WILDLAND FIRE MANAGEMENT PLAN

Fire Island National Seashore

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EXECUTIVE SUMMARY

Fire management policies of the National Park Service (NPS) support the park's resource management goals. The primary resource management goal is restoration or maintenance of the historic scene and the associated cultural resources, and supporting native plant communities while providing for firefighter and public safety, protection of natural and cultural resources, and human developments from unwanted wildland fire.

This fire management plan contains the following program direction:

To guide the decision-making process where safety, social, political, and resource values are evaluated, and appropriate management response strategies are identified for wildland fires.

To provide a framework for fuels management strategies through the use of prescribed fire, mechanical, and chemical treatments.

To provide a platform to cooperate more fully in planning and implementing a wildland fire program across agency boundaries.

Program operations included in the plan are preparedness, prevention, suppression, and fuels management. Applicable resource goals and objectives are derived from approved agency resource and general management plans.

The plan is organized to combine the latest scientific knowledge, including regional and local studies, with a hierarchy of policy direction from Departmental and Agency to the Federal Wildland and Prescribed Fire Management Policy (1995 & 2001), to accomplish resource and fire management goals and objectives and research into the restoration of fire into the ecosystem. The intent of the plan is primarily operational in nature.

Compliance requirements with National Environmental Policy Act (NEPA) guidelines have been satisfied through development of an environmental assessment (EA). These requirements ensure a prudent assessment and balance between a federal action and any potential effects of that action, leading to consensus between fire managers, agency resource specialists, and the public. Any constraints or limitations imposed on the fire management program are also included.

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I. INTRODUCTION

A. Reasons for Developing Fire Management Plan

The National Park Service's (NPS) Director's Order 18, November 2002 requires that all parks with vegetation capable of sustaining fire develop a fire management plan (FMP). This FMP was developed to provide direction and outline those actions that will be taken in meeting the fire management goals for the area.

B. Collaborative Process in Development of Fire Management Plan

The general management plan, statement for management, resource management plan, wilderness management plan, and the fire management plan are all developed with input from neighboring communities and cooperating agencies, as well as other NPS program management areas.

C. Implementation of Federal Fire Management Policy

This fire management plan will implement fire management policies and help achieve fire management goals defined in: (1) Federal Wildland Fire Management Policy and Program Review; (2) Managing Impacts of Wildfires on Communities and the Environment, and Protecting People and Sustaining Resources in Fire Adapted Ecosystems – A Cohesive Strategy (USDOI/USDA); and (3) A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10 Year Comprehensive Strategy Implementation Plan.

D. Compliance

An environmental assessment serves as the National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA) compliance. Documentation is in Appendix A of this plan.

E. Authorities for Implementation of Fire Management Plan

The authority for fire management is found in the National Park Service Organic Act (Act of August 25, 1916), which states that the Agency's purpose:

"... is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

This authority was further clarified in the National Parks and Recreation Act of 1978:

"Congress declares that...these areas, though distinct in character, are united...into one national park system.... The authorization of activities shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress."

Related statutory authorities are the Weeks Act, Clean Air Act, Clean Water Act, Wilderness Act, Endangered Species Act, National Environmental Policy Act, Antiquities Act, New York State Law, and others.

II. RELATIONSHIP TO LAND MANAGEMENT PLANNING AND FIRE POLICY

A. NPS Management Policies as Related to Fire Management

NPS policy falls within Department of the Interior Manual 910 DM, 1, 2 and 3 which, in part, states:

"The presence or absence of natural fires within a given ecosystem is recognized as a potent factor stimulating, retarding or eliminating various components of the ecosystem. Most natural fires are lightning-caused and are recognized as natural phenomena which must be permitted to continue to influence the ecosystem if truly natural systems are to be perpetuated."

"The fire management program of all parks must be designed around park objectives. In natural systems this may include the need for some areas to proceed through succession toward climax while others are set back by fire. Natural zones should represent the full spectrum of the parks' dynamic natural vegetative patterns. Sharply defined zones or blocks of vegetation limited to certain species locked in over time are not natural and only rarely justified. In historic zones fires may be controlled or used to perpetuate the historic scene."

"Wildfires, whether on or adjacent to lands administered by the Department, which threaten life, structures, or are determined to be a threat to natural resources or facilities under the Department's jurisdiction, will be considered emergencies and their suppression given priority over normal Departmental programs."

Specific guidance on wildland fire is contained in NPS Directors Order (DO-18) and attendant Reference Manual (RM-18) and “The Wildland and Prescribed Fire Management Policy: Implementation and Reference Guide” (1998).

B. Enabling Legislation and Purpose

The act to establish Fire Island National Seashore (P.L. 88-587) was passed September 11, 1964. The act states that Fire Island National Seashore was established

". . . for the purpose of conserving and preserving for the use of future generations certain relatively unspoiled and undeveloped beaches, dunes and other natural features within Suffolk County, New York, which possess high values to the Nation as examples of unspoiled areas of great natural beauty in close proximity to large concentrations of urban population."

The William Floyd Estate, located in Mastic Beach, Long Island, was added to the Seashore's boundaries on October 9, 1965 (P.L. 89-244). Included in the 613-acre donation were 11 historical buildings, their contents and the family cemetery.

November 10, 1978 (P.L. 95-625) a *"…mainland terminal and headquarters site, not to exceed a total of twelve acres, on the Patchogue River…"* were added to the park. In addition, the park's condemnation authority was suspended in the federally designated Dune District, provided private owners maintain their properties in a natural state.

A 1,363 are tract of land located between Smith Point and Watch Hill was designated a National Wilderness Area on December 23, 1980 (P.L. 96-585).

C. General Management Plan and Strategic Plan Management Objectives

As outlined in the 1977 general management plan, the William Floyd estate has two major objectives:

1. To interpret the history and to preserve the historical resources of the estate as a continuum of the William Floyd family.

2. To maintain the features of the existing landscape and current land-use practices, and to stabilize existing structures until use/occupancy agreements expire and future public uses are determined.

Management objective that relates to resource protection in the Fire Island National Seashore's general management plan (National Park Service 1983) include:

- "To protect and preserve natural plant and animal communities. . ."
- "To manage Fire Island in ways that will enhance natural processes and mitigate the impacts of human interference with these processes. . ."
- "To maintain and/or restore all area not required for public or administrative use to a natural condition using aesthetically appealing and environmentally compatible methods."

The Strategic Plan for fiscal year for fiscal years 2001-2005 lists the following objectives:

- To preserve the natural and cultural resources within administrative boundaries. Natural resources include Fire Island proper, a 32-mile barrier island off the south shore of Long Island, NY; surrounding water, and 26 smaller bay islands. Cultural resources include the park museum collection, the William Floyd Estate, and land and structures comprising the Fire Island Light Station.

- To preserve the Sunken Forest tract from bay to ocean without developing roads therein.

- To preserve the main dwelling, furnishings, grounds, and outbuildings of the William Floyd Estate, home of the Floyd family for eight generations.

- To preserve the Otis Pike Fire Island High Dunes Wilderness.

- To provide for public access, use, and enjoyment.

- To work with the communities within the park to mutually achieve the goals of both the park and the residents.

D. Resource Management Plan and Fire Management Objectives

The protection of natural and cultural resources within the protection area is a fundamental requirement for its continued use and enjoyment by park visitors as a protected area of the National Park System. The goals of the resource management plan (1999) are consistent with the above listed documents, applicable laws, regulations and NPS policies and guidelines.

The specific fire management objectives that will be used to accomplish the resource and park goals are:

- Maintain the highest level of firefighter and safety in all fire and fuels management operations.

- Ensure that all fire management actions within the wilderness area are managed in accordance with the wilderness management plan.

- Protect human life, park natural and cultural resources, park structures and facilities, and urban interface boundaries from adverse impacts attributable to wildland fires, hazardous fuels, and hazard trees, commensurate with values at risk and firefighter and public safety.

- Foster and maintain interagency fire management partnerships to improve initial attack suppression response capabilities.

- Ensure that fire management activities do not adversely affect residential communities adjacent to the park.

- Assist local agencies in the suppression of wildland fires adjacent to the park boundary to prevent the spread of unwanted fires into federal lands and to protect property on private lands.

- Stimulate biodiversity, reduce exotic plants, restore protected species, and improve forest health.

- Utilize minimum impact suppression techniques to reduce or avoid effects of fire suppression on biotic systems, cultural or historic resources, and neighboring communities.

- Ensure smoke production from prescribed fires does not violate State and/or federal standards; minimize smoke impacts to park neighbors.

- Utilize fire prevention and interpretive programs to increase public awareness and acceptance of fire and fuels management programs and to reduce the incidence of human-caused ignitions.

- Identify and assess hazardous fuels that have the potential to adversely impact natural and cultural resources. Utilize prescribed fire and/or other methods (e.g., mechanical) to reduce threats posed by hazard fuels conditions.

E. Fire Management and Meeting Park Objectives

It is the policy of the NPS to allow natural processes to occur to the extent practical while meeting park unit management objectives. NPS Management Policies (2001) state:

"Naturally ignited fire is a process that is part of many of the natural systems that are being sustained in parks. Humanignited fires often cause the unnatural destruction of park natural resources. Wildland fire may contribute to or hinder the achievement of park management objectives. Therefore, park fire management programs will be designed to meet park resource management objectives while ensuring that firefighter and public safety are not compromised."

The fire management program is guided by resource management objectives to protect cultural resources and perpetuate the natural resources and their associated natural processes. This plan will help achieve the objectives and directions described in the parent document, the resource management plan (RMP). The RMP defines major land

management issues, describes past and current activities and establishes actions that will be taken in the future.

Suppression activities conducted within wilderness, including the categories of designated, recommended, potential, proposed, and study areas, will be consistent with the "minimum requirement" concept identified in Director's Order #41: Wilderness Preservation and Management.

III WILDLAND FIRE MANAGEMENT STRATEGIES

A. General Management Considerations

Wildland fire in the park will be managed to enhance community protection, diminish risk and consequences of severe wildland fires and, to the extent possible, increase health of watersheds. To these ends the park will employ the following goals:

1. Improve prevention and suppression.
2. Reduce hazardous fuels.
3. Promote community assistance.
4. Promote ecosystem health.
5. Protect, preserve and interpret cultural resources.

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

B. Wildland Fire Management Goals

The park is committed to the protection of life, property and the environment, as well as perpetuating natural resources and processes. The primary objective will be suppression of unwanted wildland fires. The secondary objective is to protect park facilities and natural and cultural resources through a proactive fire management program. This program will utilize hazard fuel reduction, fire prevention, and limited prescribed fire as both research and management tools to accomplish the fire management objectives.

> **Goal 1**: Make firefighter and public safety the highest priority of every fire management activity.

Goal 2: Suppress all unwanted and undesirable wildland fires, regardless of ignition source, to protect the public, private property, and natural and cultural resources of the park.

Goal 3: Manage wildland fires in concert with federal, state, and local air quality regulations.

Goal 4: Facilitate reciprocal fire management activities through the development and maintenance of cooperative agreements and working relationships with pertinent fire management entities.

Goal 5: Reduce wildland fire hazard around developed areas and areas adjacent to cultural sites.

Goal 6: Use prescribed fire as a method of restoring and maintaining the cultural and natural landscape to meet resource objectives of the park.

Goal 7: Develop cooperative agreements with communities concerning wildland fire management.

C. Wildland Fire Options

Prescribed fire, mechanical, and chemical treatments may be used either sequentially or in conjunction with each other. The following is a discussion of available wildland fire options and their use in the park:

1. Wildland Fire Suppression: All unscheduled wildland fires in the park will be suppressed using the most appropriate management action. Determination of the most appropriate management action will consider human safety, threat and potential damage to property, resources, and cost effectiveness. Suppression may not be used to accomplish resource objectives.

2. Prescribed Fire: May be used for protection of cultural resources, historic scene restoration and maintenance, hazard fuel reduction, and natural resource objectives.

3. Wildland Fire Use: This option was rejected due to the linear shape of the park, the significant degree of wildland urban interface along the park boundary, and the lack of available qualified personnel required to manage these fires.

4. Non-Fire Applications: The reduction or removal of fuels by mechanical or chemical methods are both options that may be used for objectives such as protection of resources, historic scene restoration and maintenance, private property, invasive species control, or other natural resource objectives.

D. Description of Wildland Fire Management Strategies by Fire Management Unit

For the purpose of management planning, all the park units will utilize the same management alternatives and will be considered as a single fire management unit.

1. Fire Island Fire Management Unit

a. Physical and Biotic Characteristics

Topography:

Fire Island is a narrow 32-mile long barrier spit located 1-5 miles south of Long Island, New York. Fire Island is separated from Long Island by the Great South Bay and on the extreme eastern tip, by Moriches Bay. The topography of Fire Island is typical of barrier islands. On the ocean side of the island is a berm where sand is deposited and/or removed by wave and wind action. A primary dune behind the berm is an area in which vegetation causes sand to accumulate. On Fire Island, the primary dunes (i.e. where primary dunes still exist) may be more than 35 feet high. Behind the primary dune is a flat low-lying area known as a swale. Beyond the swale are bayside tidal communities. In some areas a secondary dune lies between the swale and the bayshore.

Geology:

Fire Island is located at the terminal moraine of the Laurentian ice sheet. The glacier began its retreat 8,000-12,000 years ago, and residual material supplies the garnet and magnetite sand found on the island. The sediments comprising Fire Island National Seashore and the south shore of Long Island are largely derived from reworking of Pleistocene sediments. These sediments were either deposited directly by the Laurentide glacial event or from glacial drift deposited offshore during a period of sea level rise in the Holocene period of the last 18,000 years (Williams and Meisburger, 1987).

Vegetation:

Fire Island: Four environmental factors that influence the vegetation are erosion, salt spray, soil moisture, and nutrients. Waves remove sand from the primary dune during storms, disturbing any vegetation on the dune. Salt spray prunes the tops of plants and the canopies of stands. Plants that are not adapted to salt spray can grow only in protected areas. Soil moisture conditions vary widely across the island. Bogs are found in low-lying areas and at the base of some dunes where water collects. Conversely, drought conditions often exist on the dunes which are above the water table, and which are often subjected to strong winds. The swales

of these dunes are often subjected to very high temperatures when compared to the dunes themselves. The lack of available nutrients further deters the abundance, type and growth of vegetation.

Vegetation zones created by these environmental stresses include; a beachgrass (*Ammophila breviliqulata*) type on the seaward side of the primary dune, a low shrub/grass thicket on the bay side of the primary dune and across the swale, a high shrub thicket or maritime forest in the swale and salt marsh (dominated by *Spartina sp*.) and/or common reed (*Phraqmites australis*) type extending to the bay (Figure 2, Oosting and Billings 1942, Martin 1959, McCormick et al. 1975 and Godfrey 1976).

Some trees in the maritime forest at Sunken Forest are estimated to be more than 250 years old.

Poison ivy (*Rhus radicans*, *Toxicodendron* sp.) is prevalent in most vegetation zones on Fire Island, and may take the form of a vine or shrub. Its toxic oils, a severe contact poison, may be spread by smoke.

William Floyd Estate: The 613 acres of the William Floyd Estate support diverse patterns of forests, thickets, and herbaceous plant communities. The property has a long history of vegetative manipulation to improve habitat values for deer, small game, and other wildlife. The Floyd descendants, on occasion, mowed and/or cultivated several scattered fields. In addition, some of these areas were planted annually in rye grass; others were managed to maintain hedgerows, lespedesa, and multifora rose to improve wildlife cover. The fields are interspersed among upland forests, lowland forests, and thickets. No plant species on the Estate has been listed as threatened or endangered.

Oak, black cherry, and black locust are the predominate species in the upland forest type. Thickets of arrow-wood, black cherry, sumac, sassafras, and other species occur on disturbed sites. Upland forests are susceptible to fire, and evidence of fire damage is present in some areas. A major fire in the early 1960's may be responsible for the predominance of the black locust/black cherry forest community in some locations on the estate. Most thickets are probably transitional to upland forest communities.

The lowland forest type consists mainly of tupelo, red maple, and white oak. Swamp forests consisting mainly of tupelo occur in lowland areas where the water table is at or near the surface. This type is above the normal high tide line, but these areas are subject to flooding during moderately severe storms. The oak-health community located in the northwestern portion has played host to most of the seasonal brush fires that have occurred in recent years. Forest communities can best be

visualized by referencing J.S. Clark's 1983 map of Vegetation of the William Floyd Estate.

Threatened and Endangered Species:

Terrestrial Animal Species: include the Federally threatened/New York State endangered piping plover *(Charadrius melodus)* and bald eagle (*Haliaeetus leucocephalus*) and the federal and state endangered roseate tern (*Sterna dougali*). A number of other species have the potential to occur on FIIS, such as the NY State threatened least tern (*Sterna antillarum).*

Piping plovers arrive on Fire Island in March; egg laying and incubation occurs from April through June, with chicks typically hatching from May through August. The birds begin leaving Fire Island in August and are almost completely gone by September. Adult piping plovers returning to the national seashore in spring can be found almost anywhere along the beaches. Nesting in recent years occurs primarily on the beaches in front of the Otis Pike Wilderness Area. Plovers generally forage on the beach, but also in dune swales or on the bay shore if there is access through the primary dunes for flightless chicks.

The federally threatened bald eagle and the state endangered peregrine falcon occur at Fire Island National Seashore during their migration through the park.

The roseate tern is exclusively a coastal bird that breeds on small islands or occasionally on barrier beaches. It arrives in coastal areas around Fire Island in April, with egg laying, incubation, and rearing of chicks from May through August. Most roseate terns leave the coastal areas around Fire Island by the end of September. The only nesting colony within the national seashore is on West Inlet Island.

Plant Species: The federally threatened seabeach amaranth (*Amaranthus pumilus*) occurs on overwash flats on the accreting ends of barrier islands, on lower foredunes of beaches, and on non-eroding beaches landward of the wrackline which is found along the high tide line. The plant also occurs on blowouts and on dredge spoils.

Seabeach amaranth seems to be incapable of competing with other plants and is typically found in areas with little or no vegetation in early successional beach areas. There are six recorded locations of seabeach amaranth on Fire Island. The largest concentrations of the plant have been recorded at Democrat Point and Smith Point.

Wilderness Area:

The Otis Pike Wilderness Area is a legislated wilderness area and is managed in accordance with the Fire Island National Seashore wilderness management plan. This plan that all fire management actions within the wilderness area utilize those tactics that have the least impact on the natural resources and ensure firefighter and public safety.

Wildlife:

Mammals: Seventeen species of terrestrial mammals were identified on Fire Island during surveys conducted by McCormick in 1974. Common species identified in the survey include white-tailed deer (*Odocoileus viginianus*), eastern cottontail (*Sylvilagus floridanus*), red fox (*Vulpes vulpes*), raccoon (*Procyon lotor*), masked shrew (*Sorex cinereus*), short-tailed shrew (*Blarina brevicauda*), muskrat (*Ondatra zibethica*), weasel (*Mustela* spp.), white-footed mouse (*Peromyscus leucopus*), and Norway rat (*Rattus norvegicus*). The little brown bat (*Myotis lucifugus*) is the most common bat observed in the area. Feral cats and dogs are also present (U.S. Army Corps of Engineers 1999).

Amphibians and Reptiles: Eight reptile and two amphibian species occur on Fire Island National Seashore. Fowler's toad (*Bufo woodhousei*)and the bullfrog (*Rana catesbeiana*) are the only identified amphibian species. Reptiles identified include eastern mud turtle (*Kinosternon subrubrum subrubrum*), spotted turtle (*Clemmys guttata*), northern diamondback terrapin (*Malaclemys terrapin terrapin*), snapping turtle (*Chelydra serpentina*), eastern box turtle (*Terrapene carolina*), eastern garter snake (*Thamnophis sirtalis*), and northern black racer (*Coluber constrictor constrictor*) (USACE 1999).

