229.1	Narrow
Common	NPS Direct	168.6125/136.5	168.6125/136.5		Narrow

*Note- NPS Common Frequency is the same as the GNF Tactical Frequency listed above.

Mammoth Fire Cache - North - BK and Racal Portable Group

#	Name	Receive Freq. / Tone	Transmit Freq. / Tone	Band
1	Fire Cache Ops	172.5000 / 103.5	172.5000 / 103.5	Narrow
2	North Direct	166.3250 / 167.9	166.3250 / 167.9	Narrow
3	North Repeater	166.3250 / 167.9	166.9250 / 167.9	Narrow
4	Holmes Repeater	166.8750 / 146.2	169.4000 / 146.2	Narrow
5	Lamar Repeater	166.3750 / 192.8	166.9750 / 192.8	Narrow
6	Cooke Repeater	166.3750 / 179.9	166.9750 / 179.9	Narrow
7	Top Notch Repeater	165.5875 / 118.8	164.8000 / 118.8	Narrow
8	BZN East Zone Direct	171.5500	171.5500 / 123.0	Narrow
9	BZN West Zone Direct	164.8250	164.8250 / 123.0	Narrow
10	GNF/MT9 A/G Primary	168.0125	168.0125	Narrow
11	GNF/MT9/ A/G Second.	167.7000	167.7000	Narrow
12	GNF East Zone Tac	163.7125	163.7125	Narrow
13	GNF West Zone Tac	168.6125	168.6125	Narrow
14	MT Mutual Aid - Maroon	154.280	154.280	*Wide*
15	Common	168.6125 /136.5	168.6125 / 136.5	Narrow
16	SOA Direct	167.1500 / 206.5	167.1500 / 206.5	Narrow

APPENDIX E
Yellowstone National Park, Gallatin National Forest
Key Messages/Talking Points
Incident Information Officer Contact Information
Fire Season 2013

The Greater Yellowstone Area (GYA) is a fire adapted ecosystem. Fire plays an important role in maintaining the health of this area's wildlife habitat and vegetation.

Most fires occurring in the GYA are caused by lightning. These fires are managed to protect people and property, enhance the area's natural resources where appropriate, and safely and effectively use available firefighting resources.

Public and firefighter safety is always our first concern and priority. Sometimes it is not safe or effective to put firefighters or equipment on the fireline. In these situations, managers determine when they can safely and aggressively attack the fire.

Local fire managers work closely with state, federal and county partners to determine how best to manage a fire.

We work to suppress all human caused fires, focusing available firefighting resources to reduce the risk to people and property.

Sometimes, managers use fire proactively to protect people and property or to revitalize the land. These are called prescribed fires because they are carefully planned and managed to achieve specific goals and objectives. They are conducted during optimum weather conditions and firefighting resources are positioned prior to ignition to control the extent and severity of the fire.

In the unlikely event that a prescribed fire burns out of control, suppression actions begin immediately. Part of the planning effort prior to a prescribed burn includes identifying resources and actions should suppression be necessary.

There are a limited number of firefighters, helicopters, engines and air tankers available. During a busy fire season, there is often more demand than there are resources available. This can affect how a fire is managed.

12

Information Officer Contacts

Who	Agency	Type	Contact Info.	e-mail
Al Nash NPS Chief Public Affairs Officer	YNP	PIO2	w (307) 344-2011 c (406) 581-9030 h (406) 223-7158	al_nash@nps.gov
Dan Hottle NPS Public Affairs Office	YNP	PIOF PIO2 (t)	w (307) 344-2012 c (406) 581-4239	dan_hottle@nps.gov
Brian Suderman North District Interpretive Ranger	YNP	PIO2 (t)	w (307) 344-2255	brian_suderman@nps.gov
Traci Weaver Education, Prevention and Information Specialist	YNP/GTNP/GNP	PIO1	w (307) 739-3692 c (307) 690-1128	traci_weaver@nps.gov
Marna Daley Public Affairs Officer	GNF	PIO2	w (406) 587-6703 c (406) 570-5526 h (406) 586-5651	mdaley@fs.fed.us
Kimberly Schlenker Rec & Wilderness Program Manager	GNF	PIO2	w (406) 587-6743 c (406) 580-9543 h (406) 587-9000	kschlenker@fs.fed.us
Jodie Canfield Wildlife Program Manager	GNF	PIO2	w (406) 587-6739 c (406) 570-3650	jecanfield@fs.fed.us
Marianne Baumberger West Zone Fire Prevention Technician	GNF	PIO2	w (406) 522-2549 c (406) 579-3732 h (406) 388-7263	mbaumberger@fs.fed.us
Karen Tuscano East Zone Fire Prevention Technician	GNF	PIO3	w (406) 932-5155 c (406) 930-0955	ktuscano@fs.fed.us

Other information:

Agreements the Gallatin National Forest and Yellowstone National Park currently operate under:

- Interagency Agreement between the United States Department of the Interior and the United States Department of Agriculture
- Montana Cooperative Fire Management and Stafford Act Response Agreement, 2011-2015
- 2011-2015 Statewide Operating Plan
- South Central Zone Cooperative Fire Management Agreement, 2011
- Greater Yellowstone Area Interagency Fire Management, Planning and Coordination Guide - 2010

Great Yellowstone Area Fire Management Advisory Group

Greater Yellowstone Area Interagency Fire Management Planning and Coordination Guide

Annual Operating Plan
Preparedness Plan

June 2013

I. Introduction

The Greater Yellowstone Area (GYA) includes portions of six National Forests, two National Wildlife Refuges (NWR), two National Parks and portions of Bureau of Land Management (BLM) lands in three states. Contiguous portions of these Parks, Refuges, BLM lands and Forests encompass roughly 14.0 million acres, plus state and privately owned lands. This vast area lies within three states – Montana, Idaho and Wyoming – and includes all or parts of 21 counties.

Since their establishment, the various agencies have had different management mandates. National Parks were founded upon the principles of preservation, public enjoyment, and non-interference with natural processes. National Forests were established on conservation principles and the wise multiple-use of natural resources. National Wildlife Refuges were established specifically to meet the conservation and management needs of specific wildlife species. The Bureau of Land Management has a multiple-use mission while protecting a wide array of natural, cultural and historic resources.

In the early 1960's, National Forest and Park managers in the GYA recognized the need to coordinate a number of issues and programs which crossed jurisdictional boundaries. The Greater Yellowstone Coordinating Committee (GYCC) was borne of this need and includes the following: The agency administrators of the Beaverhead-Deerlodge, Custer, Gallatin, Shoshone, Caribou-Targhee, and Bridger-Teton National Forests and Grand Teton, John D. Rockefeller Jr. Memorial Parkway and Yellowstone National Parks. In 1999, Red Rock Lakes and the National Elk Refuge joined the GYCC and are represented on the committee by their respective managers. The BLM joined the GYCC in 2012. The GYCC will select one of their members to serves as a liaison between the GYA Fire Management Advisory Group (FMAG) and the GYCC.