Northern diamondback terrapins are common on the backbay sides of the barrier islands. The turtles forage in tidal creeks of marshes and in the open bays. The northern diamondback terrapin feeds on marine snails, clams, and worms. The species typically comes ashore along the bay in June to lay eggs, which hatch in late summer (USACE 1999).

Birds: More than 330 species of birds have been identified on Fire Island National Seashore (see Table 7 for the most common). Fire Island is located along the Atlantic flyway for shorebirds, waterfowl, and other birds that nest in the north and migrate south for the winter. The salt marshes, beaches, and dunes on the island are nesting places for various species of plovers (*Charadrius* spp.), gulls (*Larus* spp.), terns (*Sterna* spp.), geese (*Branta* spp.), herons (*Ardea* spp.), and ducks (*Anas* spp.). The American oystercatcher (*Haematopus palliatus*) and black skimmer (*Rynchops niger*)

are two migratory species that are known to breed in the salt marshes and barrier beaches of Fire Island (RMP 1999).

Insects: The Wilderness Area and the William Floyd Estate are a present focus due to a public perception of a health hazard from mosquitoes transmitting Eastern Equine Encephalitis and West Nile Virus. Weekly monitoring by park staff at three to four sites was begun in 1998 and has expanded to five sites by 2004, and will continue until the issue is resolved. The park is considering an experiment to Open Water Marsh Management at the William Floyd state to decrease the mosquito population. In cooperation with the US Forest Service, the gypsy moth (*Lymantria dispar)* population is also monitored at the William Floyd Estate (RMP 1999).

Deer and Lyme Disease: Lyme disease testing was begun in the park in 1982. 1990 was the first year that no new cases were identified in tested participants. Throughout the 1990's a number of park staff have been diagnosed with Lyme disease. This remains a primary issue in the park and extensive interpretation is used to educate visitors, residents, and staff on prevention measures. Research continues to analyze the relationship to neotropical birds, mammals, and *Exodies* ticks within the coastal barrier island ecosystem.

Air Quality:

The US Environmental Protection Agency has classified the National Seashore as a Class II air quality area. This category includes all of Suffolk and Nassau counties.

New York State, in addition to the EPA classification of air quality, has further divided the State in four levels. The William Floyd Estate is a component of Level 1, which includes farm and rural land east of the William Floyd Parkway. Fire Island (except for 6 miles east of Smith Point; approximately 1/5 of the island), including the Wilderness Area, is classified as Level 1, which includes all of Suffolk County west of the William Floyd Parkway to the Nassau-Suffolk County line.

Minimal monitoring of air quality has been conducted on the south shore of Long Island. It is known, however, the ambient ozone levels in Suffolk County exceed federal EPA standards. Acid rain is not monitored on Long Island.

Prescribed burns will secure an open burning permit from the New York Department of Air Quality and abide by the conditions of the permit.

Cultural Resources:

Two major cultural resources are located within the park boundaries; the William Floyd Estate and the Fire Island Lighthouse. Both are listed on the National Register of Historic Places.

The William Floyd Estate is located in Mastic Beach. The Estate contains a 25 room furnished house, 11 outbuildings, a family cemetery and over 600 acres of cultural landscape. The house and outbuildings contain the largest extent of the park's collections, over 50,000 objects.

The Fire Island Light Station tract is located at the western boundary of the park abutting Robert Moses State Park. The Lighthouse Tract contains the Lighthouse and Keepers Quarters complex, the foundation of the 1825 Lighthouse, Coast Guard Annex Building and 3 outbuildings. Additionally, the remains of pre-1940's radio antenna farm are present.

Both areas, the William Floyd Estate and the Fire Island Lighthouse Tract will be treated as significant cultural and historic resources in terms of fire protection.

Archeological Sites: Archeological evidence suggests that Fire Island and the riverine areas on the south shore of Long Island have been areas of human habitation and use dating from 8,000-10,000 years ago. For the most part, current literature suggests that occupation and use of Fire Island was seasonal. However, riverine sites on the north and south shore of Long Island have been identified as year-around settlement areas.

Archeological reconnaissance of Fire Island (Vetter and Salwens, 1974) suggests that there will be little pre-European contact materials on Fire Island due to rapid and sometimes violent climatic and geomorphic changes.

Historic use of the Island dates from the earliest arrivals of Europeans to the area. Seasonal exploitation of aquatic resources is well documented. Again, the rapid changes in the features of the island limit the extent of materials to be located in the area. Areas near earlier inlets would be most likely to contain post-European contact materials; although the likelihood of many materials surviving the effects of the climate is limited. Seven U.S. Life Saving Stations were constructed on present Fire Island during the late 1800s; none remain standing on park-owned property.

The William Floyd Estate contains extensive areas of archeological sensitivity, from pre-European contact to mid-twentieth century. Numerous features and sites were identified by McCormick in 1977. Additional features have been located and identified by park staff in the course of land

management activities. For the most part, the identified features may be considered stable.

Adjacent Landownership: Land ownership within Seashore boundaries includes: NPS, 6,093 acres; state/local, 12,499 acres; private, 987 acres. Most private land is located within Fire Island's 17 exempt communities. Visitors to Fire Island usually travel by boat from ferry terminals located on Long Island. Small boats are also used by visitors and residents to reach Fire Island. Vehicular travel is regulated and generally limited to emergency, municipal, service and commercial vehicles.

b. Strategic and Measurable Fire Management Objectives

1. Ensure that all wildland and prescribed fire operations sustain no injuries to members of the public or firefighters.

2. 95% of all unscheduled wildland fires are controlled during initial attack (24 hours or 10 acres).

3. 100% of all prescribed fires are conducted consistent with Federal, State and local smoke management requirements.

4. Manage suppression actions so that rehabilitation costs are less than 10% of suppression costs.

c. Management Considerations

These constraints, considerations, or decision criteria will influence all fire management activities within the fire management unit.

1. No unacceptable impacts to cultural resources or threatened and endangered species.

2. Ensure socio-political economic impacts, including wildland urban interface (WUI), is considered in developing implementation plans.

3. Ensure that the public, organizations, and cooperating agencies are aware of any suppression or prescribed fire operation that may have an impact on them.

4. Utilize fire management stratigies and tactics within the Otis Pike Wilderness Area that have the least impact on the natural resources and ensure firefuighter and public safety.

d. Historic Role of Fire

Fire history of the Central Pine Barrens indicates that the importance of fire prior to European settlement is shown by the presence of fossil pitch pine pollen and abundant charcoal in the sediments of Deep Pond, in the Boy Scout camp at the northern edge of the Central Pine Barrens. Distinct layers of charcoal in the sediment core indicate that there have been at least eight major fires in the past 2200 years. These fires could have been set by lightning and/or by Native Americans. Reports of fire are common from the time of the very earliest explorers.

Large fires became more common after European settlement. Severe and extensive wildfires burned through the Central Pine Barrens repeatedly during the 1800's, with especially large fires in 1839, 1845, 1848, and 1862, 1930's, 1960's, and 1995. Sparks may have caused many of the early fires from the wood burning engines of the Long Island Railroad; however, arson was a frequent source of the fires. (http://pb.state.ny.us/fire_plan/final_plan_chapter_3.htm)

There are no studies or publications that address the fire history of Fire Island National Seashore. The William Floyd Estate has likely experienced a fire history similar to the rest of the State of New York. In an article in the Journal of Forestry (November 2001), authors Brose, Schuler, Van Lear and Berst noted the following:

Since vegetative associations stabilized about 4,000 years ago, the Appalachian mixed-oak forests have experienced three profoundly different fire regimes. Periodic low intensity surface fires lit by American Indians characterized the first regime, and this regime helped perpetuate oak as one of the dominant species groups. The Industrial Revolution led to high intensity, stand replacing fires, causing extensive damage to the forests. Modern fire protection created a "no-fire" regime that permitted the forests to recover but allowed mesophytic species to begin replacing the oaks.

The fire history of Fire Island is difficult to determine. Beach nourishment efforts have likely prevented breaks from cutting through the island. Community development, artificially high deer populations and other human factors have combined to significantly alter the species composition of the island vegetation. The extent of fire use by Native Americans and early settlers is also largely unknown. Although natural ignitions are relatively uncommon it is possible that these ignitions may have helped shape the vegetation prior to the implementation of contemporary suppression strategies.

Twenty-nine years (1974-2003) of park fire records show that 100% of wildland fires suppressed within the protection area were human caused. The specific causes of ignition as follows:

Cooking Fires	6%
Pyromania	6%
Smoking	10%
Other	68%

From 1974 thru 2003 the park experienced an average of just over 1 fire a year. These fires burn an average of 14 acres per year. The largest fire occurred in 2001 and was 147 acres. These fires are broken into the following size classes:

Fire Size	**Percentage**	**Number**
Class A (<1/4 acre)	0%	0
Class B (> ¼ acre: < 10 acres)	81%	25
Class C (> 10 acres, < 100 acres)	16%	5
Class D (> 100 acres, < 300 acres)	3%	1
Class E (> 300 acres, < 1,000 acres)	0%	0
Class F (> 1,000 acres, < 5,000 acres)	0%	0
Class G (> 5,000 acres)	0%	0

e. Wildland Fire Management Situation

1. Historical Weather Analysis:

The maritime climate associated with FIIS can vary widely at any given time between the island and the mainland (Long Island). Seasonally, temperatures range from below zero during December, January, February and March to over 100 in August. Annual precipitation averages 38.9" with the distribution being relatively consistent, throughout the year, averaging 3.2" per month. Minimum average monthly precipitation occurs in September (3.4") and maximum precipitation in November (4.4").

Table 1 Records and Averages – Patchogue
Records and Averages – Patchogue

Month	Avg. High	Avg. Low	Avg. Precip.	Rec. High	Rec. Low
January	38.5° F	20.6° F	3.9 in	67° (1967)	-13° F (1984)
February	40.4° F	22.2° F	3.7 in	68° (1991)	-6° F (1979)
March	49.0° F	29.6° F	4.2 in	83° (1990)	-7° F (1967)
April	59.0° F	37.5° F	4.3 in	90° (1976)	12° F (1982)
May	69.0° F	47.3° F	4.0 in	97° (1996)	28° F (1971)
June	77.8° F	57.0° F	4.0 in	99° (1952)	34° F (1967)
July	83.1° F	63.3° F	3.5 in	98° (1993)	46° F (1971)
August	82.3° F	62.4° F	4.3 in	102° (1975)	40° F (1971)
September	75.6° F	55.0° F	3.4 in	97° (1983)	33° F (1951)
October	65.3° F	44.0° F	3.6 in	85° (1967)	17° F (1969)
November	54.5° F	36.0° F	4.4 in	77° (1993)	10° F (1989)
December	43.4° F	26.4° F	4.3 in	68° (1982)	-6° F (1950)

http://search.weather.yahoo.com/climo/USNY1100_f.html

2. Fire Season:

This area normally experiences two fire seasons: a spring fire season and a fall fire season. The spring months are often very dry and very windy and many fires occur during this season.

The summer months are typically characterized by hot and humid weather. Ignitions occasionally occur along boardwalks where they will display increased intensities and rates of spread when a fuel type such as swale brush is involved.

The fall and winter months along the coast are generally characterized by relatively cool and dry weather with occasional brief rainy periods. Grass fuels are completely cured and will support ignitions readily if dry, and windy conditions can produce fire behavior approaching that seen during spring wind events.

3. Fuel Type and Characteristics:

Fire Behavior Fuel Model 1 (NFDRS model L)
Perennial grasses associated with scattered meadows. Fuel loadings may be up to 1 ton per acre (Burgan 1988). This fuel model is typically found immediately inland from the beaches and in the abandoned fields.

Fire Behavior Fuel Model 3 (NFDRS model N)
Phragmites stands are the sole example of this fuel model. The model is based on grasses up to 3 feet in height and may under predict fire behavior in 6-12 foot stands of cured Phragmites.

Fire Behavior Fuel Model 5 (NFDRS model D)
Fuel loading of 3.5 tons per acre (Burgan 1988). Usually shrubs are short and almost totally cover the area. Abandoned fields and many of the vegetated areas on the island are typical of this model. Many island areas have sparser vegetation than characterized by this model and consequently the model may over predict fire behavior.

Fire Behavior Fuel Model 6 (NFDRS model F)
This fuel model is typically found on abandoned fields where the shrubs have largely encroached.

Fire Behavior Fuel Model 8 (NFDRS model R/E)
Closed canopy stands of hardwoods that have leafed out. Fires are supported in a compact litter layer. This layer is mainly leaves, twigs and needles. Little undergrowth is present. Typical fuel loadings are 3 tons per acre (Burgan 1988). This fuel model predominates throughout the area from mid winter through late summer.

Fire Behavior Fuel Model 9 (NFDRS model R/E)
Loose concentrations of litter in hardwood stands. Typical fuel loadings are 4.75 tons per acre (Burgan 1988). This is the primary characteristic fuel model throughout the fall fire season and during periods of late summer drought.

Fire Behavior Fuel Model 11 (NFDRS model K)
Eastern hardwood forest where slash and herbaceous material are intermixed. The spacing of the rather light fuel loading, shading from overstory, or aging of fine fuels can contribute to lowering fire potential. The < 3 inch material load is under 12 tons per acre (NFES 1981). This fuel model would represent fuels from a hazard fuel reduction project.

Table 2 correlates the vegetation type, the National Fire Danger Rating System (NFDRS) and the Fire Behavior Prediction System (FBPS) fuel models.

Table 2: Fuel Models by Vegetation Type

Vegetation Type	NFDRS Fuel Model	Fire Behavior Fuel Model
Grasses	L & N	1 & 3
Brush	D & F	5 & 6
Pine/Hardwood Forest	R/E	8 & 9
Slash	K	11

4. Fire Regime Alteration:

Fire has not played a major role in shaping the character of the vegetation of park over at least the past 100 years. The exclusion of fire by aggressive control policies has allowed forest succession to progress toward the mixed-mesophytic forest type. As the pine species die they are largely being replaced by more tolerant hardwood species.

5. Control Problems:

Communities, subdivisions, individual houses, roads, and other developments are all common throughout and adjacent to the park. While these developments often provide breaks in the burnable vegetation and are good access for suppression resources, they also may increase the values at risk and the probability of an ignition.

On the island the vegetation and numerous wood structures in these communities poses a greater fire threat than the surrounding vegetation. Limited vehicle access and weather availability have the potential to make suppression efforts more difficult. Onshore winds are frequently strong and when dry fuels, low humidities and warm temperatures coincide with these strong winds extreme fire behavior can occur.

Control problems could range from extreme to low depending on site specifics and burning conditions. Under normal fire season conditions control problems could be expected to be low to moderate.

6. Elements Affecting Management:

The wildland urban interface situation is an important consideration for the park. The park is in a Class II airshed, but with the interface situation smoke from any fire management operation is a primary concern. Protection of neighboring private property, park developments and historic resources is of paramount importance.

f. Step-up Staffing Plan

The park's step-up plan specifies staffing class levels based upon the burning index (BI). Preparedness activities during the fire season are based on the National Fire Danger Rating System (NFDRS). Fire days are broadly divided into five manning classes according to the intensity of danger factors as indicated by the burning index (BI).

The BI integrates the effects of weather, fuels, topography, and other factors to estimate potential fire behavior, and the corresponding amount of effort required to contain a fire. The staffing classes relate to the expected severity of fire conditions.

Each staffing class level will have a corresponding set of actions that the park will initiate to meet potential fire problems. Staffing Class I-III level actions are funded by the park, while actions taken at the IV and V staffing class levels are supported with emergency funds. The park fire coordinator will obtain these funds from the area FMO (DEWA). During the fire season the daily adjective class will be provided by the New York State's Central Pine Barrens. During the fire season the daily adjective class is posted daily and can be found at: New York State's Central Pine Barrens - Main Page. The BI ranges determining staffing class for the park can be found in Appendix C.

IV WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS

A. General Implementation Procedures

A wildland fire implementation plan (WFIP) will be initiated for all wildland fires. This plan will provide the framework for evaluating all ignitions and determining the appropriate management response. The WFIP Stage I: Initial Fire Assessment will be the responsibility of the incident commander or the park's fire coordinator starts. As the park FMU only allows for suppression, the requirement for a decision checklist as a part of the stage I analysis can be considered met. Subsequently, stage I analysis may be satisfied at the programmatic level in the FMP through determinations made by combinations of values to be protected and/or fire behavior thresholds. A copy of the WFIP Stage I form can be found in Appendix B.

B. Wildland Fire Suppression

1. Range of Potential Fire Behavior:

The fire behavior described below can be expected under average spring and fall fire seasons conditions. A combination of drought, high wind, low humidity, and high temperatures can greatly increase expected fire behavior.

Fuel Model 1: Generally exhibits moderate intensities with average rates of spreads 50-70 chains per hour and flame lengths of 3-4 feet. The fine, continuous herbaceous fuels that are cured or are nearly cured govern fire spread. Fires are surface fires that move rapidly through the grass and associated materials. The rate of spread will increase significantly when there is a slope component in the dune area.

Fuel Model 3: *Potentially the most dangerous fuel model from the fire behavior perspective*. Given a 0% slope, 3% 1-hour fuel moisture and a midflame wind speed of 12 miles per hour a 490 chains per hour rate of spread should be expected with flame lengths up to 15 feet given constant fuel availability. This rate of spread is greater than 6 miles per hour.

Fuel Model 5: Generally exhibits high rates of spread, approximately 16-20 chains per hour, with average flame lengths of 3-4 feet. Fires are not very intense because surface fuel loads are light and the shrubs have little dead material.

Fuel Model 6: Generally exhibits moderate to high intensities. Horizontal continuity with surface fuel components dictates intensities. Torching and spotting may occur under normal burning conditions. Moderate winds (greater than 8 mph mid-flame wind spread (MFWS) are required to carry fire through the shrub layer. Fire will drop to the ground at low wind speeds.

Fuel Model 8: Generally exhibits low rates of spread, approximately 8-10 chains per hour, with average flame lengths of 2-3 feet. Slow burning ground fires are typical with occasional flare-ups caused by heavy fuel concentrations. This fuel model is typical for winter, spring and summer periods where fuel compaction and moisture content are primary influences. Under severe weather conditions involving high temperatures, low relative humidities and high winds, moderate fire behavior may occur and pose fire hazards.

Fuel Model 9: Generally exhibit faster rates of spread (greater than 10 chains per hour) and longer flame lengths (greater than 4 feet) than fuel model 8. Typical of fall fires in hardwood stands where high winds can cause higher rates of spread than predicted because of spotting from rolling and blowing leaves. Concentrations of dead and down material will contribute to torching of trees, spotting and crowning.

Fuel Model 11: Generally exhibits moderate rates of spread, approximately 5-9 chains per hour, with average flame lengths of 3-4 feet. Fires are fairly active in both the “dead-and-down” fuel component and in the herbaceous material intermixed with the slash. Rates of spread greater

than 9 chains per hour and flame lengths greater than 4 feet are possible where fuels are continuous or influenced by the wind.

Table 3 illustrates the comparative rates of spread and flame lengths for different fuel models at a fuel moisture content of 8%, a midflame windspeed of 5 miles/hour live and, if present, a fuel moisture of 100%.

Table 3 Fuel Model, Rate of Spread and flame Length

Fuel Model	Rate of Spread (chains/hr)	Flame Length (feet)
1	78	4
3	104	12
5	18	4
6	32	6
8	2	1
9	13	3.5
11	6	4

(Anderson, 1982)

2. Preparedness Actions

a. Fire Prevention, Community Education, and Assistance Programs

Human-caused ignitions account for more than 99% of all documented historic fires in the park. Increased boundary pressures and visitation, and arson keep the potential for human-caused ignitions high.

An active wildfire prevention program is necessary to minimize the risk to life or property and the destruction of irreplaceable park resources.

The goals of this program are:

- Utilize agency guidelines and partnership efforts with cooperators to carryout an effective fire prevention program.
- Work with neighboring the Central Pine Barrens Wildfire Task Force to establish common protocols and procedures identify training needs, conduct joint training when possible and develop strategies for safer and more efficient fire management operations.

The following programs are established to direct the plan of the park.

Education: Maintain public awareness, understanding and support for visitors and neighbors by:

- Contacting adjoining property owners and educate park neighbors in methods to increase fire safety and promote fire prevention.

- Establishing centralized information points at all visitor centers and headquarters buildings. Locating signs, posters or bulletin boards with fire prevention messages in appropriate areas for exhibit. Disseminating printed material at the buildings and include such messages in all park printed material.

- Providing printed prevention material to park employees and increase prevention awareness through formal presentations, training and practice.

- Increasing visitor contacts during periods of high fire danger in developed and backcountry areas.

- Initiating media campaigns throughout the protection area to establish the NPS commitment to fire prevention through use of press releases, special news articles, photo opportunities and tours.

- Participating in local parades, fairs and other "outreach" programs to disseminate prevention and prescribed fire messages.

- Developing and present school programs designed to teach wildfire awareness, management and prevention.

Engineering:

- Evaluate park facilities, structures and developed areas for potential risks and hazards caused by proximity of hazard fuels.

- Integrate fire resistant construction techniques into park planning and contracting projects for new facilities.

- Develop projects that include but not be limited to, removing vegetation from around structures, creating firebreaks in high-risk areas, and using spark arresters on internal combustion engines and fireplaces. Projects will be coordinated with the district maintenance foreman. Fire resistant construction planning will be coordinated through the chief of maintenance.

Enforcement:

- Actively enforce and gain compliance with fire laws and regulations of the park.
- Aggressively investigate all fires where the cause is arson or unknown.
- Restrict fire use, public access and park operations as required in times of high fire danger.

b. Annual Training Activities:

Departmental policy requires that all personnel engaged in suppression and prescribed fire duties meet the standards set by the National Wildfire Coordinating Group (NWCG, 310-1). The DOI incident qualification system meets or exceeds all NWCG standards. The park will conform strictly to the requirements of the NPS wildland fire management qualification and certification system.

The park fire coordinator is responsible for organizing the training required to meet park expectations for red-carded firefighters. When advanced or specialized training is necessary, the area FMO will work through the regional fire management office to obtain funding and enrollment. The fire coordinator will coordinate the park's fire training needs with those of other nearby parks, cooperating agencies, and the region.

Basic wildfire training refreshers will be offered annually for red-carded firefighters. Additional training will be given in pump and engine operation, power saws, firefighter safety, fire weather and fire behavior, helicopter safety, and park prescribed fire objectives and activities. Extensive on-the-job training is encouraged and conducted at the field level. Whenever appropriate, the use of fire qualification position task books will be used to document fire experience of trainees.

In addition, during general seasonal orientation, all seasonal personnel will receive instruction in:

- Purpose and objectives of the fire management program.
- Prescribed fire actions conducted and planned.
- Use of fire in vegetation management.

- Public, employee, and firefighter safety during suppression and prescribed fire operations.

c. Annual Readiness Activities

Pre-Season Risk Analysis - A risk analysis will be prepared by the FMO prior to the beginning of fire season(s) and at any other period when the potential exists for critical fire activity. The risk analysis contains weather analysis, drought severity, and associated trends that may contribute to limits of acceptable control.

Supplies, Materials and Equipment - The main fire cache is located at the Patchogue Maintenance Facility and smaller caches are at the West District and East District Ranger Stations. Each cache will have sufficient equipment to maintain an initial attack response capability personal protective equipment and handtools.

The following outline details the suggested calendar year fire management program for the park:

January:

- Permanent employees' physical fitness exams.
- Archive training and experience records of seasonal personnel.

February:

- Meetings with cooperators; final review and revision of interagency agreements.
- Submit proposed revisions of fire management plan to the Mid Atlantic Area FMO and Northeast Region FMO.
- Mutual aid requests are processed by the Suffolk County Department of Fire, Rescue and Emergency Services (FRES) Communication Center in Yaphank, which maintains a current database of all available apparatus and special equipment.
- Inventory fire cache: all tools, equipment, kits, and supplies fire ready; order needed personal protective equipment and tools.
- Update publications with appropriate fire safety messages.

- Semi-annual service of slip-on pump, power saws, and other equipment.

March:

- Meeting with Pine Barrens Wildfire Task Force regarding operating procedures.
- Permanent employees' physical fitness scores due.
- Meeting or discussion with representatives from the regional fire management office to review plans and current program.
- Review with concerned park staff of approved fire management plan revisions and plan prescribed fire activities.
- Meeting with cooperators to review approved fire management plan revisions.
- Distribution of fire management plan to cooperators.
- Preseason planning completed; all cooperative agreements revised and in effect.
- Issue red cards to permanent personnel.
- Annual firefighter training refresher.
- Coordinate fire weather program notification with nearby parks.
- Implement step-up plan and adjust level of readiness in response to changing fire danger levels.
- Probable start of spring fire season.
- Prepare draft press releases.
- Update the fire callout list.
- Conduct outreach programs at local schools, incorporating fire safety message.

April:

- Continue planning for prescribed fire program.
- Update fire experience and training records for red-carded personnel.
- Update all park bulletin boards with fire safety message.

May:

- Maintain fire contacts with representatives from the regional fire management office, nearby park fire managers or FMOs, and cooperators.
- Continue planning for prescribed fire program.

June:

- Physical fitness testing for seasonal personnel.
- Draft FIREPRO budget request and submit to Mid Atlantic Area FMO and Northeast Region fire management office.
- Issue personal protective equipment to seasonal personnel, if necessary.
- Participate in annual seasonal fire training.
- Present fire extinguisher and fire safety training for all staff, volunteers, and concession employees.
- Issue red-cards to seasonal personnel.
- Issue updated fire call-out list to the Mid Atlantic Area FMO and the Northeast Region fire management office.
- Regional FMO, nearby parks, and cooperators.
- Probable end of spring fire season.

July:

- Conduct semi-annual service of slip-on pump, power saws, and other fire equipment.

- Trim growing vegetation from structures and trails.

August:

- Meet with finance personnel on status of outstanding fire orders or requisitions.

September:

- Meet with finance personnel on status of fire accounts and outstanding fire orders or requisitions.
- Update park fire callout list

October:

- Review interagency agreements, draft revisions as necessary, and submit to the chief park ranger for approval.
- Inventory fire cache and requisition replacement equipment and supplies to maintain approved levels.
- Submit proposals for annual training to superintendent for review.
- Forward nominations for interagency fire training to the Mid Atlantic Area FMO and the Northeast Region fire management office.
- Probable start of fall fire season.
- Prepare draft press releases.
- Preseason planning completed.
- Update the fire callout list.
- Implement step-up plan and adjust level of readiness in response to changing fire danger levels.

November:

- Maintain fire contacts with representative from the regional fire management office, nearby park fire managers or FMOs and cooperators.

December:

- Archive weather records.
- Compile fire atlas for completed season from fire log; prepare annual summary report.
- Probable end of fall fire season.
- Forward outstanding fire reports to Northeast Region fire management office.

d. Fire Weather and Fire Danger

There are no fire weather stations at the park. Fire weather and danger will be determined daily by the New York Central Pine Barrens and can be viewed at: Central Pine Barrens Fire Weather and Public Lands Status.

e. Step-Up Staffing Plan

This staffing assessment will be used in the event of multiple lightning or human-caused fires and carry over to prescribed fires. Minimum staffing levels will be considered annually in the fire management plan and the prescribed fire plan to prevent over-extension of out-of-park call-out commitments for overhead positions and crew personnel. The following actions will be taken to ensure adequate fire preparedness.

Level I: No activity necessary. Normal eight (8) hour tours of duty. Red-carded employees are available to respond and take necessary action on any fire reported.

Level II: Normal eight (8) hour tours of duty. Fire equipment and supplies serviced and prepared for use. On-duty patrol rangers are in the field during afternoon hours with fire tools in patrol vehicles.

Level III: Normal eight (8) hour tours of duty. The park is prepared to respond to a fire. All relevant personnel know locations of red-carded personnel. Red-carded personnel have fire tools and personal protective equipment immediately available in their work vehicles or at their work site.

Level IV: All activities in preparedness level III are continued. Approval authority for expenditure of emergency preparedness funds resides with the Mid Atlantic Area FMO stationed at Delaware Water Gap. Tours of duty may be extended to 7 days per week, ten (10) hours per day. Increased prevention and detection patrols are conducted. Minimums of two (2) red-carded firefighters are on duty

during the burning period (to at least 1800 hours). Longer hours of coverage are initiated for certain key positions (chief park ranger/district ranger, FMO, chief of resources management & planning, park information officer). Lieu days and leave may be cancelled for red-carded firefighters. Cooperatives are contacted and activities coordinated (New York Department of Environmental Conservation, volunteer fire departments) in an effort to provide consistent information to the public and park neighbors. High fire danger notices will be posted in visitor centers and at site bulletin boards.

Level V: All activities in preparedness level IV are continued. Minimums of four (4) red-carded firefighters are on duty during the burning period (to at least 2000 hours). All fires may be prohibited including the use of fire grates, grills, and stoves. Restrictions and closures of park areas may be deemed necessary. Interpretive activities will include a fire safety message.

3. Pre-Attack Plan

No written or formal pre-attack plan exists for the park. Volunteer fire departments, with the exception of Davis Park, have developed their own protocols and procedures for initial attack of fires within the park boundary.

4. Initial Attack

Initial attack will be rapid and efficient for all wildfires in the park, or when assistance is requested from a cooperator. The FMO is responsible for initial attack and will assign an initial attack incident commander. The FMO will coordinate initial attack actions during extended emergency preparedness and severity periods and for cooperator mobilization requests. Size-up information will be recorded by the initial attack incident commander and forwarded to dispatch (Suffolk County Department of Fire, Rescue and Emergency Services Communication Center in Yaphank). Size-up information will also be used to complete stage 1 of the WFIP. Dispatch will relay the size-up information to the FMO who will make appropriate notification to the regional FMO, superintendent, and other park staff. The following information, contained in the Central Pine Barrens Fire Management Plan (April 1999) will be used to size-up the fire:

Table 4 Size Up Form

Fire Data	Description
Date and Time	Self explanatory.
Location	Street location of fire.
Size	The size of the fire is recorded in terms of number of acres involved on arrival of first unit and at time of updates.
Rate of Spread	Recorded on arrival and at time of updates as fast, medium o slow.
Exposures	Identifies the type of exposure: residential, business or hazardous materials and time until threatened.
Firebreaks	Identifies trails, roads or cleared areas that can be used as firebreaks or firelines.
Fire Behavior	Type of fuel [grass, slow woods (such as oak and locust) or pines] and type of fire (ground, surface or crown)
Weather Conditions	Temperature, wind speed, relative humidity and wind directio
Fire Weather Index	This is a scale and explanation of the fire weather conditions for the fire location disseminated by Suffolk County Fire Rescue and Emergency Services, obtained at the time of dispatch and updated as required. It includes information on the 10 hr. fuel moisture content and drought index.
Fire Classificatio	Type IV - Responding Department & up to 3 Mutual-Aid Departments. Type III - Responding Department & 3-10 Mutual-Aid Departments. Type II - County Wide Resources are needed, most ICS positions are filled. Type I - State and Federal Resources are needed - ALL ICS positions are filled by most qualified personnel. Each classification indicates the level of equipment, manpowe and mutual aid (local, county, state and/or federal) required in addition to the responding department to control and extinguish the fire. Type I represents the most severe case where state and/or federal aid is required to control the fire. Ar exception to this would be the use of state helicopter resource which may also be employed under Type II and III without reclassification to a Type I.

The incident commander is responsible for the fire until relieved or until the fire is declared out.

If initial attack is not successful at holding the fire under 10 acres or achieving control within 24 hours, or the incident commander determines that the fire situation will require a more complex organization, the FMO will assign an extended attack IC (Type III IC) and initiate an extended attack fire organization.

a. Priority Setting During Multiple Fire Occurrences:

- Vegetative cover map; any fire with continuous fuels up to and across the NPS boundary or structures.
- Cultural and historic site map.
- Park facility map.

b. Criteria For Appropriate Initial Attack Response Consistent with GMP/RMP Objectives:

- Public and firefighter safety.
- Protection of cultural, historic, and natural resources.
- Protection of improvements and private property.
- Minimum fire-line construction.
- Available suppression resources and response times.
- Fire danger as determined by fuels, weather, and topography.
- Use aircraft and mechanized equipment only where necessary to support above-listed criteria.

Charts for helping determining the appropriate management response are in Appendix D. These charts consider such factors as fire danger, risk, threats, objectives, time of season, external influences, and complexity.

c. Confinement as a Strategy:

- Confinement may be used to minimize resource damage and to provide for firefighter safety.
- A confinement strategy may be selected for initial attack as long as it is not being used solely to meet resource management objectives.

- Resource benefits may be a by-product, but the strategy must be based upon the criteria listed above.

- A confinement strategy may also be selected in the WFSA process when initial attack has failed to contain a wildland fire.

d. Response Times:

Response Time for initial attack ground resources is approximately one hour or less depending on proximity, accessibility, and other such variables. Extended attack resources should be able to respond in two to six hours, again depending on proximity and availability. Aviation resources will have the greatest range of response time. This time can vary from two hours to an indefinite period of time depending on seasonality, regional severity, fire priorities, availability, and proximity. Air tankers are stationed in Knoxville, Tennessee, Asheville, North Carolina and at Weyer's Cave, Shenandoah Valley in Virginia during periods of high fire danger. These resources can be moved both seasonally and daily according to fire danger and occurrence.

Single engine air tankers under contract by the State of New Jersey, and various helicopters owned and operated by New York State Department of Environmental Conservation (Forest Rangers), Westham Air National Guard and New York Army Guard (Islip) may be available for emergency use. These helicopters are capable of reconnance and some for bucket drops. Any aircraft used in fire management operations needs to be approved by the DOI Office of Aircraft Services prior to use.

e. Restrictions and Special Concerns:

The constraints on these strategies concern the manner in which the wildfire will be suppressed, or the prescribed fire will be managed. These constraints involving machinery include:

- Use of rubber-tired vehicles involved in fire suppression, prescribed burning, and mechanical hazard fuels management projects to minimize the potential of disturbing archeological sites.

- Use of water and/or natural barriers as much as possible rather than construction of handlines to contain wildland and prescribed fires to minimize the potential of disturbing archeological sites.

- Use of a suite of mitigation actions, used either individually or in combination, to reduce the potential effect of wildland fires and suppression actions on historic structures. These include blacklining around the structures, treating with fire retardant foam concurrent with fires, wrapping with heat reflective materials, and establishing sprinkler systems on and around structures concurrent with wildland fire suppression activities.

- Contact the park's cultural resource specialist concurrent with the detection of wildland fires and during planning stages of hazard fuels reduction projects and prescribed burns to ensure avoidance, to the greatest extent feasible, of cultural resources.

- Monitor fire and hazard fuels management fire retardant, if used, must be on the approved list of retardants used by the U.S. Forest Service and USDI Bureau of Land Management.

Motorized equipment would not normally be used off of established roadways in the park. However, due to potential rapid rates of spread and the emergency nature of fires near the boundary, off-road use of motorized equipment, such as all-terrain vehicles and wildland fire engines, may be authorized by the superintendent.

- Monitor activities and halt work if previously unknown resources are located; protect and record newly discovered resources.

- Brief suppression, prescribed fire, hazard fuels, and hazard tree personnel about protecting natural and cultural resources.

- In fire suppression operations, protection of structures and features will be more important than minimizing acres burned.

- Coordinate with other fire suppression agencies and resources to ensure best management practices are used in all fire, hazard tree, and hazard fuels management activities.

- Coordinate rehabilitation of firelines and other disturbed areas with natural and cultural resource specialist.

f. Local Issues:

The park uses local volunteer fire departments and the State of New York resources for assisting in initial and extended attack. This close alliance

requires that the park work closely with these agencies in planning, training, preparedness, and other fire management issues.

The NPS will be the lead agency and responsible for managing all prescribed fires within the park.

Many park visitors appropriately utilize fire to enhance their recreational experience. It is the park's policy that campfires or warming fires will be permitted within the protection area as long as the fire is used in accordance with NPS regulations and applicable New York State Forest Fire Laws.

Prescribed fires by lessees or cooperators will only be authorized when in compliance with National Wildfire Coordination Group (NWCG) requirements. Prescribed fires ignited under these terms, must comply with applicable New York State Forest Fire Laws. Fires ignited by lessees or cooperators under such existing agreements that exceed prescription will be considered wildfires and suppressed.

5. Extended Attack and Large Fire Suppression

a. Extended Attack Needs:

Extended attack needs will be determined by considering the following:

- Threats to life, property, and NPS resources.
- Availability of suppression forces.
- Current and expected fire behavior.

Additional local resources and air support will be ordered through the Suffolk County Department of Fire, Rescue and Emergency Services Communication Center in Yaphank. If additional resources are needed they will be ordered through the Illinois Interagency Dispatch Center (NEC) located in Augusta, Maine. This dispatch center is primarily supported be the Eastern Area Coordintion Center (EACC) located in Ft. Snelling, MN and secondarly by the National Interagency Coordination Center located in Boise, ID.

b. Implementation Plan Requirements - WFSA Development:

When a fire escapes initial attack a new strategy must be developed to suppress the fire. This selection process is accomplished through the development of a WFSA.

The WFSA is a decision process that employs a systematic and reasonable approach to determine the most appropriate management strategy for a particular situation. Reasonable management alternatives are identified, analyzed, and evaluated, and are consistent with the expected probability of success /consequences of failure. The superintendent shall approve the WFSA and any revisions. Evaluation criteria include firefighter safety, anticipated costs, resource impacts, and social, political, and environmental considerations. The evaluation of alternatives becomes the triggering mechanism for re-evaluation of the WFSA.

A written copy of a WFSA can be found in Appendix E. An electronic version can be found at the U.S. Forest Service website at http://www.fs.fed.us/fire/wfsa/.

c. Incident Management Transition:

The superintendent will approve requests to mobilize a local or national incident management team (Type II or I) into the park. The FMO will coordinate transitions to the incident management team. The superintendent or acting superintendent will represent the park at the initial meeting, issue the delegation of authority, approve the WFSA, and approve the agency advisor to the team.

Transition to an incident management team entails a briefing by the superintendent and a limited delegation of authority for the suppression of the fire(s). The briefing should address agency specific concerns, priorities, firefighter and public safety, economic and resource concerns, and other topics or issues of importance and relevance to the suppression effort.

d. Delegation of Authority:

An example of a delegation of authority from the superintendent to the incident commander is located in Appendix F.

6. Exceeding WFIP and New Strategy Selection

A wildland fire implementation plan is a progressively developed assessment and operational management plan that documents the analysis and selection of strategies and describes the appropriate management response for a wildland fire. An example can be found in Appendix B.

A WFIP has been exceeded when a fire cannot be suppressed during initial attack suppression actions, or when a prescribed fire becomes an escaped fire. Then, a

wildland fire situation analysis must be developed. When completed the WFSA will develop a new strategy by which the fire should be managed.

7. Minimum Impact Suppression Tactics

Complete minimum impact guidelines are listed in Appendix G. Minimum impact suppression tactics would be employed in all tactical operations except as noted below.

Hazard fuels and hazard tree activities, such as mowers and brush hogs, would be used only when soils were dry to minimize soil compaction and erosion.

- All extended attack and prescribed fire operations would have a park employee designated and available to assist suppression operations as a resource advisor. If qualified employees were not available, a resource advisor would be ordered through the interagency dispatch system.