In the summer of 1988 the Greater Yellowstone Area experienced an unprecedented fire season. It has long been recognized that fire had been a major element in shaping soil, physiographic, vegetation, and wildlife patterns throughout the area and research has documented large scale fires occurring every 300-400 years in the GYA. Yet never before, in the post-European settlement history of the area, had such large and fast moving fires been experienced. The 1988 fire season led to a nationwide debate about fire management policy on federal lands and specifically about National Park Service and Forest Service policy, which allowed some fires to burn as “prescribed natural fires”.

In response to this public debate, in September of 1988, the Secretaries of Agriculture and Interior appointed a Fire Management Policy Review Team. The Team examined existing federal fire policies, individual unit fire management plans, and held public meetings across the United States. In May 1989, the Team concluded their report, which noted “the objectives of prescribed natural fire programs in national parks and wildernesses are sound, but that policies need to be refined, strengthened and reaffirmed”. The Team provided 15 recommendations for improving federal fire management programs, The Fire Management Policy Review Team recommendations were approved by the Secretaries of Agriculture and Interior, and were adopted as policy by the National Park Service, Fish and Wildlife Service and Forest Service, incorporated into agency directives, and serve as the framework for the G*reater Yellowstone Area Interagency Fire Management Planning and Coordination Guide.*

The South Canyon, Thirty-mile, Cramer and other incidents created renewed awareness and concern among Federal land management agencies and constituents about safety, the impacts of wildland fire, and the integration of fire and resource management. In response to specific recommendations from the South Canyon Fire Interagency Management Review Team report, the Federal Wildland Fire Management Policy and Program Review was chartered and

completed in 1995. This report provided nine guiding principles that are fundamental to Federal wildland fire management program success:

- Firefighter and public safety is the first priority in every fire management activity.
- The role of wildland fire as an essential ecological process and natural change agent will be incorporated into the planning process.
- Fire management plans; programs, and activities support land and resource management plans and their importance.
- Sound risk management is a foundation for all fire management activities.
- Fire management programs and activities are economically viable, based upon values to be protected, costs, and land and resource management objectives.
- Fire management plans must be based on the best available science.
- Fire management plans and activities incorporate public health and environmental quality considerations.
- Federal, Tribal, State, and local interagency coordination and cooperation are essential.
- Standardization of policies and procedures among Federal agencies is an ongoing objective.

The 1995 Review, along with the South Canyon, Thirty-mile and Cramer Abatement Action Plans, represent the latest stages in the evolution of wildland fire management, and provide policy direction for the management of wildland fires. The Secretaries of Interior and Agriculture convened these reviews to reaffirm and ensure that uniform Federal policies and cohesive, cooperative interagency and intergovernmental fire management programs exist (*Federal Wildland Fire Management Policy (2001)*, and the *2009 Guidance for Implementation of the Federal Wildland Fire Management Policy).*

The *Federal Wildland Fire Management Policy* (2001) also recommends 17 Federal wildland fire policies in the areas of: safety, planning, preparedness, suppression, prevention, protection priorities, standardization, wildland/urban interface, and agency administration and employee roles, fire management and ecosystem sustainability, response to wildland fire, use of wildland fire, rehabilitation and restoration, science, communication and education, interagency cooperation and coordination, and evaluation.

The *Federal Wildland Fire Management Policy (2001)* and the Guidance for Implementation of Federal Wildland Fire Management Policy (2009) directs Federal agencies to achieve a balance between suppression to protect life, property, and resources, and management of fire to regulate fuels and maintain healthy ecosystems. In 2009, wildland fire was categorized into two distinct types: (1) wildfire – unplanned ignitions and planned ignitions that are declared wildfires and; (2) prescribed fires – planned ignitions. Another change in Federal Fire policy is a wildland fire may be concurrently managed for one or more objectives and those objectives can change as the fire spreads across the landscape, encountering new fuels, weather, social conditions and governmental jurisdictions.

II. Statement of Purpose

The purpose of GYA Interagency Fire Management Planning and Coordination Guide is to address fire management activities that are best addressed and implemented on a GYA-wide basis in a consistent manner. This document outlines specific operational procedures for use in monitoring the overall fire situation in the GYA during the fire season. These procedures allow

the GYCC to fulfill its role of coordinating management of the National Forests, Refuges, BLM Lands and Parks within the GYA, while fulfilling the authority and legal obligations and responsibility of each agency. The Greater Yellowstone Coordinating Committee supports the guidelines and operational procedures outlined in this document as means of unifying and coordinating Greater Yellowstone Area Fire Management.

The Agreement for Wildland Fire Management among the BLM, BIA, NPS, FWS of the United States Department of the Interior and the Forest Service of the United States Department of Agriculture[1] provides the authority for developing the GYA Interagency Fire Management Planning and Coordination Guide which is intended to facilitate fire management activities that include planning and the ordering and sharing of resources for fire suppression, prescribed fire and other projects across multi-jurisdictional and geographic administrative boundaries of the Greater Yellowstone Area. The national Agreement will generally be in effect for a five-year period and is periodically reviewed and updated in accordance with agency policies.

A. Objectives

Specific objectives of this document are to:

1. Coordinate fire management planning between the National Forests, Refuges, BLM and Parks of the GYA.
2. Provide for specific operating principles and procedures that ensure effective interagency coordination and management of wildland fires and prescribed fires in the GYA.
3. Articulate the role of the National Forest, Refuge, BLM and Park managers of the Greater Yellowstone Coordinating Committee in GYA fire management.