- Helicopters may be used to transport personnel, supplies, and equipment, and bucket drops. Improvement of landing sites would be kept to a minimum and would include consultation with the assigned resource advisor. Helibases and landing sites would be rehabilitated to pre-fire conditions to the extent reasonably possible.

- Suppression actions would avoid aerial and ground applications of retardant or foam within 300 feet of identified water sources.

- Except for spot maintenance to remove obstructions, no modifications would be made to roadways, trails, water sources, or clearings. All sites where modifications are made or obstructions removed would be rehabilitated to pre-fire conditions to the extent reasonably possible.

- Earthmoving equipment such as tractors, graders, bulldozers, or other tracked vehicles would not be used for fire suppression or prescribed fire. If special circumstances warrant extreme measures to ensure protection, the superintendent may authorize the use of heavy equipment.

- Fireline location would avoid sensitive areas wherever possible.

- Following fire suppression activities, firelines would be re-contoured and water-barred.

- As a matter of practice, burned areas would not be reseeded unless there are overriding concerns about establishment of invasive

nonnative species. Any reseeding would be with native species and occur only with the superintendent's prior approval.

- Park neighbors, park visitors, and the local residents would be notified of all planned fire and fuels management activities with the potential to affect them. The public would be notified about treatment activities through procedures identified in project-specific work plans. These methods could include press releases, park entrance postings, local radio broadcasts, television broadcasts, and direct mailings. Emergency services personnel will be contacted so that emergency calls into 911 can receive appropriate responses.

8. Rehabilitation Guidelines

When suppression action is taken, rehabilitation is appropriate. On January 19, 2001, the Department of the Interior issued new policy on burned area emergency stabilization and rehabilitation. The specifics of the policy can be found in 620 DM 3 DOI BAER Policy (2001). The most effective rehabilitation measure is prevention of impacts through careful planning and the use of minimum impact suppression tactics.

The incident commander in conjunction with the natural resource and/or cultural resource specialists will initiate rehabilitation. Rehabilitation will be directed toward minimizing or eliminating the effects of the suppression effort and reducing the potential hazards caused by the fire:

- Backfill control lines, scarify, and seed with native species.
- Install water bars and construct drain dips on control lines to prevent erosion.
- Install check dams to reduce erosion potential in drainages.
- Flush cut stumps and camouflage with soil and moss.
- Place cut vegetative materials in random positions.
- Position felled and bucked material so as to be least noticeable to visitors and camouflage where possible.
- Restore natural ground contours.
- Remove all flagging, equipment and litter.
- Completely restore camping areas and improved helispots.

- Consider and plan more extensive rehabilitation or revegetation to restore sensitive impacted areas.

Rehabilitation work resulting from suppression actions will be charged to the corresponding suppression account. Rehabilitation work needed to rehabilitate the effects of the fire will be described in the BAER plan, and will be submitted to the regional BAER coordinator (prescribed fire specialist) for approval within one week of the date the fire is declared controlled. BAER project requests totaling $300,000 or less can be approved by the regional BAER coordinator. Submissions over this amount are reviewed at the regional level and forwarded to the NPS fire management program center for approval.

9. Records and Reports

The FMO is responsible for all fire related records and reports except the WFIP. This responsibility may be delegated to an incoming incident commander for any fire escaping initial attack.

C. Wildland Fire Use

This option was rejected due to the smaller size of the park units, the significant degree of wildland urban interface along the park boundary and the lack of available qualified personnel required to manage these fires.

D. Prescribed Fire

1. Planning and Documentation

a. Annual Activities for Preparation and Implementation of Program

The fire coordinator will annually consider proposed burns and fuel reduction projects for the year. An assessment of the approved plans will identify need resources, individual responsibilities, and timelines. These activities include writing burn plans, scheduling of resources, coordination with neighboring agencies and communities, and obtaining necessary permits.

b. Long-Term Prescribed Fire Strategy

The purpose of prescribed burning at the park is to protect and preserve the cultural resources of the park, manage vegetation, and reduce fuel loading. The fuels management program complements the fire management program by reducing fire hazards, decreasing the potential damage to park resources and outside lands, and minimizing risks to employees, residents and visitors. Prescribed fire objectives will be to:

- Reduce fuel accumulations around developed areas and along the park boundary.
- Reduce understory vegetation based on the results of fire history research.
- Manage vegetation to maintain vistas and to promote the growth of native.
- Assist with the establishment and maintenance of the historic scene.
- Restore and maintain fire adapted ecosystems.
- Utilize minimum impact suppression tactics to the greatest extend possible in the designated wilderness area.

c. Needed Personnel

The park may not have sufficient personnel to manage a prescribed fire. Personnel needed for a specific burn will be identified in the projects burn plan. The park will participate with other nearby agencies in a coordinated approach to mutual prescribed fire programs. The regional fire management office will assist this coordination when requested.

d. Fire Weather, Effects, and Behavior Monitoring

Monitoring of prescribed fires at park is intended to provide information for quantifying and predicting fire behavior and its ecological effects on park resources while building a historical record. Monitoring measures the parameters common to all fires: fuels, topography, weather, and fire behavior. In addition, ecological changes such as species composition and structural changes will be monitored for several years after a fire. This information will be very useful in adjusting the prescribed fire program to better meet short and long-term resource objectives.

During prescribed burning, monitoring will include mapping, weather, site and fuel measurements, and direct observation of fire characteristics such as flame length, rate of spread, and fire intensity. Operational monitoring provides a check to insure that the fire remains in prescription, and serves as a basis for evaluation and comparison of management actions in response to measured, changing fire conditions, and changes such as fuel conditions and species composition.

All prescribed fires will be monitored regardless of size. The FMO will establish specific fire information guidelines for each fire to update intelligence about the fire.

The FMO will assure that assigned qualified personnel are used to monitor prescribed fires. The most efficient utilization of personnel for fires of low complexity will be to utilize individuals with multiple qualifications when possible (ignition, holding, and monitoring). By being able to suppress the fire, assess its potential, characterize and quantify its effects, and determine if it is within prescription, an efficient and flexible monitoring program will result.

The park will use the fire effects monitoring protocols with adaptations described in NPS Fire Monitoring Handbook.

e. Prescribed Fire Project Critique

The FMO will critique each prescribed fire. A report detailing the actual burn will accompany any recommendations or changes deemed necessary in the program. This report will be submitted to the superintendent. A post-season critique of the fire management program, including the prescribed fire program, will be held each year by the FMO at the conclusion of the fall fire season.

The park will use the fire monitoring protocols described in NPS Fire Monitoring Handbook. Fire monitoring support will be coordinated with the fire ecologist based at Shenandoah National Park and the regional fire ecology program manager.

f. Reporting and Documentation Requirements

All prescribed fire forms will be completed as outlined by the prescribed burn boss. A fire monitor will be assigned to collect all predetermined information and complete all necessary forms prior to, during, and after the fire. All records will be archived in the park's fire records for future use and reference.

The prescribed burn boss will prepare a final report on the prescribed fire for the FMO. Information will include a narrative of the fire operation, a determination of whether objectives were met, weather and fire behavior data, map of the burn area, photographs of the burn, number of work hours, and final cost of the burn.

The forms necessary for documenting prescribed fire activities are outlined in RM-18 (Wildland Fire Management). The Individual Fire Report, DI-1202, is the responsibility of the prescribed burn boss. The Case Incident

Report, 10-343, is also the responsibility of the prescribed burn boss, and documents all personnel and equipment costs involved in the burn.

g. Historic Fuel Treatment Map

A fuels treatment map will be included as an appendix of this of this plan for all completed projects.

h. Local Prescribed Burn Plan Requirements

- Prescribed fires will not be planned near cultural and other sensitive resources unless adequate planning has assured their protection.
- Prescribed fires would be scheduled for periods when ventilation is adequate to disperse smoke.
- Smoke management reporting procedures for burning in New York would be followed.
- For prescribed fires, mitigations would be included in the prescribed fire burn plan. Park staff will complete Section 106 consultation with the New York State Historic Preservation Office (SHPO) prior to implementing prescribed fire projects.

General parameters for debris burning are:

- Temperature: Less than or equal to normal average high temperature for the month, degree F.
- Wind Speed: Less than 10 mph.
- Relative Humidity: Greater than 40%.
- Fine Fuel Moisture: Surrounding fuels greater than 10%.
- Smoke Dispersal: Mixing heights equal to or greater than 500 meters.

2. Exceeding Prescribed Burn Plan

If the prescribed fire exceeds prescription, leaves the burn unit, and immediate suppression efforts fail the fire will be declared a wildfire and suppressed. A wildland fire situation analysis (WFSA) will be completed and additional personnel and resources ordered as determined by the incident commander. If the fire

continues to burn out of control, additional resources will be called from the local and volunteer fire departments. An incident management team may be requested to assume command of the fire.

3. Air Quality and Smoke Management

a. Air Quality Issues:

The Clean Air Act (42 USC 7401 et seq.) requires federal land managers to protect air quality and *NPS Management Policies* address the need to analyze air quality during park planning. States are responsible for the attainment and maintenance of national ambient air quality standards developed by the Environmental Protection Agency. These standards have been established for several pollutants: inhalable particulate matter, sulfur dioxide, nitrogen oxides, ozone, carbon monoxide, and lead. Elevated concentration of these pollutants can have adverse impacts on park resources and visitors.

Three air quality categories are established for the national park system areas: Class I, Class II, and Class III. Fire Island National Seashore is in a Class II area, meaning that the state may permit a moderate amount of new air pollution as long as neither ambient air quality standards, nor the maximum allowable increases over established baseline concentrations are exceeded.

A permit for the release of smoke from the State of New York is required for the use of prescribed fire purposes. The park applies to the New York Department of Environmental Conservation for this permit annually and will continue to operate within the conditions of this permit.

b. Location of Class I Airsheds

There are no Class I airsheds in the park or the region surrounding the park.

c. Smoke Sensitive Areas

Smoke sensitive areas are those areas that are susceptible to unacceptable levels of resource damage or unacceptable loss of resource use when exposed to moderate to high concentrations of smoke.

The parks primary goal is to maintain relatively smoke-free conditions in the park and surrounding area.

While short-term impacts to visibility caused by smoke from prescribed fire or wildland fire within the park are not considered significant, limited visibility can reduce the quality of a visitor's experience of the park.

When smoke obscures park vistas, fire management staff will consider:

- Reducing the burn area to limit smoke production
- Extinguishing part or all of the fire
- Changing fire management strategies to alter fire behavior and smoke production

Smoke impacts on local communities will also be considered in all prescribed fire planning and operations. When practicable, park staff will attempt to avoid significant smoke invasion of local communities.

Poison ivy oils may be transported by smoke.

The impact of wind direction, planned fire duration, expected smoke volume, and expected smoke cloud persistence on the park viewshed and local communities will be considered in planning and conducting prescribed fire activities.

The objectives for smoke management and compliance with the Clean Air Act are similar to those for fire management: to encourage a natural process so long as it does not endanger public health and safety. Smoke levels become unacceptable when they impair visibility to such a degree that they detract from visitor enjoyment of the primary park resource with emphasis on the vistas of the park. Dense smoke within the park is generally unacceptable, however, it may be tolerated for short periods if the winds assure good mixing. The park will also evaluate the forecasted impact of smoke on local communities and visitor safety. All of these considerations are difficult to quantify, monitor, and evaluate, and there will exist considerable room for discretion.

It may be necessary to aggressively control fires when smoke affects a sensitive area or creates a significant public response. All fire activities may have to be curtailed when an extended inversion or air pollution episode is in effect. Traffic control measures will be undertaken in conjunction with local law enforcement agencies when such episodes occur. Complaints regarding smoke will be documented and communicated to the superintendent.

E. Non-Fire Fuels Treatment Applications

1. Mechanical Treatments and Other Applications

Hazard fuels removal around historic structures would mitigate the potential for impacts from wildland fires. Park staff will complete Section 106 consultation with the New York State Historic Preservation Office (SHPO) prior to implementing hazard fuel reduction projects.

Other standard cultural resource mitigation measures include the following: prior to doing treatment work, conduct an inventory of previously unsurveyed areas using an archeologist who meets the Secretary of the Interior's standards; dispose of slash in areas lacking cultural sites; avoid ground disturbance in areas containing known cultural sites; prior to implementation of work, protect character-defining elements of potential cultural landscapes.

a. Annual Activities

The FMO will submit proposed project plans to the assistant chief park ranger for approval. The plans will identify needed resources, individual responsibilities, and timelines. These activities include writing project plans, scheduling of resources, coordination with neighboring agencies and communities, and obtaining necessary permits.

b. Equipment and Seasonal Restrictions

Off road vehicle or equipment will be reviewed for compliance and approved by the superintendent for each project.

c. Required Monitoring

Monitoring will be done to determine if the project objectives were met. This monitoring may be through the use of photo plots, vegetation transects, or a visual assessment.

d. Critique Format

The project supervisor will meet with the FMO and the chief of resources management & planning to critique the project. Accomplishment of objectives, methodology, cost effectiveness, safety issues, and resource damage are some of the topics to be discussed. A written project completion report incorporating the findings of the critique will be forwarded to the regional fire management office.

e. Cost Accounting

Individual project costs will be tracked by the park and submitted to the regional fire management office for review. Expenditures will not exceed the authorized project amount.

f. Reporting and Documentation

The FMO will maintain reports and documents. Pertinent fire information to be retained includes, but is not limited to; individual fire reports; incident action plans; outgoing and incoming correspondence; fire training schedules; qualification reports, weather data, situation reports, prescribed burn plans, and hazard fuels project reports.

Incident commanders are responsible to complete the DI-1202, Individual Fire Report, which can be found in Appendix K.

The original will be forwarded through the Subdistrict Ranger to the appropriate district ranger for review. The FMO will assign the park fire number and obtain a suppression account number through the National Fire Code System. The fire management program assistant will enter the completed DI-1202 into the NPS Wildland Computer System.

The DI-1202 will be accompanied by;

- Unit logs, personnel lists, and resource orders.
- Map of the fire area (copy of a 15 minute or 7 1/2 minute quad map, must show legal description).
- Dispatch log and telephone log.
- Aircraft documentation.
- Incident action plans.
- Photographs/slides/videos.
- Press clippings.
- Accident reports;
- Performance ratings.
- Other pertinent documents.

The FMO is responsible for maintaining the following systems:

- Situation reporting through use of the NPS wildland fire computer system, as required.
- Weather systems and fire behavior indices as required for step-up planning.

g. Annual Planned Project List

Any division chief may submit proposed projects to the fire coordinator. The fire coordinator will compile a list of these projects and submit them to the chief park ranger for approval and prioritization.

F. Emergency Rehabilitation and Restoration

On January 19, 2001, the Department of the Interior issued new policy on burned area emergency stabilization and rehabilitation. The specifics of the policy can be found in 620 DM 3 DOI BAER Policy (2001). The FMO and the natural resource specialist, subject to review by the superintendent, will jointly formulate a rehabilitation plan for each fire.

The BAER plan will be submitted to the regional BAER coordinator (prescribed fire specialist) for approval within one week of the date the fire is declared controlled. BAER project requests totaling $300,000 or less can be approved by the regional BAER coordinator (prescribed fire specialist). Submissions over this amount are reviewed at the regional level and forwarded to the NPS fire management program center for approval.

Rehabilitation is any action taken to restore an area to its pre-burn or natural condition. Incident commanders are responsible for immediate actions to mitigate the effects of fire suppression activities. Immediate rehabilitation actions will be outlined in the incident action plans.

Rehabilitation will occur on all fires according to the following standards and techniques:

- Remove all trash and debris from firelines, staging areas, helispots, incident command post and other incident locations. Attempt to return such areas back to their original condition.
- Flush cut all stumps that were disturbed or created on the incident.
- Scatter brush and debris from suppression activities over constructed firelines. Break-up slash piles.

- Remove dams constructed to enhance pumping operations in streams and creek beds.

- During mop-up operations, use cold trailing techniques and/or water or foam.

- Fill in firelines with leaf litter, and brush material. Construct water bars to prevent erosion when necessary.

- Reseed, with native grass seed, firelines outside of the park if significant impact was caused. Firelines inside the park may be seeded only if determined to be an erosion hazard and a plan is completed and approved by the Chief of Resources Management & Planning.

V. ORGANIZATIONAL AND BUDGETARY PARAMETERS

A. Organization Structure of Fire Management Program

This section discusses areas of responsibility for implementation of the fire management program by specific park position. The purpose of this section is to clearly define areas of responsibility, provide clear direction and accountability, and further the development of a responsive fire management program.

Fire management is a park-wide program. It is the goal of the park to involve all employees as members of the fire management team. Those positions are listed below with their responsibilities.

1. Superintendent

Approves:

- Fire management plan.

- Delegation of authority for incident management team.

- Prescribed burn plans.

- Provides final approval and daily review of wildland fire situation analysis.

- This authority may be delegated to the deputy superintendent

2. Chief Park Ranger

- Responsible for overall fire management program.

3. Chief of Resources Management & Planning

- Responsible for the fire effects research program.
- Responsible for the planning of the management ignited prescribed fire program.
- Responsible for coordination of BAER activities conducted as a result of suppression activity.

4. Park Fire Coordinator

- Responsible for interagency coordination of fire program.
- Has overall responsibility for planning and implementation of all phases of the of wildland fire management in park.
- Has overall responsibility for planning and implementing fire prevention program.
- Responsible for the implementation of the management ignited prescribed fire program.
- Plans and implements wildland fire management training program.

5. Chief of Interpretation

- Reviews and approves public information programs.

6. Suffolk County Department of Fire, Rescue and Emergency Services Communications Center

- Contact point for smoke reports, initial attack response, and resource ordering.

7. District Rangers

- Responsible for all fire investigations on district.
- Responsible for the maintenance and management of the wildland fire caches.

- Responsible for the maintenance and record keeping for fire management vehicles and equipment.

- Participates in park fire management program at level qualified.

- Provides employees for fire management operations and training as much as possible while still providing basic protection for the district.

- Ensure patrol vehicles during fire season(s)are equipped with a combination tool and a pulaski or council rake.

8. Fire Ecologist

- The fire ecologist is located at Shenandoah National Park. This individual is responsible for providing fire ecology assistance to the park.

- Requests for assistance from the fire ecologist will be coordinated through the regional fire ecology program manager and Shenandoah National Park. Requests should be made as far in advance as is practical.

- Requests for use of the fire effects monitors will be made to the fire ecologist and the regional fire ecology program manager.

- The fire ecologist will provide fire ecology expertise and advice at the planning and implementation levels.

9. Area Fire Management Officer

- The area fire management officer is the fire management officer at Deleware Water Gap National Recreation Area. As the area FMO, this individual is responsible for providing fire management assistance to the park.

- Requests for assistance from the area FMO will be coordinated through Deleware Water Gap National Recreation Area. Requests should be made as far in advance as is practical.

- The Area FMO will provide fire management expertise and advice at the planning and implementation levels.

- The area FMO will help the park arrange for needed resources and equipment, and will assist in preparing FIREPRO funding requests.

- The area FMO may be requested to serve as the agency representative regarding activities with an incident management team.

B. FIREPRO Funding

The park does not have any FIREPRO funded positions. FIREPRO funding may be authorized for approved fire training, preparedness, suppression, equipment, personal protective equipment, and burned area emergency stabilization and rehabilitation projects. FIREPRO may additionally fund park approved fire and hazard fuel projects.

FIREPRO funds are managed through the Northeast Region fire management office. Requests for FIREPRO funding are made from the park FMO to the regional FMO.

C. Fire Management Organization

The chief park ranger directly supervises the FMO. There are no FIREPRO funded positions in the park at this time.

D. Wildland Fire Use Certification

This option was rejected due to the smaller size of the park units, the significant degree of wildland urban interface along the park boundary and the lack of available qualified personnel required to manage these fires.

E. Interagency Coordination

All interagency coordination involving resources, dispatch and suppression will be accomplished through the Pine Barrens Wildfire Task Force. Additionally, agreements and cooperative efforts with individual agencies will be pursued when it is found to be mutually advantageous.

F. Interagency Contacts by Function

See Appendix I

G. Fire-Related Agreements

A memorandum of understanding provides for mutual response at the request of either the NPS or the Kismet Fire District. This document can be found in Appendix H.

VI. MONITORING AND EVALUATION

A. Monitoring Programs

The park will implement long and short term monitoring to access accomplishments, and determine the effects of management activities on cultural and natural resources.

The park will work closely with the fire ecology program manager and the fire effects monitors located at Shenandoah National Park. The fire ecologist should be consulted concerning possible future prescribed fire plans with regard to potential fire effects and desired conditions. The fire effects monitors assist the park in establishing and reading vegetation plots, and monitoring erosion of earthworks resulting from prescribed fire activities.

B. NPS Fire Monitoring Handbook

This handbook will serve as the source document providing monitoring needs with minor adaptations made for local situations and conditions.

C. Fire Monitoring Plan

The park does not have a fire monitoring plan at this time.

VII. FIRE RESEARCH

A. Previous and Ongoing Research

The only fire related research paper was written by Horton, Patterson, Backman and Rudnicky in 1986 titled *Fire Regimes of Fire Island National Seashore*. There has been substantial and relevant research completed in the areas of fire effects, occurrence, and vegetation that are relevant and applicable to the park's fire management program.

B. Needed Research

As the park's fire management plan is implemented and tested, additional research will inevitably be identified for such purposes as refining prescriptions, improving the understanding of fire behavior and fire effects, refining monitoring protocols, defining fire return cycles, describing fuels dynamics, describing the impacts on cultural resources, and other information needed for operational fire and resource management.

Fire research needs are:

- Study the effects of fire suppression on fire regime.
- Determine the historic role of wildfire in park ecosystem dynamics.
- Study the effects of fire use and exclusion on exotic species.

Identified strategies will provide additional guidance for fire research projects in the park. The emphasis will remain on compiling historic information of fire events, determining desired fuel conditions, and continued data collection of fire effects in eastern deciduous forest types. Fire research projects will be coordinated and guided through the natural resources management specialist.

VIII. PUBLIC SAFETY

A. Public Safety Issues and Concerns

The park is dedicated to ensuring the safety of each visitor and to all residents and property adjacent to the park's boundary with regards to its fire management program. The superintendent may close all or a portion of a unit, including roads and trails when wildfire or a prescribed fire pose an imminent threat to public safety.

B. Mitigation Safety Procedures

The park will implement a notification system to inform visitors of all fire activity through normal communication channels. A fire activity report will be updated, as significant changes occur to inform park personnel of potential fire threat. Areas of fire activity will be clearly signed at visitor centers and park unit bulletin boards. Residents adjacent to the park will be notified in advance of any prescribed fire, and if any fire poses a threat to burn outside the park's boundaries through law enforcement personnel.

IX. PUBLIC INFORMATION AND EDUCATION

The chief park ranger will coordinate fire information issues and activities with the superintendent's office. Public information and education projects will be proactive, support the fire management programs of the NPS, and compliment cooperator's programs to the fullest extent possible. Fire information will be shared with local, state and federal governments, media and interested user groups, neighbors and park employees.

A. Public Information Capabilities and Needs

The park is committed to keeping the public informed of its fire management program and activities. Educational opportunities will be developed to reach as many segments of the public as possible. This will include special interest groups, schools, neighbors, public organizations, and other groups. Materials and programs exist that will help deliver information concerning the role fire plays in preserving and protecting the cultural and natural resources of the park. The regional fire education, prevention, and information specialist is an available resource to the park for consultation and support. Trained incident information officers are on staff, as of this writing. The park will continue to support the development of incident information officers who may be able to assist fire management staff with public information, particularly during fires.

B. Step-Up Public Information Activities

Information and education are important processes in public participation and (as in, public comment on this plan and related activities) acceptance of the managed fire program at park. The FMO will coordinate public information activities with the assistance of staff from interpretation, resource management, and public affairs and will provide the superintendent with accurate information regarding current fire situations and management activities. The FMO will provide accurate information regarding current fire situations and management activities. The public information program will be developed as follows:

- Concepts of the prescribed fire program will be incorporated, as appropriate, in park publications, brochures, and handouts.
- Prior to the ignition of prescribed fires, the park will notify or contact park neighbors who will or might be affected by fire, smoke or increased traffic in their area.
- During periods when prescribed fires are ignited, handouts will be prepared and distributed to all visitors entering areas of fire activity.
- The fire management program will be incorporated into visitor contacts, interpretive talks, walks, and tour programs, as appropriate. Particular attention will be given when fires are conspicuous from roads or visitor use areas.
- News releases will be distributed to the media as appropriate.
- The public information outlets of neighboring and cooperating agencies, and the regional office will be provided with all fire management information.

- The role of the fire management program at the park will be developed and discussed, as appropriate, in off-site programs and talks.

- The fire management program will be discussed in informal talks with employees of all divisions, concessionaires, contractors, volunteers, residents, and park neighbors.

- Emergency closures or restrictions may become necessary during periods of extreme or extended fire danger. Such closures will necessitate additional coordination and communication with the public and the media.

X. PROTECTION OF SENSITIVE RESOURCES

A. Cultural Resources Needing Protection and/or Treatment

Archeological Sites:

Low intensity fires should have minimal effect on sites that are at or below ground level. However, significant damage could be inflicted through suppression tactics. Therefore, minimal impact actions will be practiced when working on or near archeological resource areas.

Suppression strategies designed to minimize damage or disturbance to underground archeological or historic resources include:

- Restricting use of heavy equipment to life threatening situations only and with superintendent approval.

- Locating control lines away from potential sites when more damage could be anticipated from line construction than from fire effects.

Historic Sites:

Many cultural resources in the park are aboveground wooden-frame or wooden-frame stone reinforced structures. These structures are at risk from wildfire.

The best method of protecting vulnerable aboveground historic and cultural resources is through a continuing hazard fuel reduction program to remove adjacent fuels and prepare a "defendable space" around structures. Identified aboveground historic and cultural resources will be given high priority in suppression action. Additional suppression alternatives beyond preparing a defendable space include:

- Construction of control lines to protect cultural resources from fire.

- Use of firing techniques to "burn-out" surrounding fuels.

- Use of water and medium to high expansion class A foams to increase the defendable space and provide exposure protection.

- Utilization of structural engines and structurally trained firefighters to increase exposure protection. This option may be limited due to poor access for structural engines in most areas with identified cultural or historic resources.

In areas with multiple historic and cultural resource structures, structural triage may be necessary. Triage considerations should include, but are not limited to:

- Firefighter safety.

- Probability of success in protecting the structure.

- Value or significance of the structure.

The incident commander is responsible for making structural triage decisions based on weighing firefighter and public safety, probability of success, consequences of failure and the values at risk. When possible the park's cultural historian should be consulted prior to or during triage.

The planning of any fire management related project would include a review of the archeological/cultural/historic resources that are present or may be present in the area of operation. The park's cultural historian will be responsible to provide site inventory and identify areas of archeological/ cultural/ historic resources.

B. Natural Resources Needing Protection and/or Treatment

Fire suppression, fuels management, and prescribed fire activities should avoid riparian zones, floodplains and tidal areas within the park, to minimize impacts to federally listed species and rare plant communities. When these areas must be impacted suppression strategies and tactics should be designated that minimize effects on vegetation communities in these areas.

C. Developments, Infrastructure, and Improvements Needing Protection and/or Treatment

As funding allows, a defensible space will be maintained around developments, infrastructure, and other improvements in the park.

XI. FIRE CRITIQUES AND ANNUAL PLAN REVIEW

The fire management plan will be reviewed and updated annually by the FMO. The annual review will focus on the operations, strategies, responsibilities, and coordination of the fire management program. A comprehensive revision of the fire management plan will be completed on a five-year schedule, beginning on the date of the final approval signature. The incident commander or the prescribed burn boss will initially critique Wildland and prescribed fires. This critique should take place with those directly involved in the management of the fire.

The FMO should review prescribed and wildland fires of significant size, cost, or where minor safety issues or minimal levels of public concern occur. These findings should be forwarded to the regional fire management office.

Prescribed or wildland fires involving an incident management team or significant political, safety, or public issues should be reviewed by the regional fire management office. If a fire generates a major political or public concern, involves multiple serious injuries or a fatality, the NPS fire management program center should conduct or participate in the review.

The FMO will review the fire management plan annually for currency and incorporate changes into the appendix. Changes to the appendices require approval of the chief park ranger. The fire management plan is subject to a comprehensive formal review every five years.

XII CONSULTATION AND COORDINATION

The following people were involved in the formulation and preparation of this fire management plan:

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Paul Head, Fire Management Officer, Northeast Region, Boston, Massachusetts

Jay Lippert, Supervisory Park Ranger, Fire Island National Seashore, Patchogue, New York

George Leone, Fire Coordinator/Occupational Health & Safety Officer, Fire Island National Seashore, Patchogue, New York

Brett Martinez, Fire Marshal, Department of Fire, Rescue, & Emergency Services, Yaphank, New York

Dan O'Brien, Wildland Fire Associates, Central Point, Oregon

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Odin Smith, Environmental Protection Specialist, Fire Island National Seashore, Patchogue, New York

Richard Stavdahl, District Ranger, Fire Island National Seashore, Patchogue, New York

Barry Sullivan, Deputy Superintendent, Fire Island National Seashore, Patchogue, New York

Paula Valentine, Chief of Interpretation, Fire Island National Seashore, Patchogue, New York

Wayne Valentine, Chief Ranger, Fire Island National Seashore, Patchogue, New York

Douglas Wallner, Fuels and Fire Ecology Program Manager, Northeast Region U.S. National Park Service, Philadelphia, Pennsylvania

Joe Zysman, President, Fire Island Wilderness Committee, Brookhaven, New York

XIII. APPENDIX

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APPENDIX A
Compliance Documents (NEPA and NHPA)

Insert here

APPENDIX B
WILDLAND FIRE IMPLEMENTATION PLAN STAGE 1

Fire Name					
Fire Number					
Jurisdiction(s)					
Administrative Unit(s)					
FMP Unit(s)					
Geographic Area					
Management Code					
Start Date/Time					
Discovery Date/Time					
Current Date/Time					
Current Size					
Location:	Legal Description(s)	T.	R.	Sec.	Sub.
	Latitude				
	Longitude				
	UTM:				
	County:				
	Local Description				
Cause					
Fuel Model/Conditions					
Current Weather					
Predicted Weather					

Availability of Resources	

DECISION CRITERIA CHECKLIST

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

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

Recommended Response Action (check appropriate box)	NO-GO (Initial attack/suppression action)	
	GO (Other appropriate management response)	

Signature	Date

APPENDIX C
Step-Up Plan

Each staffing class level will have a corresponding set of actions that the park will initiate to meet potential fire problems. Staffing Class I-III level actions are funded by the park, while actions taken at the IV and V staffing class levels are supported with emergency funds. During the fire season the daily adjective class will be provided by the New York State's Central Pine Barrens. During the fire season the daily adjective class is posted daily and can be found at: New York State's Central Pine Barrens - Main Page. Staffing class and adjective class equivalencies can be found below:

Staffing Class	Adjective Class
I	Low
II	Moderate
III	High
IV	Very High
V	Extreme

Staffing Class	**Activity**
I	No activity necessary. Normal eight (8) hour tours of duty. Red-carded employees are available to respond and take necessary action on any fire reported. **Fire Conditions**: Fires will present a low level of control difficulty. Fires occurring at this level can be controlled with existing forces.
II	Normal eight (8) hour tours of duty. Fire equipment and supplies serviced and prepared for use. On-duty patrol rangers are in the field during afternoon hours with fire tools in patrol vehicles. **Fire Conditions**: Fires will present a moderate level of control activity. Multiple fires in the same burning period will begin to affect other services. Wind speed will determine severity of fire spread. Fire fuels will be dry. Effectiveness of initial attack forces will be critical. Response time will be important.
III	Normal eight (8) hour tours of duty. Park is totally prepared to respond to a fire. Location of red-carded personnel are known to all relevant personnel. Red-carded personnel have fire tools and personal protective equipment immediately available in their work vehicles or at their work site. Local

volunteer fire departments with which the park has agreements are notified and prepared to respond.

Step-up to Staffing Class IV if one or more of the following conditions exist:

- A high visitation period is determined to pose an exceptional human-caused risk of wildland fire.
- Red Flag Warning is posted.
- New York State's Central Pine Barrens at Staffing Class IV or V.

Fire Conditions: Fire will present a high level of control difficulty. All park red-carded personnel may be involved in control efforts, especially if there is a large fire. Light fuels are very dry. Heavy fuels are nearly dry. Fires will spread rapidly. Multiple fire situations are very possible. Quick response and short control time is critical. Spotting may occur. Mop-up will be more difficult and time-consuming.

IV

All activities in staffing class III are continued. Approval for expenditure of emergency preparedness funds is obtained from the Mountains-to-the-Sea Fire Management Officer. The superintendent is notified of conditions. Increased prevention and detection patrols are conducted. A red-carded firefighter is on duty during the burning period (to at least 1800 hours). Lieu days and leave may be cancelled for red-carded firefighters. Cooperatives are contacted and activities coordinated in an effort to provide consistent information to the public and park neighbors. High fre dager notices will be posted in the vsitor cnter and at site bulletin boards.

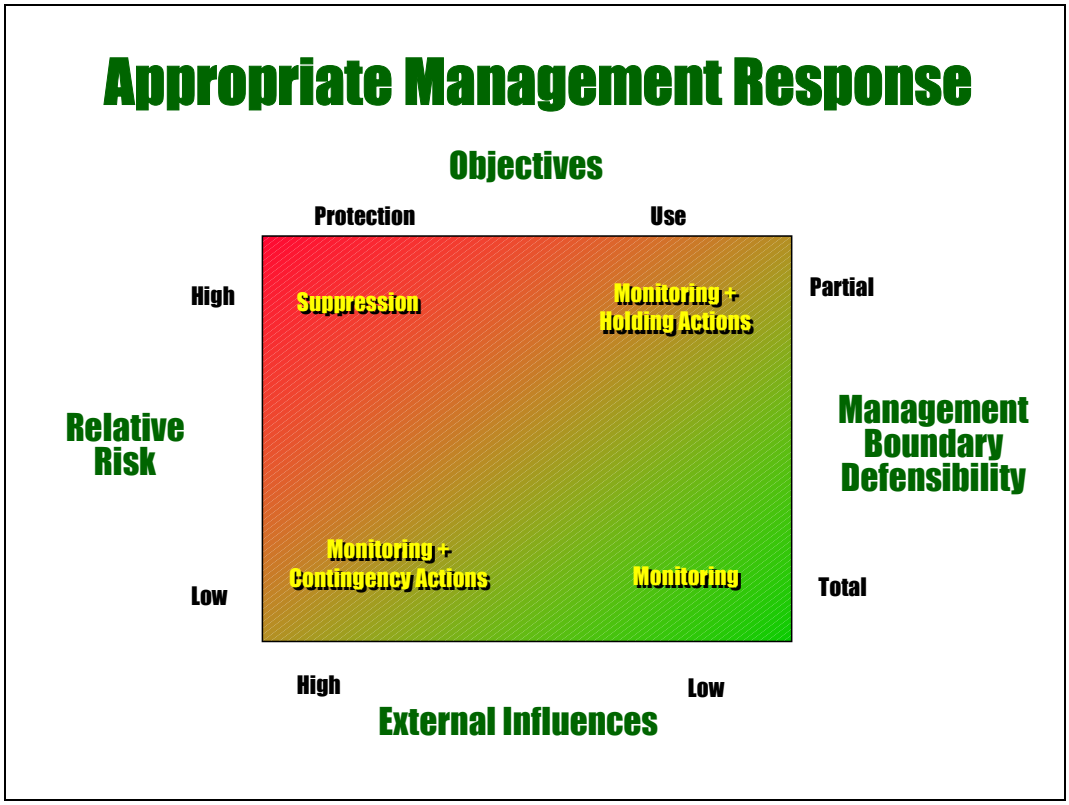
Fire Conditions: Fires will be extremely difficult to control. Initial attack and reinforcing crews will have difficulty controlling a fire at this level. Only effective initial attack with the proper resources will allow effective control. Light fuels are extremely dry, heavy fuels are dry.