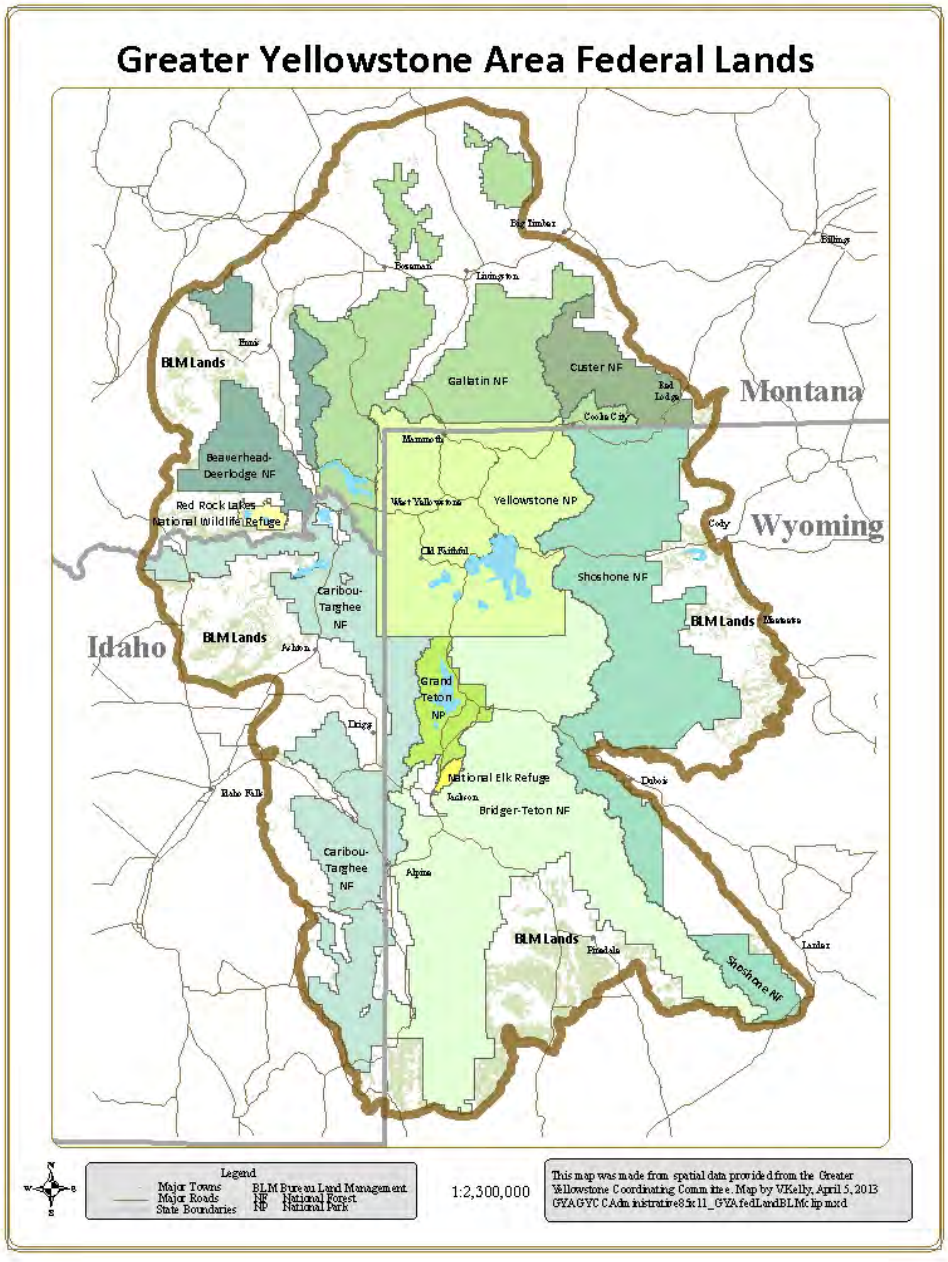
This is not a comprehensive planning document. It will not achieve levels of fire management planning required for individual units, nor is it designed to serve as a "master" fire management plan for the GYA. The responsibility to conduct professional level fire management planning remains with individual units, commensurate with their departmental and agency policies and guidelines.

B. Planning and Coordinating Area

The GYA area includes Grand Teton and Yellowstone National Parks, and John D. Rockefeller Jr. Memorial Parkway, the National Elk Refuge and Red Rock Lakes National Wildlife Refuge, and the entirety of the Bridger-Teton, Caribou-Targhee, Gallatin and Shoshone National Forests and the Beartooth Ranger District of the Custer NF and the Madison RD of the Beaverhead-Deerlodge NF, and BLM lands in three states (See Figure 1).

[1] BLM Agreement No. – L10PG00569; FS Agreement No. – 10-IA-1130206-032; FWS Agreement No. – 93252-A-H100; BIA Agreement No. – not assigned; NPS Agreement No. – G9560100055

Figure 1. Greater Yellowstone Area and administrative boundaries of federal land management units comprising the Greater Yellowstone Coordinating Committee.



III.AuthoritIES and responsibilities

A. Greater Yellowstone Coordinating Committee

The Greater Yellowstone Coordinating Committee (GYCC) is comprised of agency administrators from the ten federal land management entities within the Greater Yellowstone ecosystem. The GYCC agency administrators are responsible for land and resource management decisions which include oversight of fire management activities and incident management. The agency administrators have appointed fire managers to represent their units and serve on a sub-committee referred to as the Fire Management Advisory Group (FMAG). The GYCC will also appoint a liaison to the FMAG.
It is the role of the Greater Yellowstone Coordinating Committee to coordinate management of National Refuge, National Park, BLM and National Forest lands in the Greater Yellowstone Area and is within the legal mandates of each federal agency. The GYCC does not have line authority over individual Agency Administrators or units within the GYA. The GYCC is composed of the ten (10) GYA Land Management Agency Administrators. Decisions and agreements made by the GYCC are implemented through normal preset lines of authority within each agency.

B. Fire Management Advisory Group

The FMAG is comprised of fire managers that have been assigned by their respective agency administrators to the sub-committee. The fire managers are generally the unit fire staff officer or fire management officer. The functions of the FMAG include the following:

1. Serve as professional fire consultants to the GYCC and provide advice on management strategies for wildland and prescribed fire as requested.
2. Prepares and updates GYA Interagency Fire Management Planning and Coordination Guide. Submits guide to GYCC for approval.
3. Prepares and updates annual operating plan.
4. Provide GYCC recommendation on unacceptable risks posed by wildland or prescribed fire.
5. Provide GYCC recommendations on when fire circumstances warrants involvement of a GYCC representative on a Geographic MAC Group.
6. Provide GYCC recommendations on preparedness planning, severity operations, and fire restrictions coordination.
7. Conduct periodic coordination conference calls as necessary.
8. Coordinate agendas, speakers, and logistics necessary to conduct meetings.
9. Assure meeting and conference call documentation is completed following the formatted proceedings and notes.
10. Completes the Annual Report and presents findings to the GYCC.
11. Provides briefings to the GYCC as necessary.

A committee chairperson and co-chairperson will be assigned to coordinate the functions and activities of the FMAG. When the chair person is absent, the co-chair will take over the responsibilities of the chair. The committee chair and co-chair will be rotated among the units and serve a two year term.

The FMAG will update the GYA Interagency Fire Management Planning and Coordination Guide as needed and submit to the GYCC for approval. The associated GYA Fire Management Annual Operating Plan that describes the details regarding the commitments, actions and coordination associated with the sharing of resources between agencies will be reviewed and updated by the GYA fire managers prior to the fire season each year. The annual operating plan will also include a preparedness plan that describes the actions of the members during different levels of fire activity with the GYA.