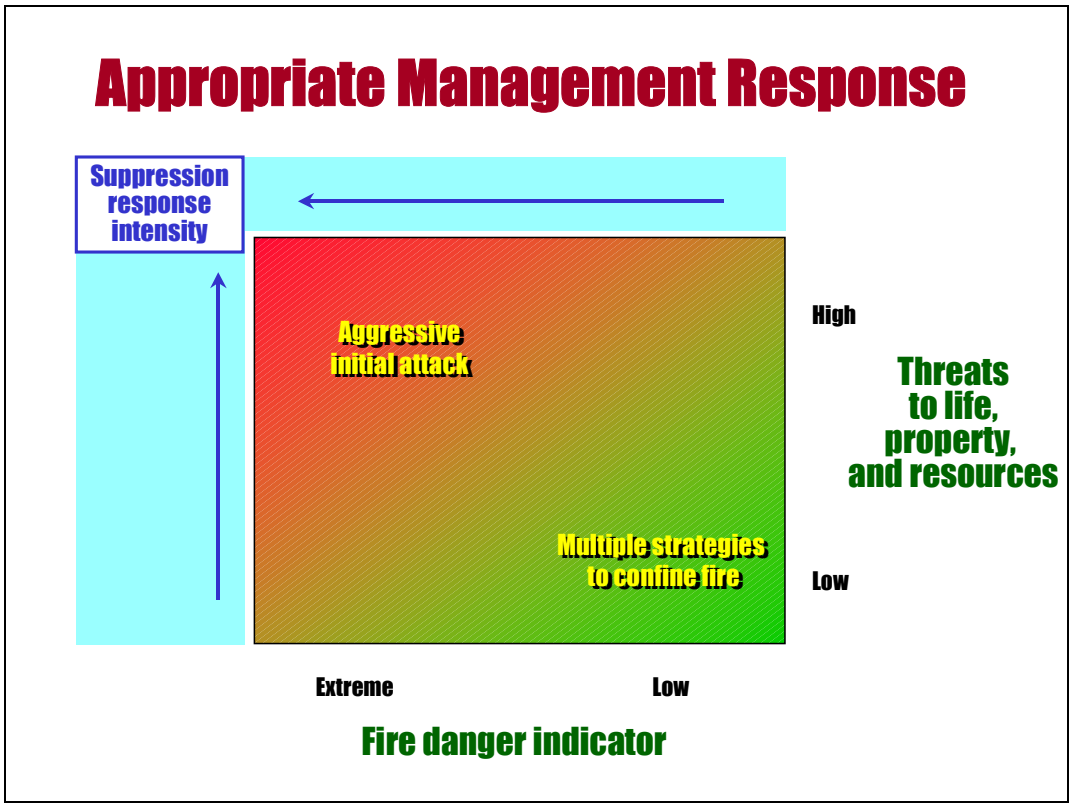
V

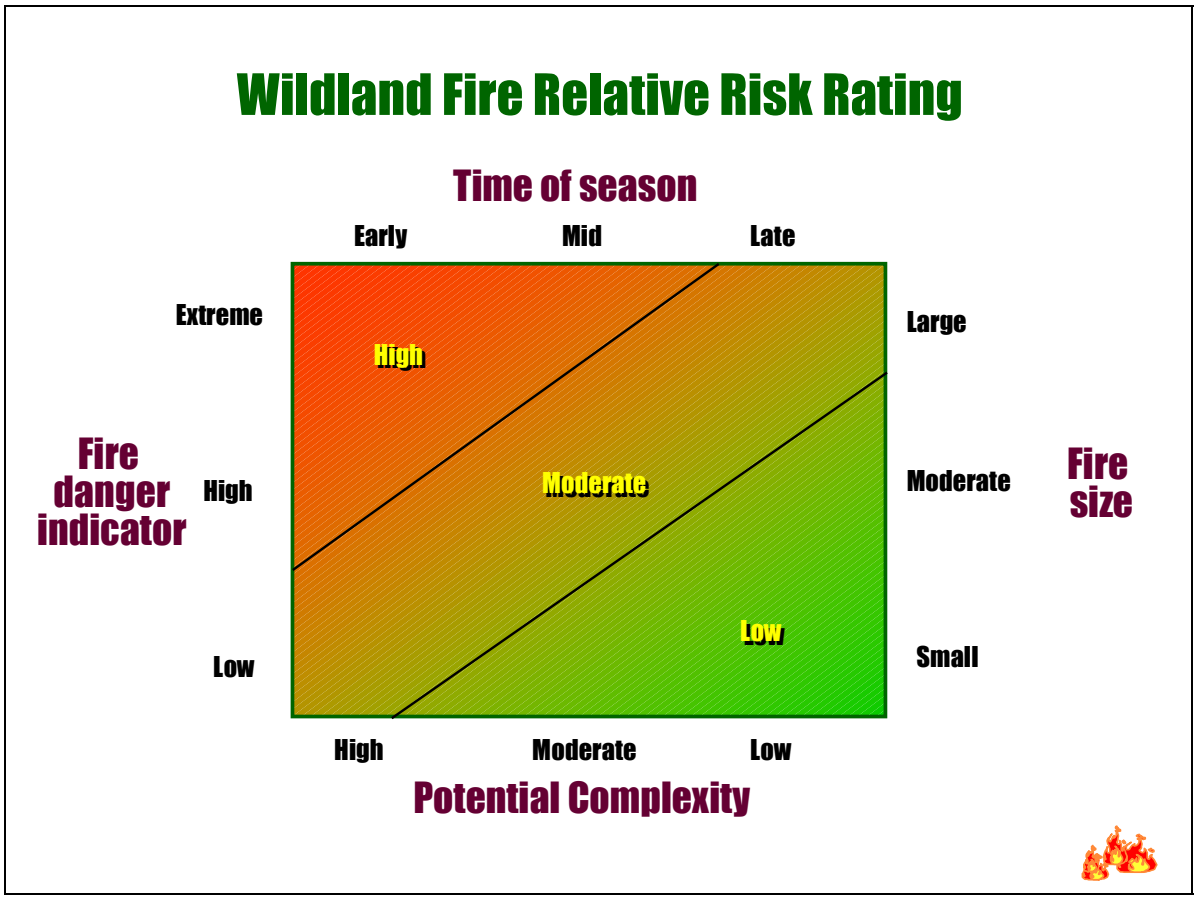
All activities in Staffing Class IV are continued. All fires are prohibited including the use of fire grates, grills, and stoves. Restrictions and closures of park areas may be deemed necessary. Interpretive activities will include a fire safety message.

Fire Conditions: Temperatures are high and relative humidity is low. All fire fuels are very dry. Fires ignite easily and spread rapidly.

APPENDIX D
Charts For Determining Appropriate Management Response




Appropriate Management Response
Suppression response intensity
Aggressive initial attack
Multiple strategies to confine fire
High
Low
Threats to life, property, and resources
Extreme
Low
Fire danger indicator



http://www.fs.fed.us/fire/fireuse/wildland_fire_use/ref_guide/refguide.doc
Wildland and Prescribed Fire Management Policy, Implementation Procedures Reference Guide, April 1998

Appendix E
Wildland Fire Situation Analysis (WFSA)

Section I, WFSA Information Page (This page is completed by the Agency Administrator(s).

A. Jurisdiction(s): Assign the agency or agencies that have or could have fire protection responsibility, e.g., USFWS, BLM, etc.

B. Geographic Area: Assign the recognized "Geographic Coordination Area" the fire is located in, e.g., Northwest, Northern Rockies, etc.

C. Unit(s): Designate the local administrative unit(s), e.g., Hart Mountain Refuge Area, Flathead Indian Reservation, etc.

D. WFSA #: Identify the number assigned to the most recent WFSA for this fire.

E. Fire Name: Self-explanatory.

F. Incident #: Identify the incident number assigned to the fire.

G. Accounting Code: Insert the local unit's accounting code.

H. Date/Time Prepared: Self-explanatory.

I. Attachments: Check here to designate items used to complete the WFSA. "Other could include data or models used in the development of the WFSA. Briefly describe the "other" items used.

I. Wildland Fire Situation Analysis	
To be completed by the Agency Administrator(s)	
A. Jurisdiction(s)	B. Geographic Area
C. Unit(s)	D. WFSA #
E. Fire Name	F. Incident #
G. Accounting Code	
H. Date/Time Prepared_____@_____	
I. Attachments	
Complexity Matrix/Analysis* Risk Assessment/Analysis* Probability of Success* Consequences of Failure * Maps* Decision Tree** Fire Behavior Projections * Calculations of Resource Requirements * Other (specify) * Required ** Required by FWS	

Section II. Objectives and Constraints (This page is completed by the Agency Administrator(s).

A. Objectives: Specify objectives that must be considered in the development of alternatives. Safety objectives for firefighter, aviation, and public must receive the highest priority. Suppression objectives must relate to resource management objectives in the unit resource management plan.

Economic objectives could include closure of all or portions of an area, thus impacting the public, or impacts to transportation, communication, and resource values.

Environmental objectives could include management objectives for airshed, water quality, wildlife, etc.

Social objectives could include any local attitudes toward fire or smoke that might affect decisions on the fire.

Other objectives might include legal or administrative constraints, which would have to be considered in the analysis of the fire situation, such as the need to keep the fire off other agency lands, etc.

B. Constraints: List constraints on wildland fire action. These could include constraints to designated wilderness, wilderness study areas, environmentally or culturally sensitive areas, irreparable damage to resources or smoke management/air quality concerns. Economic constraints, such as public and agency cost, could be considered here.

II. Objectives and Constraints
To be Completed by the Agency Administrator(s)
A. Objectives: (Must be specific and measurable) 1. Safety Public Firefighter 2. Economic 3. Environmental 4. Social 5. Other **B. Constraints:**

Section III. Alternatives (This page is completed by the Fire Manager and/or incident commander.)

A. Wildland Fire Management Strategy: Briefly describe the general wildland fire strategies for each alternative. Alternatives must meet resource management plan objectives.

B. Narrative: Briefly describe each alternative with geographic names, locations, etc., that would be used when implementing a wildland fire strategy. For example: "Contain within the Starvation Meadows' watershed by the first burning period."

C. Resources Needed: Resources described must be reasonable to accomplish the tasks described in Section III.B. It is critical to also look at the reality of the availability of these needed resources.

D. Final Fire Size: Estimated final fire size for each alternative at time of containment.

E. Estimated Contain/Control Date: Estimates of each alternative shall be made based on predicted weather, fire behavior, resource availability, and the effects of suppression efforts.

F. Cost: Estimate all incident costs for each alternative. Consider mop-up, rehabilitation, and other costs as necessary.

G. Risk Assessment: Probability of Success/Consequences of Failure: Describe probability as a percentage and list associated consequences for success and failure. Develop this information from models, practical experience, or other acceptable means. Consequences described will include fire size, days to contain, days to control, costs, and other information such as park closures and effect on critical habitat. Include fire behavior and long-term fire weather forecasts to derive this information.

H. Complexity: Assign the complexity rating calculated in "Fire Complexity Analysis" for each alternative, e.g., Type II, Type I.

I. Map: A map for each alternative should be prepared. The map will be based on the "Probability of Success/Consequences of Failure" and include other relative information.

III. Alternatives (To be completed by FMO / IC)			
	A	**B**	**C**
A. Wildland Fire Strategy			
B. Narrative			
C. Resources needed			
Handcrews			
Engines			
Dozers			
Airtankers			
Helicopters			
Other			
D. Final Size			
E. Est. Contain/ Control Date			
F. Costs			
G. Risk Assessment			
Probability of success			
Consequence of failure			
H. Complexity			
I. Attach maps for each alternative			

Section IV. Evaluation of Alternatives (This page is completed by the Agency Administrator(s), FMO and/or incident commander.)

A. Evaluation Process: Conduct an analysis for each element of each objective and each alternative. Objectives shall match those identified in Section II.A. (Those listed are defaults only – not all will be applicable to every fire – add or delete as appropriate for each incident.) Use the best estimates available and quantify whenever possible. Provide ratings for each alternative and corresponding objective element. Fire effects may be negative, cause no change, or may be positive. Examples are: 1) a system which employs a "-" for negative effect, a "0" for no change, and a "+" for positive effect; 2) a system which uses a numeric factor for importance of the consideration (soils, watershed, political, etc.) and assigns values (such as -1 to +1, - 100 to +100, etc.) to each consideration, then arrives at a weighted average. If you have the ability to estimate dollar amounts for natural resource and cultural values, this data is preferred. Use those methods, which are most useful to managers and most appropriate for the situation and agency. To be able to evaluate positive fire effects, the area must be included in the resource management plan and consistent with prescriptions and objectives of the fire management plan.

Sum of Economic Values: Calculate for each element the net effect of the rating system used for each alternative. This could include the balance of pluses (+) and minuses (-), numerical rating (-3 and +3), or natural and cultural resource values in dollar amounts. (Again, resource benefits may be used as part of the analysis process when the wildland fire is within a prescription consistent with approved fire management plans and in support of the unit's resource management plan.)

IV. Evaluation of Alternatives			
To be Completed by the Agency Administrator(s) and Fire Manager / Incident Commander			
A. Evaluation Process	**A**	**B**	**C**
Safety Firefighter			
Aviation			
Public			
Sum of Safety Values			
Economic			
Forage			
Improvements			
Recreation			
Timber			
Water			
Wilderness			
Wildlife			
Other (specify)			
Sum of Economic Values			
Environmental			
Air			
Visual			
Fuels			
T & E Species			
Other (specify)			
Sum of Environmental Values			
Social			
Employment			

Public Concern			
Cultural			
Other (Specify)			
Sum of Social Values			
Other			

Section V. Analysis Summary (This page is completed by the Agency Administrator(s) and Fire Manager and/or incident commander.)

A. Compliance with Objectives: Prepare narratives that summarize each alternative's effectiveness in meeting each objective. Alternatives that do not comply with objectives are not acceptable. Narrative could be based on effectiveness and efficiency. For example: "most effective and least efficient," "least effective and most efficient," or "effective and efficient." Or answers could be based on a two-tiered rating system such as "complies with objective" and "fully complies with or exceeds objective." Use a system that best fits the manager's needs.

B. Pertinent Data: Data for this Section has already been presented, and is duplicated here to help the Agency Administrator(s) confirm their selection of an alternative. Final Fire Size is displayed in Section III.D. Complexity is calculated in the attachments and displayed in Section III.H. Costs are displayed on page 4. Probability of Success/Consequences of Failure is calculated in the attachments and displayed in Section III.G.

C. External and Internal Influences: Assign information and data occurring at the time the WFSA is signed. Identify the Preparedness Index (1 through 5) for the National and Geographic levels. If available, indicate the Incident Priority assigned by the MAC Group. Designate the Resource Availability status. This information is available at the Geographic Coordination Center, and is needed to select a viable alternative. Designate "yes," indicating an up-to-date weather forecast has been provided to, and used by, the Agency Administrator(s) to evaluate each alternative. Assign information to the "Other" category as needed by the Agency Administrator(s).

Section IV. Decision

Identify the alternative selected. Must have clear and concise rationale for the decision, and a signature with date and time. Agency Administrator(s) signature is mandatory.

V. Analysis Summary			
To be Completed by the Agency Administrator(s) and Fire Manager / Incident Commander			
Alternatives	**A**	**B**	**C**
A. Compliance with Objectives			
Safety			
Economic			
Environmental			
Social			
Other			
B. Pertinent Data			
Final Fire Size			
Complexity			
Suppression Cost			
Resource Values			
Probability of Success			
Consequences of Failure			
C. External / Internal Influences			
National & Geographic Preparedness Levels_____			
Incident Priority_____			
Resource Availability_____			
Weather Forecast (long-range)_____			
Fire Behavior Projections_____			

VI. Decision
The Selected Alternative is: _____ Rationale: _____ _____ Agency Administrator's Signature Date/Time

Section VII. Daily Review (This Section is completed by the Agency Administrator(s) or designate.)

The date, time, and signature of reviewing officials are reported in each column for each day of the incident. The status of Preparedness Level, Incident Priority, Resource Availability, Weather Forecast, and WFSA validity is completed for each day reviewed. Ratings for the Preparedness Level, Incident Priority, Resource Availability, Fire Behavior, and Weather Forecast are addressed in Section V.C. Assign a "yes" under "WFSA Valid" to continue use of this WFSA. A "no" indicates this WFSA is no longer valid and another WFSA must be prepared or the original revised.

Section VIII. Final Review (This Section is completed by the Agency Administrator(s). A signature, date, and time are provided once all conditions of the WFSA are met.)

VIII. Daily Review

To be completed by the Agency Administrator(s) or Designate

Selected to be reviewed daily to determine if still valid until containment or control

			PREPAREDNESS LEVEL	INCIDENT PRIORITY	RESOURCE AVAILABILITY	WEATHER FORECAST	FIRE BEHAVIOR PROJECTIONS	WFSA VALID
Date	Time	By						

If WFSA is no longer valid, a new WFSA will be completed!

VIII. Objectives Final Review
The elements of the selected alternative were met on: _____ _____ Date Time By:_____ (Agency Administrator(s)

A GUIDE FOR ASSESSING FIRE COMPLEXITY

The following questions are presented as a guide to assist the Agency Administrator(s) and staff in analyzing the complexity or predicted complexity of a wildland fire situation. Because of the time required to assemble or move an incident management team to wildland fire, this checklist should be completed when a wildland fire escapes initial attack and be kept as a part of the fire records. This document is prepared concurrently with the preparation of (and attached to) a new or revised wildland fire situation analysis. It must be emphasized this analysis should, where possible, be based on predictions to allow adequate time for assembling and transporting the ordered resources.

Use of the Guide:

1. Analyze each element and check the response "yes" or "no."

2. If positive responses exceed, or are equal to, negative responses within any primary factor (A through G), the primary factor should be considered as a positive response.

3. If any three of the primary factors (A through G) are positive responses, this indicates the fire situation is, or is predicted to be, Type I.

4. Factor H should be considered after all the above steps. If more than two of these items are answered "yes," and three or more of the other primary factors are positive responses, a Type I team should be considered. If the composites of H are negative, and there are fewer than three positive responses in the primary factors (A-G), a Type II team should be considered. If the answers to all questions in H are negative, it may be advisable to allow the existing overhead to continue action on the fire.

GLOSSARY OF WFSA TERMS

Potential for blow-up conditions - Any combination of fuels, weather, and topography excessively endangering personnel.

Rate or endangered species - Threat to habitat of such species or, in the case of flora, threat to the species itself.

Smoke management - Any situation which creates a significant public response, such as smoke in a metropolitan area or visual pollution in high-use scenic areas.

Extended exposure to unusually hazardous line conditions - Extended burnout or backfire situations, rockslide, cliffs, extremely steep terrain, abnormal fuel situation such as frost killed foliage, etc.

Disputed fire management responsibility - Any wildland fire where responsibility for management is not agreed upon due to lack of agreements or different interpretations, etc.

Disputed fire policy - Differing fire policies between suppression agencies when the fire involves multiple ownership is an example.

Pre-existing controversies - These may or may not be fire management related. Any controversy drawing public attention to an area may present unusual problems to the fire overhead and local management.

Have overhead overextended themselves mentally or physically - This is a critical item that requires judgment by the responsible agency. It is difficult to write guidelines for this judgment because of the wide differences between individuals. If, however, the agency administrator feels the existing overhead cannot continue to function efficiently and take safe and aggressive action due to mental or physical reasons, assistance is mandatory.

FIRE COMPLEXITY ANALYSIS

A. FIRE BEHAVIOR: Observed or Predicted	**Yes**	**No**
1. Burning index (from on-site measurement of weather conditions predicted to be above the 90% level using the major fuel model in which the fire is burning.	___	___
2. Potential exists for "blowup" conditions (fuel moisture, winds, etc.).	___	___
3. Crowning, profuse or long-range spotting.	___	___
4. Weather forecast indicating no significant relief or worsening conditions.	___	___
Total:	___	___

B. RESOURCES COMMITTED		
1. 200 or more personnel assigned.	___	___
2. Three or more divisions.	___	___
3. Wide variety of special support personnel.	___	___
4. Substantial air operation which is not properly staffed.	___	___
5. Majority of initial attack resources committed.	___	___
Total	___	___

C. RESOURCES THREATENED

1. Urban interface. ___ ___
2. Developments and facilities. ___ ___
3. Restricted, threatened or endangered species habitat ___ ___
4. Cultural sites. ___ ___
5. Unique natural resources, special designation zones or wilderness. ___ ___
6. Other special resources. ___ ___

Total ___ ___

D. SAFETY

1. Unusually hazardous fire line conditions. ___ ___
2. Serious accidents or facilities. ___ ___
3. Threat to safety of visitors from fire and related operations. ___ ___
4. Restricted and/or closures in effect or being considered. ___ ___
5. No night operations in place for safety reasons. ___ ___

Total ___ ___

E. OWNERSHIP **Yes/No**

1. Fire burning or threatening more than one jurisdiction. .___ ___
2. Potential for claims (damages). ___ ___
3. Conflicting management objectives. ___ ___
4. Disputes over fire management responsibility. ___ ___
5. Potential for unified command. ___ ___

Total ___ ___

F. EXTERNAL INFLUENCES

1. Controversial wildland fire management policy. ___ ___

2. Pre-existing controversies/relationships. ___ ___

3. Sensitive media relationships. ___ ___

4. Smoke management problems. ___ ___

5. Sensitive political interests. ___ ___

6. Other external influences. ___ ___

Total ___ ___

G. CHANGE IN STRATEGY

1. Change in strategy to control from confine or contain. ___ ___

2. Large amount of unburned fuel within planned perimeter. ___ ___

3. WFSA invalid or requires updating. ___ ___

Total ___ ___

H. EXISTING OVERHEAD

1. Worked two operational periods without achieving initial objectives. ___ ___

2. Existing management organization ineffective. ___ ___

3. IMT overextended themselves mentally and/or physically. ___ ___

4. Incident action plans, briefings, etc., missing or poorly prepared. ___ ___

Total ___ ___

Signature_____
Date_____ Time_____

APPENDIX F
Limited Delegation of Authority

LIMITED DELEGATION OF AUTHORITY

To: _____, Incident Commander

From: Superintendent, Fire Island National Seashore

Subject: Limited Delegation of Authority

As of _____hours, on this date _____, I have delegated limited authority to manage the _____ fire in _____.

As superintendent I have ultimate responsibility for protection of park resources and the lives of the park's visitors and employees. Your expertise in the area of wildland fire incident management will assist me in fulfilling that responsibility during the present situation. My considerations for management of this fire are:

1. Provide for firefighter, park visitor, resident and neighbor safety.

2. I would like the fire managed using the most appropriate strategy that foremost considers, safety, economic cost, and probability of success and consequences of failure. The selected strategy should be implemented using minimum impact management tactics.

3. Key cultural features requiring priority protection are:
_____
_____
_____
_____

4. Key resource considerations are:
_____
_____
_____
_____

5. Restrictions for suppression actions are: no tracked or wheeled vehicles in the following areas:
_____
_____

except when human life is at immediate risk. Helicopters, powersaws, portable pumps and leaf blowers may be used as required. Chemical retardant is authorized as stipulated in the park's fire management plan.

6. My agency advisor/representative will be:

7. Manage the fire cost effectively for the values at risk.

8. Provide training opportunities for park and local firefighters to the extent possible.

9. Minimize disruption of visitor access to the park consistent with pubic safety.

_____
Superintendent, Fire Island National Seashore

Date:_____

APPENDIX G
Minimum Impact Suppression Tactics Guidelines

General Discussion

Suppression tactics will have an impact on the landscape. Following the minimum impact suppression tactics (MIST) guidelines outlined below can reduce the degree of long-term impacts associated with wildland fire suppression tactics. It is important that decision makers are aware of the long-term impacts fire suppression tactics can have on the landscape, and very carefully weigh those long-term impacts to fire suppression safety issues related to wildland fire incidents. The following are MIST standards that will be used in the park.

Also refer to RM-18, Chapter 9, Exhibit 5

Tactical Standards

- Fireline construction will be minimized by taking advantage of natural barriers, rock outcrops, trails, roads, streams, and other existing fuel breaks.
- Firelines will be the minimum width necessary to halt the spread of the fire and will be placed to avoid impacts to natural and cultural resources vulnerable to the effects of fire and fire suppression activities.
- Limbing along the fireline will be done only as essential for the suppression effort and for safety.
- Unburned material may be left within the final line.
- Clearing and scraping will be minimized.
- Snags or trees will be felled only when essential for control of the fire or for safety of personnel.
- Where possible, on site archeological clearance will be obtained prior to line construction.

Terminating the Fire

- The route to the fire from the nearest trail or road will be flagged. Flagging will be removed by the last person to leave the area.
- All equipment and debris will be removed from the area for proper disposal.

- Before leaving the fire, rehabilitation will be completed to eliminate impacts from the suppression effort.
- Restoration of fire area.
- Backfill cup trenches and scarify wide firelines.
- Construct waterbars to prevent erosion.
- Place “boneyards” in a natural or random arrangement.
- Position cut ends of logs so as to be inconspicuous to visitors and camouflage where possible.
- Flush cut stumps, camouflage with soil and moss.

Aircraft

Helicopters

- Minimize use.
- Restore helispots.

Retardant Aircraft

- No retardant will be used within 300 feet of a riparian area without the approval of the superintendent, unless there is immediate and grave danger to life safety and high value property loss.
- Use water drops where practical.
- Minimize number of drops to what is essential for control of the fire.

APPENDIX H
Memorandum of Understanding

MEMORANDUM OF UNDERSTANDING
MUTUAL AID AGREEMENT
BETWEEN
FIRE ISLAND NATIONAL SEASHORE
AND THE
KISMET FIRE DEPARTMENT

ARTICLE I. BACKGROUND AND OBJECTIVES

Whereas; The Fire Island National Seashore was established as a unit of the National Park System administered by the United States Department of the Interior, National Park Service, for the purpose of conserving and preserving for the use of future generations certain relatively unspoiled and undeveloped beaches, dunes, and other natural features within Suffolk County, NY, which possess high values to the National as examples of unspoiled areas of great natural beauty in close proximity to large concentrations of urban population," and,

Whereas; the Kismet Fire-District has fire suppression responsibilities over the community of Kismet as well as the adjoining areas of Robert Moses State Park and the Fire Island Coast Guard Station, and provides mutual fire suppression support to other adjacent communities which borders Fire Island National Seashore; and,

Whereas; it is in the interest of both parties that the Kismet Fire District and Fire Island National Seashore enter into a mutual aid and assistance agreement for the purposes of fire suppression; and,

Whereas; the authority for the execution of an agreement between agencies of the United States and other agencies and instrumentality's for mutual aid in fire protection is contained in Public Law 42, U. S. C. 1856-1856d and,

Whereas; both the Kismet Fire District and the National Park Service are resolved to the same ends set forth in this document:

Now, therefore. In consideration of the mutual covenants hereinafter contained, the parties hereto agree as follows:

ARTICLE II. STATEMENT OF WORK

A. The Superintendent, subject to available appropriations, agrees:

1. To operate a fire patrol and wild land fire brigade on Seashore property for the purposes of preventing, detecting, and suppressing fires, throughout the year. Permanent Seashore employees, augmented by temporary personnel during the period July 1 through Labor Day, will furnish this service in conjunction with their other duties.

2. To train appropriate personnel in the detection, prevention, and suppression of wild land fires, and further to furnish temporary employees sufficient training to assist in these duties.

3. Upon request from the District, to make available the Seashore wild land fire suppression equipment and crews on any fire within the District area and provide emergency services (emergency medical care, crowd control, search and rescue and law enforcement).

4. With advice from the District, to upgrade and improve equipment and training periodically.

B. The Commissioners of the District, subject to available appropriations agree:

1. To maintain an organization of personnel to the best of their ability and to make the same available to the Seashore in any emergency requiring fire suppression. It is understood that the District will retain equipment and personnel necessary to provide an adequate fire watch within the District during an emergency.

2. It is further understood that if, at the same time, the District is actively engaged in a like emergency, they will respond as soon as and to the extent that circumstances will permit.

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2. It is further understood that if, at the same time, the District is actively engaged in a like emergency, they will respond as soon as and to the extent that circumstances will permit.

3. To engage without request in fire suppression activities in the Seashore lands, and any structural fire located from the common boundary with Robert Moses State Park on the west to the common boundary between the community of Kismet and the Incorporated Village of Saltaire in the east which has been called in to the Fire District directly, 911 emergency number or by direct contact with Seashore authorized representative.

4. To engage in non-structural fire suppression activities within the remaining Seashore are on Fire Island known as requested by the Superintendent or his authorized representative as personnel and equipment allows.

5. To assist and cooperate when requested in any fire or other emergency requiring the services of the District Fire Department within the Seashore area, as personnel and equipment allows.

C. Each agency agrees:

1. To furnish the other a copy of its personnel directory, listing the names, titles, addresses, and telephone numbers of persons in charge of its suppression units.

2. To cooperate in fire control training, at least once each calendar year. Such training will be held at times and dates to be mutually agreed upon.

3. To furnish the other such information relating to fire control and the equipment used in these activities as may be requested by or useful to the other; including locations and availability.

4. To assist the other in making and carrying out plans designed to convince the public of the need for strongly supporting measures to provide for efficient fire control organizations.

5. To furnish the other a copy of its respective fire and rescue operations plans.

6. To review large fires involving joint action by the two agencies at a time and place agreeable to both parties.

7. To communicate with one another, through authorized representatives, in regards to all needs and concerns, so as to operate in the most efficient manner possible.

8. To review with the members of its organization the full contents of this agreement, so as to familiarize all concerned with its provisions. In the event of uncertainty concerning any of the provisions of this agreement, the questions shall be referred to the undersigned officers of the two agencies who will study, confer, and ultimately reach a mutual understanding. Those understandings will be made a part of this agreement, by supplement or amendment. In the event that neither of the undersigned can be reached, their designated representatives in the field will act upon their own initiative and judgment.

9. That this agreement does not establish an agency relationship between the parties for any other purposes and that the performance of duties by the personnel of either party shall not constitute such individuals as officers or employees of the other party nor shall any employee of either party be entitled to any compensation from the other party as a result of duties performed pursuant to this agreement.

10. That each party shall waive any and all claims for loss, damage, personal injury or death occurring in consequence of the performance of this agreement.

ARTICLE III. TERM OF AGREEMENT

This agreement shall have a maximum term of 5 YEARS, and may be renewed in 5-year periods by written affirmation, but in no event shall the overall term, as extended, exceed twenty years.

Any supplement or amendment, agreed upon by mutual consent of both parties, shall be incorporated into the overall agreement and considered as such in the reaffirmation.

ARTICLE IV. KEY OFFICIALS

Key officials for the National Park Service and the Kismet Fire District are provided on Attachment A and will be updated as necessary.

ARTICLE V. FIRE DETECTION AND REPORTING

The Seashore detection organization includes Park Ranger and Fire Control Aid patrols in the protection area. The district detection organization includes the phone and radio alert systems using the "quick call" facilities of the Suffolk County Fire Control Center at Yaphank, New York. The detection organizations of the two agencies will cooperate in fire detection within the area covered by this agreement.

Smokes within the District area detected by the Seashore organization shall be reported to the County Fire Control Center at Yaphank. The District Fire Chief shall be contacted by radio, telephone call or pager by the County Fire Control Dispatch Center. The person calling County will follow through and confirm that the Fire Chief has been contacted and given the fire message.

Smokes on lands within the General Boundary of the National Seashore detected by the District organization shall be reported to the nearest Seashore Ranger Station of Fire Island when manned, or the Seashore Headquarters in Patchogue, NY. After hours, reports should be made by telephone in accordance with the Seashore's Emergency Directory furnished to the District and the Suffolk County Fire Control Center.

It is further agreed that the District and the Seashore will work towards developing a direct reporting system on Fire Island, which will provide for faster response time in the suppression of fire.

ARTICLE VI. FIRE SUPRESSION

A. Each agency will dispatch assistance as available, to the extent that circumstances will permit upon receipt of a request from a responsible authority of the other agency, except when an agency's forces are actively engaged in a like emergency, in which case they will respond as soon as possible and to the extent that circumstances will permit.

B. The first agency to detect a fire and having the ability to respond will make the initial attack. Such action will be reported to the other agency as soon as possible. Should occasion arise whereby it is impossible for the detecting agency to respond, the same shall report the fire to the other agency, which will make the initial attack.

C. Each agency will provide the necessary tools and equipment for its own crews.

D. Structural fire suppression activities will be performed in accordance with the foregoing and following conditions:

1. With or without a request from the Seashore, District fire crews shall have the authority to go directly into the Seashore structures for fire suppression activities only.

2. In all situations where there is a structural fire, the officer in charge of the Kismet Fire Department shall be in charge of the fire scene from his/her arrival until he/she declares the fire "dead out".

3. Should the fire spread into the neighboring district, that district will assume control of fire suppression operations, except as in item 2 above.

4. The officer will direct all suppression activities from the time he/she arrives on the scene until the fire is declared "dead out", or until he/she is properly relieved.

5. The officer shall release the crews of the cooperating agency as soon as the fire is under control to the extent that he/she feels their service can safely be spared.

ARTICLE VII. RESPONSIBILITY FOR PAYMENT OF SUPPRESSION COSTS

Each agency will bear the costs of its own crews and equipment. Should additional forces be required or prolonged action necessary, those costs shall be assumed by the party on whose lands the additional forces or prolonged action was needed. In either case, the National Park Service shall bear the total costs of its crews and equipment.

ARTICLE VIII. REIMBURSEMENT

Reimbursement for costs of fire fighting on federal property shall be based on regulations published in the Federal Register Vol. 49, No.33 Thursday, February 16, 1984, which are enclosed as Attachment B and made a part of this agreement.

ARTICLE IX. TERMINATION

Either party may terminate this agreement by providing a written sixty-day notice to the other.

ARTICLE X. REQUIRED CLAUSES

During the performance of this agreement, the participants agree to abide by the terms of Executive Order 11246 on non-discrimination and will not discriminate against any person because of race, color, religion, sex, or national origin. The participants will take affirmative action to ensure that applicants are employed without regard to their race, color, religion, sex, or national origin.

Neither the District nor the Seashore shall publicize or otherwise circulate, promotional material (such as advertisements, sales brochures, press releases, speeches, still and motion pictures, articles, manuscripts or other publications) which states or implies Governmental, Departmental, bureau, or Government employees endorsement of a product, service, or position which the either represents. No release of information relating to this agreement may state or imply that the Government approves of the District's work products, or considers the District's work product to be superior to other products or services.

The District must obtain prior Government approval from Fire Island National Seashore for any public information releases which refer to the Department of the Interior, any bureau or employee (by name or title), or this agreement. The specific text, layout, photographs, etc., of the proposed release must be submitted with the request for approval.

No member or delegate to Congress, or resident Commissioner, shall be admitted to any share or part of this agreement, or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this agreement if made with a corporation for its general benefit.

The rights and benefits conferred by this agreement shall be subject to the laws of the United States governing the National Park Service and to the rules and regulations promulgated thereunder, whether now in force or hereafter enacted or promulgated.

Nothing contained herein shall be construed as binding either party to expend in any one fiscal year any sum in excess of appropriations made by Congress or administratively allocated for the purpose of this agreement for the fiscal year, or to involve either party on any contract or obligation for the further expenditure on money in excess of such appropriations or allocations.

IN WITNESS WHEREOF THE parties hereto have executed this agreement.

For the National Park Service

/s/_____10/12/00
CONSTANTINE J. DILLON, Date
Superintendent

Kismet Fire District:

/s/_____10/12/00
JOSEPH MC KEEHAN Date
Commissioner, Kismet Fire Department

Witnesses:

/s/_____10/12/00
JAY LIPPERT Date

ATTACHMENT A

FOR THE FIRE ISLAND NATIONAL SEASHORE AS OF 6/99

1. CONSTANTINE DILLON	SUPERINTENDENT
2. BARRY SULLIVAN	DEP. SUPERINTENDENT
3. DAVID GRIESE	CHIEF RANGER
4. JAY LIPPERT	DISTRICT RANGER
5. JOHN STEWART	PARK RANGER

NUMBERS 1-5 ABOVE ARE AUTHORIZED OFFICIAL REPRESENTATIVES FOR THE PURPOSES OF THIS AGREEMENT.

FOR THE KISMET FIRE DISTRICT AS OF 01/00

1. LARRY COLE	CHAIRMAN
2. JOE McKEEHAN	COMMISSIONER
3. SAM WOOD	COMMISSIONER
4. RUSSEL PHELAM	COMMISSIONER
5. ROLAND MENELLA	COMMISSIONER

FOR THE KISMET FIRE DEPARTMENT- AS OF 01/00

1. BUDDY SCHUMACHER	CHIEF
2. JOE KELLY	FIRST ASSISTANT CHIEF
3. JON MANDEL	SECOND ASSISTANT CHIEF
4. SAM WOOD	CAPTAIN (TRUCK)
6. JOAN McKEEHAN	TREASURER
7. ART WEINSTEIN	SECRETARY

APPENDIX I
Park Fire Contact Information

Name	Work Phone	Cell Phone/Pager	Home Phone
Vacant Superintendent	907 442-8301		
Barry Sullivan Deputy Superintendent	631 289-4810 x221		
Wayne Valentine Chief Park Ranger	631-289-4810 X 232		
George Leone Fire Coordinator	631 289-4810		
Michael Bilecki Chief of Resources Management	631 289-4810 x234		
Paul Head Regional Fire Management Officer	617-223-5067	800-759-8888	
Doug Wallner Regional Fuels/Fire Ecology Program Manager	215-597-7140	215-266-2612	

APPENDIX J
Fire Monitoring Plan

APPENDIX K
DI 1202

UNITED STATES DEPARTMENT OF THE INTERIOR DI-1202 INDIVIDUAL FIRE REPORT 1. STATUS CODE 2. REPORTING AGENCY	3.a. UNIT B. SUB-UNIT C. YEAR D. FIRE NUMBER	4. TYPE 5. CAUSE 6. PEOPLE 7. NRVC

8. STATISTICAL DATA

a. STATE	b. OWNER	c. VEGETATION	d. ACRES BURNED

9. AGENCY DATA

a. FIRE NAME	b. AREA NAME	c. LATITUDE LONGITUDE	d. TWNSHP RANGE SECTION MERIDIAN

e. COST CODE	f. OWNER	g. FY	h. FISCAL DATA	i. UTM
				Z E N

10. FIRE MANAGEMENT DATA

	DATE	TIME	TYPE	AMT XXXXXXXXXX XXXXXXXXXX	ACRES
a. DISCOVERY/START					
b. INITIAL ATTACK			1 2 3	1 2 3	
c. CONTROLLED					
d. DECLARED OUT					

11. SITE DATA

a. TOPOGRAPHY	b. ASPECT	c. SLOPE	d. ELEVATION	e. STATION	f. MSGC	g. BEHAVIOR	h. B. I.	I. ADJ CLASS

12. PREVENTION DATA

k. DAY OF WEEK	l. WAS FIRE INVESTIGATED (Y/N)	m. FIRE CAUSE SUSPECT, KNOWN OR UNKNOWN (K/U)	n. SUSPECT = RESIDENT, TRANSIENT OR UNKNOWN (R/T/U)

13. PRESCRIBED FIRE DATA

c. PLOT/ BURN OBJECTIVE	d. FIRING TYPE	e. COST/ACRE	f. FBPS FUEL MODEL	l. PROJECT #

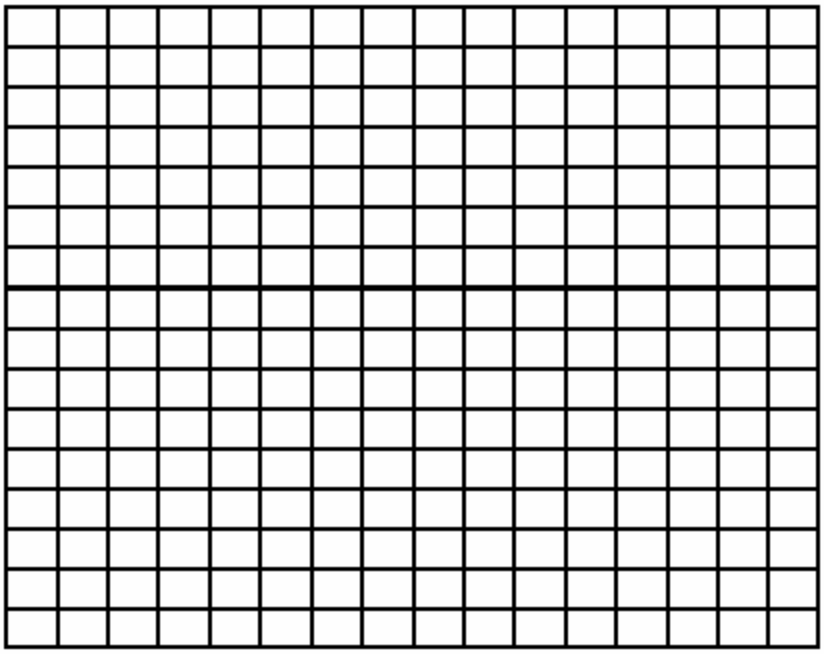
m. COMPLEXITY / FIRE MANAGEMENT AREA	n. FUEL LOADING FOR EMISSIONS			o. BENEFITTING PROGRAM
	SIZE CLASS OF FUELS	PRE-BURN LOADING TONS PER ACRE	CONSUMPTION PERCENT	
	Shrub/Herb			
	0 - 1			
	1.1 - 3.0			
	3.1 - 9.0			
	9+			
	LITTER & DUFF (INCHES)			

NARRATIVE - Enter information about the fire.