IV. Planning and Coordination

A. General

A key component of individual fire management plans and a cornerstone of coordinated fire management in the GYA is conducting comprehensive joint planning along the boundaries of adjacent land management units and development of accepted fire management plans by all partnering units. Each unit will work closely with neighboring units in the development and/or revision of individual plan/plans as directed by this document. In addition, National Forest, National Wildlife Refuge, BLM and National Park managers are committed to the continuation of several specific operational procedures, which are intended to ensure a high level of interagency fire management planning and coordination in the GYA.

These include:

1. Hold semi-annual GYA Fire Management Advisory Group meetings (spring and fall).
2. Provide an interagency review process for new or revised NPS, F&WS, BLM and FS fire management plans, or portions of land use plans focused on wildland fire.
3. Maintain the GYA Fire Situation Report.
4. Adherence to the GYA Preparedness Plan.
5. The GYCC Fire Management Advisory Group (FMAG) serves as an ad hoc group of professional fire management consultants to the GYCC.
6. Maintaining a consistent management process for wildfires and prescribed fires as described in the Federal Wildland Fire Management Policy (2009).

B. Fire Management Plans

Individual units within the GYA are required to have fire management plans that meet agency standards and national policy. Individual fire management plans will incorporate GYA operating principles presented in this document as appropriate.

To complement the normal agency review and approval procedure the following opportunities to share information and gain peer input exists:

1. Units preparing or updating a fire management plan will coordinate and consult with adjacent GYA units on common issues that may influence fire management actions on each other's unit.

2. Fire management plans will be shared between all administrative units.

C. Spring and Fall Coordination Meetings

Fire Management Advisory Group will meet each spring and fall to review fire management planning status and operational procedures. Discussions may expand into areas of preseason conditions, fire season potential, operational reviews, situation and status reporting, mobilization and preparedness plans, prescribed fire, review of cooperative agreements, review of Coordination Guide for currency, land management planning, data base coordination, education, and media coordination.

The fall meeting will including highlights of the GYA fire season and status of annual goals and objectives results. Individual GYA units will coordinate and host the fall and spring meetings on a rotating basis. Forest Supervisors, Park Superintendents, Refuge Managers, District Managers and Regional Fire Staff are encouraged to attend. The group, including a chairperson and a co-chairperson, will be selected for a two-year term, at the annual spring FMO meeting.

D. Fire Season Coordination

The FMAG will be active during the fire season (June through September) and meet via conference calls as described in the Annual Operating and Preparedness Plans (Appendices A & B). The purpose of the conference calls are to share information regarding fire potential and activity; set preparedness levels and coordinate resource needs; and to coordinate the management of large, potentially large and/or complex fire incidents within the GYA. The composition of the FMAG participating group will be made up of a minimum of three GYA FMO's from two different agencies. Other federal, state, and local officials will be consulted as needed.

The minimum frequency of the conference calls is described for each preparedness level in the Preparedness Plan. The Committee Chair will monitor the GYA Situation Report on a daily basis during the fire season and will activate the conference calls as soon as conditions warrant and set the frequency of calls (The more complex the fire activity, the more frequent the calls). Once activated, the FMAG will assess the overall fire situation in the GYA on a periodic basis relative to the fire activity and complexity. The FMAG will make recommendations to the affected Agency Administrator(s) based on local, regional, and national fire situations; resource availability; current and projected fire behavior; potential threat to life and property; air quality impacts; and social, economic, and political impacts of GYA fire management activities. The FMAG will not function as a Multi-Agency Coordination (MAC) Group per se, but will provide input into Geographical MAC Groups. The affected unit FMO(s) will be the primary liaison to the MAC Group.

E. Incident Delegation of Authority

During complex fire incidents, the GYCC (Agency Administrators) will continue to serve in its role as a facilitator of communication, coordination, and effective cooperation between the National Forests, Refuges, BLM Units and Parks within the GYA. Agreements reached by GYCC members will be implemented through normal lines of authority. While the entire GYCC membership may not function as a MAC group, individual members or their designees, may participate in a MAC group.

When a fire is burning on or has the potential to burn on multiple jurisdictions, a joint strategic plan, decision document and delegation of authority will be prepared. Whenever an area command is established, it will operate under a joint written delegation of authority clearly

outlining both their geographic and functional role. All agency administrators under whose authority the area command is operating will sign this delegation. Area command will re-delegate this authority to individual incident commanders. Any delegations of authority between agency administrators and incident commanders in effect at the time an area command is established will be replaced by a new delegation of authority between the incident commander and area command. The GYCC may offer input and direction to MAC groups and/or area command as necessary.

F. GYA Situation Report

Current fire situation information from each GYA unit is critical for responsible fire management planning and implementation. The Northern Rockies Coordination Center will coordinate sharing of fire situation information between GYA units. This report will be consolidated into the GYA Situation Report and be available each day, electronically. The GYA Situation Report will provide each unit's preparedness levels, a description of fire activity, resource availability, and fire activity potential for planning and providing information to the public.

APPENDIX A

GREATER YELLOWSTONE AREA FIRE MANAGEMENT

ANNUAL OPERATING PLAN

May 12, 2010

I. PURPOSE

To establish specific operating procedures for the coordinated management of various fire activities, which have crossed, are planned to cross, or have potential to cross the administrative boundaries of individual Greater Yellowstone Area units. These activities include, but are not limited to:

- Allowing wildland fires to cross administrative boundaries;
- Joint management of wildland fires;
- Execution of prescribed fires
- Joint training and fire prevention efforts.

II. IT IS MUTUALLY AGREED AND UNDERSTOOD BY AND BETWEEN THE PARTIES THAT:

The Following elements apply to all management activities related to wildland fires and/or prescribed fires, which have crossed, are planned to cross, or have potential to cross agency or geographic boundaries.

A. Wildfire and Prescribed Fire

General

- Assignment of fiscal responsibility to each agency for management costs.
- Assignment of responsibilities to keep the public, cooperators, and internal personnel informed.
- Development of decision criteria for periodic revalidation and evaluation by the appropriate Administrators of each agency.
- Incident/Project management will be by a single unified incident management organization.
- Agency resource advisors will be assigned to coordinate with the incident/project management team.
- Completion of a joint risk assessment, which includes threat to life and property, resource availability, and environmental impacts.
- Incident reviews will be conducted jointly by the affected agencies as deemed appropriate.

Prescribed Fire

- A single Prescribed Burn Plan will be reviewed and approved by affected Agency Administrators. The plan will include required components of affected agencies.
- Prior to implementation, Go/No Go Checklists will be approved by the respective Agency Administrators.

Wildfire

- Development of a joint Wildland Fire Decision Support System document (WFDSS), approved by the Agency Administrators of each agency involved.
- Prepare joint delegations of authority for wildfires that affect multiple agencies. Delegations of authority will identify an individual(s) responsible for management and Periodic Assessments.
- For boundary fires or fires that have potential to affect the adjacent agency (including smoke impacts), the adjacent agency will be notified of the fire in a timely manner.

B. Sharing Resources

Unit based resources for fire activities may be shared directly between any of the GYA Dispatch Centers under the nationally endorsed concept of closest available forces.

Unit based agency and contract resources may be shared without cost reimbursement for fire or non-fire situations when mutually agreed upon and is in the best interest of the government. Resources will be coordinated by the respective Dispatch Centers.

C. Training

The agencies agree that they will exchange training schedules and information on a regular basis and cooperate whenever possible on joint fire management training efforts.

D. Prevention and Public Education

The agencies agree that they will cooperate wherever possible on joint fire prevention and public education efforts, particularly at trailheads that access more than one agency's land. Fire prevention activities will be managed by each Unit for lands within their jurisdiction.

As part of the public education effort, websites, pamphlets, or other items highlighting the ecological role of fire in the GYA, and how fire is managed may be produced. The units will agree upon the development of these items. The items would be available to visitors before and during fire management activities.

E. Detection & Dispatching Procedures

Lookouts, other ground detection methods, and agency air patrols will cooperate in the exchange of information on fires detected by or reported to them.

The agency receiving notification of a fire will immediately notify the jurisdictional agency. The respective agency dispatch offices will coordinate requests for movement of resources and equipment across agency and unit boundaries.

F. Science initiatives

Units will cooperatively pursue opportunities for advancing science related initiatives as they apply to Greater Yellowstone Fire Management.

G. Conference Calls

Regularly scheduled conference calls will be held beginning the first Tuesday in July. The frequency of the calls are noted in the Preparedness Plan in Appendix B. Topics during the conference calls will include the following:

- Current fire activity
- Seasonal severity, indices, and outlook
- Determination of GYA preparedness level
- Outstanding resource needs
- Resource sharing
- Other issues

APPENDIX B

GREATER YELLOWSTONE AREA FIRE MANAGEMENT

PREPAREDNESS PLAN

May 12, 2010

I. Purpose of the Plan

1. To identify the level of Wildfire and Prescribed Fire, severity and resource commitment within the Greater Yellowstone Area.
2. To identify actions to be taken by the Greater Yellowstone Area Fire Management Advisory Group (FMAG) under the guidelines of the Greater Yellowstone Coordinating Committee (GYCC) to assure an appropriate level of preparedness/readiness for the existing and potential situation.
3. To modify or curtail Unit fire management activities when essential to assure preparedness or response capabilities for situations within the GYA.

II. GYA Preparedness Levels

The GYA preparedness level will be determined based on the following criteria, which mirrors the three Geographical Area plans and the national preparedness plan and will not supersede any of these plans.

A. PREPAREDNESS LEVEL I

Description:

- No large fire activity within the GYA.
- Units have low to moderate fire danger.
- Initial attack is successful and fires are manageable.
- Resources are adequate in the GYA.

ACTION	RESPONSIBILITY
Individual GYA Units will determine appropriate actions.	Agency Administrators
Certify that Wildland Fires meet objectives and adequate resources are available through ensuing 24-hour period given reasonably foreseeable weather conditions and fire behavior.	Agency Administrators
Conference calls will be held every two weeks at 0845 beginning the first Tuesday in July	FMAG

B. PREPAREDNESS LEVEL II

Description:

- One or more units experiencing moderate to high fire danger.
- Multiple wildland fires occurring, initial attack successful on most fires and a potential exists for size class B or C.

- Current incidents are managed locally; potential for further growth is moderate. Resources are adequate in the GYA.

ACTION	RESPONSIBILITY
Level I actions carry through	Unit FMO/Fire Staff
Individual Agency Administrator's briefed as appropriate	Unit FMO/Fire Staff
Individual Units monitor and evaluate wildland and prescribed fire activity and resource commitments in the GYA	Unit FMO/Fire Staff

PREPAREDNESS LEVEL III
Description:

- Two or more Units experiencing high to very high fire danger with no weather break expected within the next 48 hours.
- Two or more Units are experiencing size class C or D fires.
- One Unit requiring commitment of a Type I or Type II Incident Management Team.
- Units are experiencing resource shortages and are requiring assistance from their respective GACC. National Interagency Coordination Center (NICC) and/or Rocky Mountain Area Coordination Center (RMACC), Eastern Great Basin Coordination Center (EGBCC), Northern Rockies Coordination Center (NRCC) are supporting wildland and/or prescribed fire activity in theirs or other Region(s).

ACTION	RESPONSIBILITY
Level I and II actions carry through	Unit FMO/Fire Staff
Conference calls will be held once per week at 0845 on Tuesdays	FMAG
Brief the GYCC Fire Management Representative Coordinate wildland and prescribed fire activity in the GYA	FMAG Chairperson FMAG
Periodically brief Regional Fire Staff and GYCC managers on wildland and prescribed fire situation update and evaluation	FMAG Unit FMO/Fire Staff
Coordinate prepositioning of resources and ensure availability of qualified personnel for wildland and prescribed fire assignments	FMAG
Individual Units provide timely update on emerging or existing fire situation to FMAG, respective Regional Office, and NICC through normal GYA situation reporting system	Unit FMO/Fire Staff

C. PREPAREDNESS LEVEL IV

Description:

- Two or more Units experiencing very high to extreme fire danger with no weather break expected within the next 48 hours.
- Multiple ignitions resulting in size class D+ fires.
- Two or more units experiencing project fires requiring commitment of Type I or Type II Incident Management Teams.
- Resource shortages are being experienced in the GYA and by GACC's, with two or more Regions being supported by NICC and/or GYA GACC's.
- Other national fire activity is increasing the competition for resources, placing a drain on the normal GYA GACC's.

ACTION	RESPONSIBILITY
Level I, II and III actions carry through	Unit FMO/Fire Staff
A minimum of one conference call per week will be held at 0845 on Tuesdays. FMAG will determine the time and frequency of additional conference calls commensurate with fire activity and need.	FMAG
Wildland and prescribed fire application can be continued or initiated in accordance with each agencies policy.	Unit FMO/Fire Staff Agency Administrator FMAG Regional Fire Staff GYCC Fire Mgt Rep
Increase coordination between GYA and potentially affected agencies involving Regions concerning prioritizing resources and fire restrictions with other GYA Units and potentially affected neighbors.	FMAG Regional Fire Staff
Evaluate potential of going to Level V and inform all GYA Units and Regional Staff of all affected agencies.	FMAG Regional Fire Staff

D. PREPAREDNESS LEVEL V

Description:

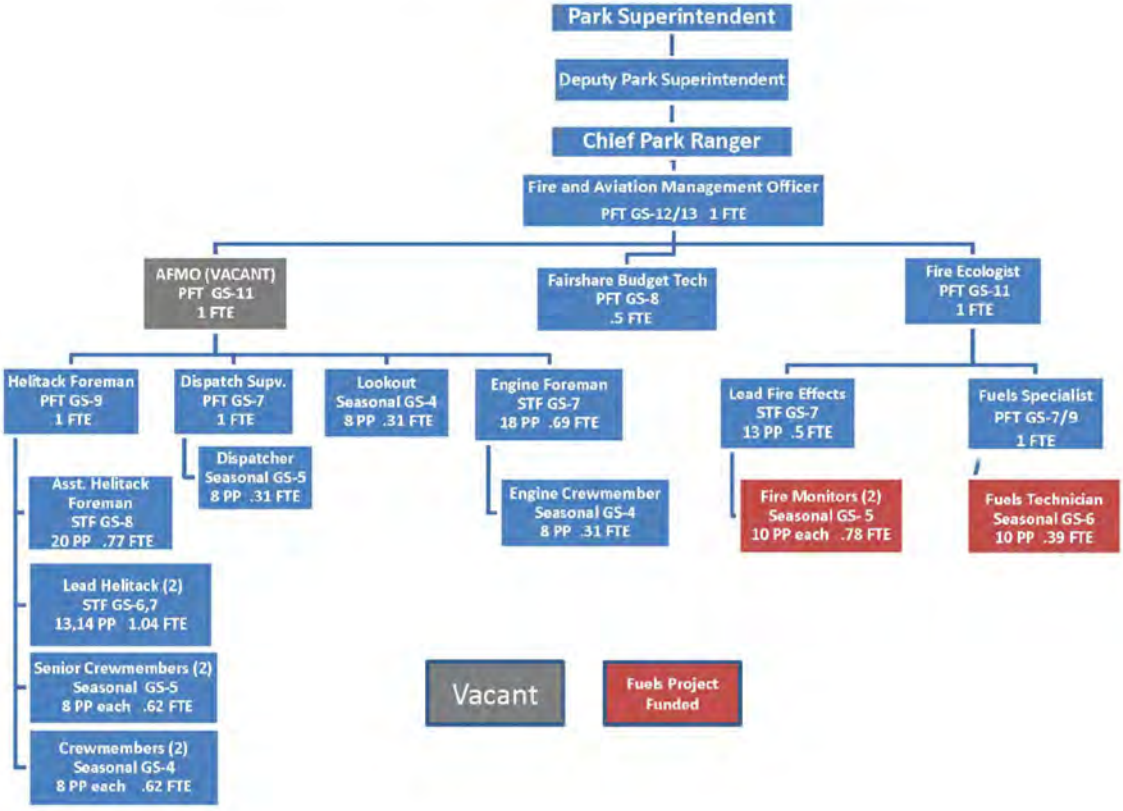
- Three or more GYA Units experiencing extreme fire danger with no weather break expected within the next 48 hours.
- Three or more units experiencing major fires requiring the commitment of Type I Incident Management Teams.
- NICC and/or GYA GACC's are actively supporting two or more Regions with fire activity.

- Significant competition for resources exists with the potential to exhaust all Agency resources.

ACTION	RESPONSIBILITY
Levels I, II, III and IV actions carry through	Unit FMO/Fire Staff
Wildland and prescribed fire application can be continued or initiated in accordance with each agencies policy.	Unit FMO/Fire Staff FMAG Agency Administrator Regional Fire Staff GYCC Fire Mgt Rep Agency National Rep
Evaluate need for a GYA representative on Geographical Area MAC Groups to assess resource availability, establish priorities, and coordinate with other Geographical MAC Group(s).	GYCC FMAG Unit FMO/Fire Staff
Intensify coordination efforts with all fire protection agencies and news media.	FMAG Unit FMO/Fire Staff Regional Fire Staff

Appendix T – Wildland Fire Organizational Chart

Yellowstone N. P. – Wildland Fire and Aviation Management – 2014 Organization



Appendix U Part A – Roles and Responsibilities by Position

Roles and Responsibilities by Position

Fire Ecologist	
Programmatic Element	**Tasks**
Fire Effects and Ecology Oversight	• Organize and present monitoring data results • Write Fire Effects Monitoring Plan and keep updated • Complete Annual Fire Ecology Report for National Office (due 1/31) • Provide fire and plant ecology information and support as needed • Design efficient monitoring protocols and objectives for new planned projects • Use adaptive management on all projects through use of monitoring and results • Consider impacts of global climate change to Yellowstone's Fire Program • Manage all fire effects monitoring data efficiently through use of software • LIBI Fire Ecology oversight and coordination
Supporting Wildland Fire Management	• Pursue LTAN qualifications • Provide input/support to go-no-go fire management decisions • Support wildland fire and SAR within Park as needed • Act as leader within Wildland Fire Management office • Oversee Park weather network, fuel moisture program and NFDRS program
Planning and Compliance	• Serve as compliance lead on Wildland Fire projects (EAs, Section 106, Section 7 and resource surveys) • Complete annual USFWS T&E/fire report (due 5/1) • Act as lead for the Fire and Fuels Interdisciplinary Team • Act as primary contact for wildland fire mapping needs
Interagency coordination	• Develop research and monitoring partnerships (e.g. Gallatin NF)

Fuels Specialist	
Programmatic Element	**Tasks**
Fuels & Prescribed Fire Planning & Implementation	● Interagency fuels planning, coordination and implementation
Operations Assistance	● Serve as duty officer or ICT3 as needed
Smoke Compliance	● DEQ permitting and primary contact
LIBI Fuels Contact	● LIBI Fuels Management Coordination
Structure Assessments	● Complete structure assessments per the Regional standard for all structures in the Park
Defensible Space	● Develop defensible space plans for the 19 developed areas and 41 backcountry patrol cabins and lookouts in the Park
5-Year Fuels Treatment Plan	● Monitor progress and update 5-Year plan
Resource management & Interagency coordination	● Represent YELL in interagency fuels planning within the GYA
Wildland Fire Decision Support System	● Assist with WFDSS implementation as needed
Employee Safety Committee	● Serve as a member of the Employee Safety Committee
Facilities and Cache Management	● Serve as facilities/cache manager
Chainsaw program oversight	● Oversee Park chainsaw safety program

Lead Fire Effects Monitor	
Programmatic Element	**Tasks**
Fire Effects Data Analysis (assist with)	● New Fire Effects Software management ● Organize meetings and present fire effects data results to interagency cooperators through symposiums or annual meetings. ● Establish and re-sample long-term vegetation plots and implement monitoring plans ● Data management: record, quality check, and electronic input ● Use FFI software to input and analyze data ● Complete annual IMR fire effects report
Monitoring	● Monitor prescribed fire and mechanical treatments ● Schedule summer field work ● Fire effects crew hiring and training ● Oversee fuel moisture sampling program (data collection, processing, posting) ● Develop and distribute updated pocket cards annually ● Provide weather, lightning, and ERC information for morning briefings
JHA subject matter expert	● SME for fire monitoring ● Train crew in protocols for weather, plot work and fuel moisture sampling
Weather Station Maintenance	● Ensure weather station maintenance is completed annually
Fire Effects Administration	● Seasonal hiring and daily supervision of seasonal firefighters ● Interface with fire use monitors and Park botanist

Fire and Aviation Dispatch (700F)	
Programmatic Element	**Tasks**
Yellowstone Fire and Aviation Dispatch	• Hiring and supervision of seasonal dispatchers • Aviation flight following • Resource tracking and resource order processing • Develop and maintain protocols for Life Flight use • Assure Communications Center (700) employees have necessary training and materials for aviation dispatch for after-hours coverage • Cross-train in Communications Center (700) so as to provide assistance as needed • Update and maintain Continuity of Operations Plan (COOP) • Provide assistance at request of outside Agencies and dispatch resources to fires and SAR incidents
Data and information management	• ROSS program oversight • Ensure fire reports are completed and accurate • Assist with expanded dispatch oversight • Update mobilization guide • Update Handy Dandy and Incident Organizer • Publish Fire Cache Operations Guide • Update phone lists • Initiate 209 reports • Update WIMS for 13:00 weather obs. Back-up will be FPA and FPBA • Initiates WFDSS for all Type 3 or long duration fires • Obtain FIRECODE for all fires and submit to FPA to open account
Wildland Fire Training Officer	• Serve as training officer for wildland fire courses. • Serve as YNP rep to SCZ Training Committee • Maintain IQCS qualification records and print IQCS Cards • Input qualification updates • Subject matter expert regarding All-Hazard qualification system implementation

Assistant Fire Management Officer	
Programmatic Element	**Tasks**
Operational Oversight	● Conduct readiness reviews ● Coordinate daily activities internally and with other divisions ● Relief Park FMO and Aviation Officer in the absence of FMO ● Serve as primary duty officer ● Manages fire prevention program ● Supervises Engine, Helitack, Lookout, and Dispatch program supervisors
Medical Standards	● Review and take action on medical standards waivers as requested for IQCS carded staff
Job Hazard Analysis	● Keep all JHA's in a central location and make sure they are shared on the Park Intranet
Aviation Management	● Provide aviation oversight in FMO/Aviation Officer's absence.
IMR Wilderness Steering Comm.	● Fire and Aviation Liaison for wilderness issues.
Public Info (Fire & Project)	● Coordinates publication of success stories with fire communication and education staff
Area Park Coordination - LIBI	● Ensure Annual operating agreements with area parks are current ● Ensure area parks are informed of changes in policy and practices
Fleet Oversight	● Responsible for fire cache's fleet and monthly mileage manager input
Hazard Tree Management	● Assist with implementation of Hazard Tree Program

Engine Foreman	
Programmatic Element	**Tasks**
Water Handling Specialist	● Ensure engine & crew readiness ● SME for wildland fire water handling operation ● Fuels project work leader as needed ● Responsible for cabin protection & mop-up kits, pumps, & all water handling equipment
Fire Training	● Lead/Unit instructor for local/zone courses as qualified
Equipment Committee	● NPS representative on Northern Rockies equipment committee
Forestry Program	● Assist with the continuation and development of arboriculture program

Helicopter Foreman	
Programmatic Element	**Tasks**
Helicopter Program Manager	● Order supplies for Heltiack program ● Schedule Helitack staffing (daily crew roster) ● Supervise daily field helicopter operations; delegate as needed ● Supervise and assist with special use helicopter operations ● Ensure AMD-23's and daily diaries are completed ● Project inspector for exclusive use helicopter ● COR on CWN contracts ● Subject matter expert related to aviation use in Park ● Assist in updating aviation plans, exemptions, agreements and MOU's
Aviation Instruction & Coordination (B3, M3, etc.)	● Schedule in-house aviation training ● Conduct short-haul and hover STEP training proficiencies ● Check spotter for short-haul program ● Serve on national short-haul committee ● Conduct medical training as it relates to short-haul / SAR
Blasting Program	● Participate in wildland fire blasting program
Interagency Aviation Training	● Maintain aviation training records for NPS personnel ● Coordinate aviation training with fire and aviation dispatch (700F)

Assistant Helicopter Foreman	
Programmatic Element	**Tasks**
Fuels	● Fuels project work leader as needed
SAR aviation equipment	● Maintain SAR/EMS equipment log and inventory
Operations	● Maintain organizational IA readiness
Training	● Assist Foreman in instructing aviation related courses

Fire Program Budget Analyst	
Programmatic Element	**Tasks**
Budget / Fiscal Management	● Budget – Quarterly Reports, Monthly ● Track purchases in budget programs ● Ensure status of funds is accurate ● Ensure staff credit cards are reconciled ● Oversee/assist with major purchasing ● Supervise posting of time for branch employees and park employees assigned to fire
Medical Standards	● Manage scheduling of exams for red carded employees participating in wildland fire
Account Numbers and Fire Codes	● Update fire number and account information.
Travel	● Concur advisor/coach
Interagency Incident Business Management	● Local incident business management. Participate in incidents as requested and qualified
Update & provide office SOPs and general office coordination	● Assist 1st line supervisors as needed with hiring process
Structural Fire Duties	● As identified in EPAP

Fire Management Officer	
Programmatic	**Tasks**
Yellowstone N.P. Coordination	• Internal park coordination with in VRP Division and other divisions.
Fire Program Management	• FMP & Step-up Staffing plan updates • Property Inventory & Replacement • Coordinate duty officer coverage • Approve time and travel • Annual Reports • Review and approve fire reports • Maintains fire cache inventory • Reviews and authorizes the entering of fire training, experience, Position Task Books into IQCS and signs red cards. Chairs Park red card committee • Reviews and signs fuels treatment plans • Fuels IDT member
Aviation Program Management	• Annual aviation plans, waiver, and enhancements review and update • Provide YELL aviation program oversight
Interagency coordination: GYA, South Central Zone (NRCG), East Zone (NRCG), Gallatin NF, Shoshone NF	• Actively participate in the GYA Fire Management Advisory Group • Represent Yellowstone National Park throughout the Northern Rockies Geographic Area and associated interagency programs • Coordinate and schedule with the Gallatin National Forest and Park County, rural fire assistance projects, priorities, and standards for current year and future initiatives
Facilities Coordination	• Continue submittal of facilities funding requests through PMIS • Housing representative for wildland fire •
Grant Coordination – RFA, Community Assistance	• Coordinate Rural Fire Assistance and Community Assistance Grants for Park and Teton Counties
FPA	• Provide input and oversee FPA process for Northern Yellowstone FPU. • Work with interagency partners to ensure YELL and area park budget needs are met throughout the FPA process
Housing Representative	• Make requests for seasonal firefighter housing. Work with supervisors of seasonal employees to ensure sufficient housing.

Appendix U Part B – Annual Fire Program Task Checklist

Date	Task	Assigned	✔
Jan. 1	Organize O-drive, and storage	All	
	Schedule fire refreshers for season	Supervisors/Dispatch	
	Submit YCC and MCC project requests	Fuel Specialist	
	Coordinate an IDT meeting to review and update the 5-Year fuels plan and discuss current FY projects and compliance	Ecology/Fuels	
	Fire and Aviation Annual Accomplishment Report complete	FMO	
	Snowmobile training scheduled or completed	Supervisors	
Jan. 15	Module-specific (Dispatch/Training, Engine, Helicopter, Ecology, and Fuels) accomplishment reports due to FMO for CRO annual report	Supervisors	
Jan. 31	Submit/update long term project plan to WY-DEQ (every 3 years: 2012, 2015, 2018, 2021)	Fuel Specialist	
	Fire effects annual report due to the Regional Office	Fire Ecologist	
	Update and file all permanent personnel red cards	Dispatch	
Feb. 15	Schedule annual physical exams for permanent red carded staff	FPMA	
	Submit annual report to CRO	FMO	
	Montana-Idaho Airshed working group submittal of previous fire year prescribed fire and fire use acres	Fuel Specialist	
	Montana-Idaho Airshed working group submittal for spring burning	Fuel Specialist	
Mar.15	Complete all NFPORS entries for following year fuels budget	Fuel Specialist	
	MT ID Air Shed Working Group bi-annual permit process	Fuel Specialist	
	Review FY budget with staff	FMO	
	Submit request for compliance surveys for future FY fuels projects (i.e., submit FY2015 in March of FY2014)	Fire Ecologist	
Mar. 30	EPAP for PFTs mid season review	FMO/Ecologist	
	Complete report and renewal for YS research permit	Fire Ecologist	

April 1	Initiate Accountable Property Inventory	FMO	
	Update/validate interagency agreements	FMO	
	Complete hiring for all seasonal staff	Supervisors	
	Submit seasonal housing request to CRO	FMO	
April 5	Report Burn Information/Fuels Treatment information for Summer Edition *Yellowstone Today*	Fuels Specialist	
April 15	Schedule physical exams for all subject-to-furlough staff and seasonal red carded employees	FPMA	
	Obtain/update red card information for seasonal and subject-to-furlough employees	Dispatch / Supervisors	
	Order uniform t-shirts for upcoming fire season	As Assigned	
	End Winter Weather Observations - 0800 Daily	Lead Monitor	
	Yearly publications order from NIFC	Dispatch	
May 1	Complete Accountable Property Inventory	FMO	
	Update Phone List	Dispatch	
	Begin 0800 weather obs and daily fire weather obs	Dispatch	
	WFDSS Data Uploaded	FMO	
	Complete Aviation Contract solicitation	Helitack	
	EMS kits reviewed for completeness	Helitack	
	Annual Fire Management Plan Updates completed and posted	FMO	
	Schedule Field Trip with local DRs regarding planned fuels treatments	Fuel Specialist	
	Complete USFWS Fire/T&E species report	Fire Ecologist	
May 15	Update and print Firefighter Safety Pocket Cards	Lead Monitor	
	Update Operations Guide, Handy Dandy, and IA Organizer	Dispatch	
	Update and post organization chart	FMO	
	All fire vehicles in service for season	AFMO	
	Finalize Fuels Project Schedule	Fuel Specialist	
	Pre-season Fire Season Outlook completed	FMO	

	Begin 7 day staffing	Dispatch	
May 30	Initiate Seasonal EPAPs	Supervisors	
	Interior Helispot Inspection	Helitack	
June 1	Assign Daily Duty Officer	FMO	
	Update dispatch guides: Detailer/Duty Officer Binders, Mobilization Guide, Expanded Dispatch Plan, Aviation Mishap Plan, etc.	Dispatch	
	Review and update MSDS binders	AFMO	
	Job Hazard Analysis file reviewed and updated	AFMO	
	Basic fire training complete	Supervisors	
	Fire Weather Stations operational	Lead Monitor	
	Update Fire Effects Crew SOP's, Monitoring Plan, & inventory equipment	Fire Ecologist/Lead Monitor	
June 10	All refreshers (RT-130), work capacity tests, and required trainings (hazmat, defensive driving, & BBP) completed by all wildland fire staff	ALL	
	All Red Cards Issued for the season for Wildland Fire staff	Dispatch	
June 15	Preparedness Review completed	AFMO	
	Crew photo taken	All	
	MOB Guide update	Dispatch	
	Conduct Fire orientation / ice breaker	As Assigned	
	Begin 7 day/week Staffing	Helitack/Duty Officer	
June 30	Complete Helitack and Short-haul training	Helitack	
	All Red Cards Issued for the season for all Park staff	Dispatch	
July 1	Completed and submit capitalized equipment year-end money wish list	FMO	
	Document helitack and engine GVW	AFMO	
	RAWS Weather Station Maintenance	Lead Monitor	
Sept. 1	Budget closeout	FPMA	
Sept. 30	End 7 day /week Staffing	Dispatch/Helitack/ Duty Officer	

	Transfer of 0800 and daily fire weather obs duties	Dispatch/Lead Monitor	
	Training nominations due to Training officer	Supervisors/Disp.	
Oct. 15	Hazard Fuels Reduction Project Reports completed	Fuel Specialist	
	Training nominations due to GACC	Dispatch	
	Initiate hiring (Announcements spreadsheet to HR)	FMO	
Oct. 30	Daily Duty Officer : Relieved	FMO	
	EPAPs completed for all employees	Supervisors	
	Annual warehouse inventory completed	Fuel Specialist	
	Interior Helispots buttoned up for the winter	Helitack	
	Winter SAR preparations completed	Helitack	
	WFMI Fire Reports completed	Dispatch and FMO	
Nov. 15	All vehicles readied for winter, and some moved to storage	AFMO	
	Fuels Project Proposal Meeting with Fire and Fuels IDT	Fuel Specialist	
	Begin Reporting Winter Weather Observations - 0800 Daily	Lead Monitor	
	All aviation enhancements and plans submitted for approval	FMO	
	Update fire history layer polygons	Fire Ecologist	
	End of year smoke reporting to MT -DEQ	Fuels Specialist	
Dec. 15	Update and file all seasonal personnel red cards	Dispatch	
Dec. 15	Begin Christmas card/annual "Thank you" project	As Assigned	
Dec. 15	Module-specific (Dispatch/training, Engine, Helicopter, Fire Fx) accomplishment reports due to FMO for CRO annual report	Supervisors	
Dec. 31	GIS mapping validation	Ecologist	