TITLE INFORMATION - (Mandatory)
Submitted by:
Submitted Title:
Submitted Date:
Entered by:
Entered Title:
Entered Date:

MAP: - (Optional)

LOCATION PLAT SCALE: " = 1 MILE

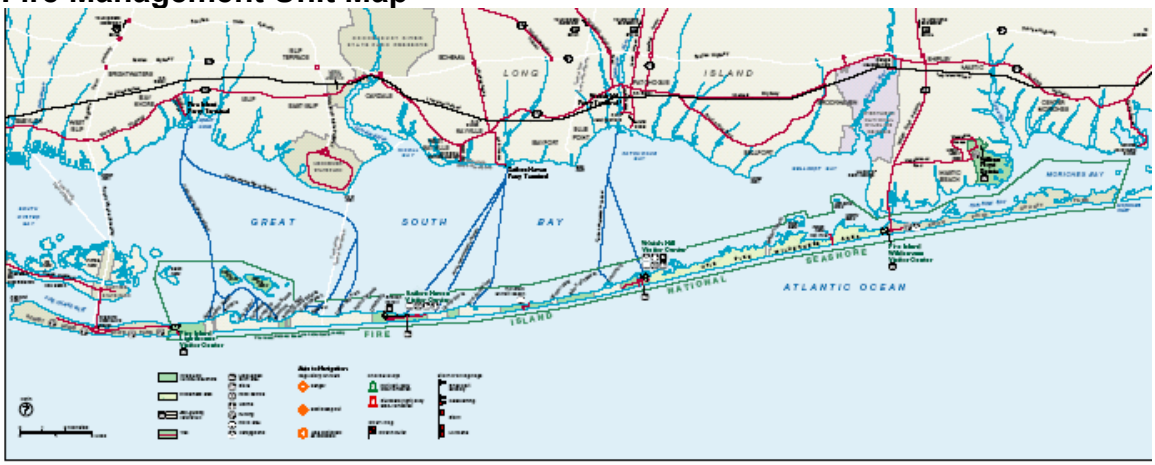


APPENDIX L
Fire Equipment Inventory

Park will insert

APPENDIX M
Vicinity and Fire Management Unit Maps

Fire Management Unit Map



Vicinity Map

APPENDIX N
National Fire Plan
Glossary of Wildland Fire Terms

A

Aerial Fuels: All live and dead vegetation in the forest canopy or above surface fuels, including tree branches, twigs and cones, snags, moss, and high brush.

Aerial Ignition: Ignition of fuels by dropping incendiary devices or materials from aircraft.

Air Tanker: A fixed-wing aircraft equipped to drop fire retardants or suppressants.

Agency: Any federal, state, or county government organization participating with jurisdictional responsibilities.

Anchor Point: An advantageous location, usually a barrier to fire spread, from which to start building a fire line. An anchor point is used to reduce the chance of firefighters being flanked by fire.

Aramid: The generic name for a high-strength, flame-resistant synthetic fabric used in the shirts and jeans of firefighters. Nomex, a brand name for aramid fabric, is the term commonly used by firefighters.

Aspect: Direction toward which a slope faces.

B

Backfire: A fire set along the inner edge of a fireline to consume the fuel in the path of a wildfire and/or change the direction of force of the fire's convection column.

Backpack Pump: A portable sprayer with hand-pump, fed from a liquid-filled container fitted with straps, used mainly in fire and pest control. (See also Bladder Bag.)

Bambi Bucket: A collapsible bucket slung below a helicopter. Used to dip water from a variety of sources for fire suppression.

Behave: A system of interactive computer programs for modeling fuel and fire behavior that consists of two systems: BURN and FUEL.

Bladder Bag: A collapsible backpack portable sprayer made of neoprene or high-strength nylon fabric fitted with a pump. (See also Backpack Pump.)

Blow-up: A sudden increase in fire intensity or rate of spread strong enough to prevent direct control or to upset control plans. Blow-ups are often accompanied by violent convection and may have other characteristics of a firestorm. (See Flare-up.)

Brush: A collective term that refers to stands of vegetation dominated by shrubby, woody plants, or low growing trees, usually of a type undesirable for livestock or timber management.

Brush Fire: A fire burning in vegetation that is predominantly shrubs, brush, and scrub growth.

Bucket Drops: The dropping of fire retardants or suppressants from specially designed buckets slung below a helicopter.

Buffer Zones: An area of reduced vegetation that separates wildlands from vulnerable residential or business developments. This barrier is similar to a greenbelt in that it is usually used for another purpose such as agriculture, recreation areas, parks, or golf courses.

Bump-up Method: A progressive method of building a fire line on a wildfire without changing relative positions in the line. Work is begun with a suitable space between workers. Whenever one worker overtakes another, all workers ahead move one space forward and resume work on the uncompleted part of the line. The last worker does not move ahead until completing his or her space.

Burn Out: Setting fire inside a control line to widen it or consume fuel between the edge of the fire and the control line.

Burning Ban: A declared ban on open air burning within a specified area, usually due to sustained high fire danger.

Burning Conditions: The state of the combined factors of the environment that affect fire behavior in a specified fuel type.

Burning Index: An estimate of the potential difficulty of fire containment as it relates to the flame length at the most rapidly spreading portion of a fire's perimeter.

Burning Period: That part of each 24-hour period when fires spread most rapidly, typically from 10:00 a.m. to sundown.

C

Campfire: As used to classify the cause of a wildland fire, a fire that was started for cooking or warming that spreads sufficiently from its source to require action by a fire control agency.

Candle or Candling: A single tree or a very small clump of trees that is burning from the bottom up.

Chain: A unit of linear measurement equal to 66 feet.

Closure: Legal restriction, but not necessarily elimination of specified activities such as smoking, camping, or entry that might cause fires in a given area.

Cold Front: The leading edge of a relatively cold air mass that displaces warmer air. The heavier cold air may cause some of the warm air to be lifted. If the lifted air contains enough moisture, the result may be cloudiness, precipitation, and thunderstorms. If both air masses are dry, no clouds may form. Following the passage of a cold front in the Northern Hemisphere, westerly or northwesterly winds of 15 to 30 or more miles per hour often continue for 12 to 24 hours.

Cold Trailing: A method of controlling a partly dead fire edge by carefully inspecting and feeling with the hand for heat to detect any fire, digging out every live spot, and trenching any live edge.

Command Staff: The command staff consists of the information officer, safety officer, and liaison officer. They report directly to the incident commander and may have assistants.

Complex: Two or more individual incidents located in the same general area, which are assigned to a single incident commander or unified command.

Contain a fire: A fuel break around the fire has been completed. This break may include natural barriers or manually and/or mechanically constructed line.

Control a fire: The complete extinguishment of a fire, including spot fires. Fireline has been strengthened so that flare-ups from within the perimeter of the fire will not break through this line.

Control Line: All built or natural fire barriers and treated fire edge used to control a fire.

Cooperating Agency: An agency supplying assistance other than direct suppression, rescue, support, or service functions to the incident control effort; e.g., Red Cross, law enforcement agency, telephone company, etc.

Coyote Tactics: A progressive line construction duty involving self-sufficient crews that build fire line until the end of the operational period, remain at or near the point while off duty, and begin building fire line again the next operational period where they left off.

Creeping Fire: Fire burning with a low flame and spreading slowly.

Crew Boss: A person in supervisory charge of usually 16 to 21 firefighters and responsible for their performance, safety, and welfare.

Crown Fire (Crowning): The movement of fire through the crowns of trees or shrubs more or less independently of the surface fire.

Curing: Drying and browning of herbaceous vegetation or slash.

D

Dead Fuels: Fuels with no living tissue in which moisture content is governed almost entirely by atmospheric moisture (relative humidity and precipitation), dry-bulb temperature, and solar radiation.

Debris Burning: A fire spreading from any fire originally set for the purpose of clearing land or for rubbish, garbage, range, stubble, or meadow burning.

Defensible Space: An area either natural or manmade where material capable of causing a fire to spread has been treated, cleared, reduced, or changed to act as a barrier between an advancing wildland fire and the loss to life, property, or resources. In practice, "defensible space" is defined as an area a minimum of 30 feet around a structure that is cleared of flammable brush or vegetation.

Deployment: See Fire Shelter Deployment.

Detection: The act or system of discovering and locating fires.

Direct Attack: Any treatment of burning fuel, such as by wetting, smothering, or chemically quenching the fire or by physically separating burning from unburned fuel.

Dispatch: The implementation of a command decision to move a resource or resources from one place to another.

Dispatcher: A person employed who receives reports of discovery and status of fires, confirms their locations, takes action promptly to provide people and equipment likely to be needed for control in first attack, and sends them to the proper place.

Dispatch Center: A facility from which resources are directly assigned to an incident.

Division: Divisions are used to divide an incident into geographical areas of operation. Divisions are established when the number of resources exceeds the span-of-control of the operations chief. A division is located with the incident command system organization between the branch and the task force/strike team.

Dozer: Any tracked vehicle with a front-mounted blade used for exposing mineral soil.

Dozer Line: Fire line constructed by the front blade of a dozer.

Drip Torch: Hand-held device for igniting fires by dripping flaming liquid fuel on the materials to be burned; consists of a fuel fount, burner arm, and igniter. Fuel used is generally a mixture of diesel and gasoline.

Drop Zone: Target area for air tankers, helitankers, and cargo dropping.

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

Dry Lightning Storm: Thunderstorm in which negligible precipitation reaches the ground. Also called a dry storm.

Duff: The layer of decomposing organic materials lying below the litter layer of freshly fallen twigs, needles, leaves, and immediately above the mineral soil.

E

Energy Release Component (ERC): The computed total heat released per unit area (British thermal units per square foot) within the fire front at the head of a moving fire.

Engine: Any ground vehicle providing specified levels of pumping, water, and hose capacity.

Engine Crew: Firefighters assigned to an engine. The Fireline Handbook defines the minimum crew makeup by engine type.

Entrapment: A situation where personnel are unexpectedly caught in a fire behavior-related, life-threatening position where planned escape routes or safety zones are absent, inadequate, or compromised. An entrapment may or may not include deployment of a fire shelter for its intended purpose. These situations may or may not result in injury. They include "near misses."

Environmental Assessment (EA): EAs were authorized by the National Environmental Policy Act (NEPA) of 1969. They are concise, analytical documents prepared with public participation that determine if an environmental impact statement (EIS) is needed for a

particular project or action. If an EA determines an EIS is not needed, the EA becomes the document allowing agency compliance with NEPA requirements.

Environmental Impact Statement (EIS): EISs were authorized by the National Environmental Policy Act (NEPA) of 1969. Prepared with public participation, they assist decision makers by providing information, analysis, and an array of action alternatives allowing managers to see the probable effects of decisions on the environment. Generally, EISs are written for large-scale actions or geographical areas.

Equilibrium Moisture Content: Moisture content that a fuel particle will attain if exposed for an infinite period in an environment of specified constant temperature and humidity. When a fuel particle reaches equilibrium moisture content, net exchange of moisture between it and the environment is zero.

Escape Route: A preplanned and understood route firefighters take to move to a safety zone or other low-risk area, such as an already burned area, previously constructed safety area, a meadow that won't burn, or natural rocky area that is large enough to take refuge without being burned. When escape routes deviate from a defined physical path, they should be clearly marked (flagged).

Escaped Fire: A fire that has exceeded or is expected to exceed initial attack capabilities or prescription.

Extended Attack Incident: A wildland fire that has not been contained or controlled by initial attack forces, and for which more firefighting resources are arriving, en route, or being ordered by the initial attack incident commander.

Extreme Fire Behavior: "Extreme" implies a level of fire behavior characteristics that ordinarily precludes methods of direct control action. One of more of the following is usually involved: high rate of spread, prolific crowning and/or spotting, presence of fire whirls, and strong convection column. Predictability is difficult because such fires often exercise some degree of influence on their environment and behave erratically, sometimes dangerously.

F

Faller: A person who fells trees. Also called a sawyer or cutter.

Field Observer: Person responsible to the situation unit leader for collecting and reporting information about an incident obtained from personal observations and interviews.

Fine (Light) Fuels: Fast-drying fuels, generally with comparatively high surface area-to-volume ratios, which are less than 1/4-inch in diameter and have a timelag of one hour or less. These fuels readily ignite and are rapidly consumed by fire when dry.

Fingers of a Fire: The long narrow extensions of a fire projecting from the main body.

Fire Behavior: The manner in which a fire reacts to the influences of fuel, weather, and topography.

Fire Behavior Forecast: Prediction of probable fire behavior, usually prepared by a fire behavior officer, in support of fire suppression or prescribed burning operations.

Fire Behavior Specialist: A person responsible to the planning section chief for establishing a weather data collection system and for developing fire behavior predictions based on fire history, fuel, weather, and topography.

Fire Break: A natural or constructed barrier used to stop or check fires that may occur, or to provide a control line from which to work.

Fire Cache: A supply of fire tools and equipment assembled in planned quantities or standard units at a strategic point for exclusive use in fire suppression.

Fire Crew: An organized group of firefighters under the leadership of a crew leader or other designated official.

Fire Front: The part of a fire within which continuous flaming combustion is taking place. Unless otherwise specified the fire front is assumed to be the leading edge of the fire perimeter. In ground fires, the fire front may be mainly smoldering combustion.

Fire Intensity: A general term relating to the heat energy released by a fire.

Fire Line: A linear fire barrier that is scraped or dug to mineral soil.

Fire Load: The number and size of fires historically experienced on a specified unit over a specified period (usually one day) at a specified index of fire danger.

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

Fire Perimeter: The entire outer edge or boundary of a fire.

Fire Season: 1) Period(s) of the year during which wildland fires are likely to occur, spread, and affect resource values sufficient to warrant organized fire management activities. 2) A legally enacted time during which burning activities is regulated by state or local authority.

Fire Shelter: An aluminized tent offering protection by means of reflecting radiant heat and providing a volume of breathable air in a fire entrapment situation. Fire shelters should only be used in life-threatening situations, as a last resort.

Fire Shelter Deployment: The removing of a fire shelter from its case and using it as protection against fire.

Fire Storm: Violent convection caused by a large continuous area of intense fire. Often characterized by destructively violent surface indrafts, near and beyond the perimeter, and sometimes by tornado-like whirls.

Fire Triangle: Instructional aid in which the sides of a triangle are used to represent the three factors (oxygen, heat, fuel) necessary for combustion and flame production; removal of any of the three factors causes flame production to cease.

Fire Use Module (Prescribed Fire Module): A team of skilled and mobile personnel dedicated primarily to prescribed fire management. These are national and interagency resources, available throughout the prescribed fire season, that can ignite, hold, and monitor prescribed fires.

Fire Weather: Weather conditions that influence fire ignition, behavior, and suppression.

Fire Weather Watch: A term used by fire weather forecasters to notify using agencies, usually 24 to 72 hours ahead of the event, that current and developing meteorological conditions may evolve into dangerous fire weather.

Fire Whirl: Spinning vortex column of ascending hot air and gases rising from a fire and carrying aloft smoke, debris, and flame. Fire whirls range in size from less than one foot to more than 500 feet in diameter. Large fire whirls have the intensity of a small tornado.

Firefighting Resources: All people and major items of equipment that can or potentially could be assigned to fires.

Flame Height: The average maximum vertical extension of flames at the leading edge of the fire front. Occasional flashes that rise above the general level of flames are not considered. This distance is less than the flame length if flames are tilted due to wind or slope.

Flame Length: The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface); an indicator of fire intensity.

Flaming Front: The zone of a moving fire where the combustion is primarily flaming. Behind this flaming zone combustion is primarily glowing. Light fuels typically have a shallow flaming front, whereas heavy fuels have a deeper front. Also called fire front.

Flanks of a Fire: The parts of a fire's perimeter that are roughly parallel to the main direction of spread.

Flare-up: Any sudden acceleration of fire spread or intensification of a fire. Unlike a blow-up, a flare-up lasts a relatively short time and does not radically change control plans.

Flash Fuels: Fuels such as grass, leaves, draped pine needles, fern, tree moss and some kinds of slash that ignite readily and are consumed rapidly when dry. Also called fine fuels.

Forb: A plant with a soft, rather than permanent woody stem, that is not a grass or grass-like plant.

Fuel: Combustible material. Includes vegetation, such as grass, leaves, ground litter, plants, shrubs and trees that feed a fire. (See Surface Fuels.)

Fuel Bed: An array of fuels usually constructed with specific loading, depth and particle size to meet experimental requirements; also, commonly used to describe the fuel composition in natural settings.

Fuel Loading: The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area.

Fuel Model: Simulated fuel complex (or combination of vegetation types) for which all fuel descriptors required for the solution of a mathematical rate of spread model have been specified.

Fuel Moisture (Fuel Moisture Content): The quantity of moisture in fuel expressed as a percentage of the weight when thoroughly dried at 212 degrees Fahrenheit.

Fuel Reduction: Manipulation, including combustion, or removal of fuels to reduce the likelihood of ignition and/or to lessen potential damage and resistance to control.

Fuel Type: An identifiable association of fuel elements of a distinctive plant species, form, size, arrangement, or other characteristics that will cause a predictable rate of fire spread or difficulty of control under specified weather conditions.

Fusee: A colored flare designed as a railway-warning device and widely used to ignite suppression and prescription fires.

G

General Staff: The group of incident management personnel reporting to the incident commander. They may each have a deputy, as needed. Staff consists of operations

section chief, planning section chief, logistics section chief, and finance/administration section chief.

Geographic Area: A political boundary designated by the wildland fire protection agencies, where these agencies work together in coordination and effective utilization.

Ground Fuel: All combustible materials below the surface litter, including duff, tree or shrub roots, punchy wood, peat, and sawdust that normally support a glowing combustion without flame.

H

Haines Index: An atmospheric index used to indicate the potential for wildfire growth by measuring the stability and dryness of the air over a fire.

Hand Line: A fireline built with hand tools.

Hazard Reduction: Any treatment of a hazard that reduces the threat of ignition and fire intensity or rate of spread.

Head of a Fire: The side of the fire having the fastest rate of spread.

Heavy Fuels: Fuels of large diameter such as snags, logs, and large limb wood that ignite and are consumed more slowly than flash fuels.

Helibase: The main location within the general incident area for parking, fueling, maintaining, and loading helicopters. The helibase is usually located at or near the incident base.
Helispot: A temporary landing spot for helicopters.

Helitack: The use of helicopters to transport crews, equipment, and fire retardants or suppressants to the fire line during the initial stages of a fire.

Helitack Crew: A group of firefighters trained in the technical and logistical use of helicopters for fire suppression.

Holding Actions: Planned actions required to achieve wildland prescribed fire management objectives. These actions have specific implementation timeframes for fire use actions but can have less sensitive implementation demands for suppression actions.

Holding Resources: Firefighting personnel and equipment assigned to do all required fire suppression work following fireline construction but generally not including extensive mop-up.

Hose Lay: Arrangement of connected lengths of fire hose and accessories on the ground, beginning at the first pumping unit and ending at the point of water delivery.

Hotshot Crew: A highly trained fire crew used mainly to build fireline by hand.

Hotspot: A particular active part of a fire.

Hotspotting: Reducing or stopping the spread of fire at points of particularly rapid rate of spread or special threat, generally the first step in prompt control, with emphasis on first priorities.

I

Incident: A human-caused or natural occurrence, such as wildland fire, that requires emergency service action to prevent or reduce the loss of life or damage to property or natural resources.

Incident Action Plan (IAP): Contains objectives reflecting the overall incident strategy and specific tactical actions and supporting information for the next operational period. The plan may be oral or written. When written, the plan may have a number of attachments, including: incident objectives, organization assignment list, division assignment, incident radio communication plan, medical plan, traffic plan, safety plan, and incident map.

Incident Command Post (ICP): Location at which primary command functions are executed. The ICP may be co-located with the incident base or other incident facilities.

Incident Command System (ICS): The combination of facilities, equipment, personnel, procedure and communications operating within a common organizational structure, with responsibility for the management of assigned resources to effectively accomplish stated objectives pertaining to an incident.

Incident Commander: Individual responsible for the management of all incident operations at the incident site.

Incident Management Team: The incident commander and appropriate general or command staff personnel assigned to manage an incident.

Incident Objectives: Statements of guidance and direction necessary for selection of appropriate strategy (ies), and the tactical direction of resources. Incident objectives are based on realistic expectations of what can be accomplished when all allocated resources have been effectively deployed.

Infrared Detection: The use of heat sensing equipment, known as infrared scanners, for detection of heat sources that are not visually detectable by the normal surveillance methods of either ground or air patrols.

Initial Attack: The actions taken by the first resources to arrive at a wildfire to protect lives and property, and prevent further extension of the fire.

J

Job Hazard Analysis: This analysis of a project is completed by staff to identify hazards to employees and the public. It identifies hazards, corrective actions, and the required safety equipment to ensure public and employee safety.

Jump Spot: Selected landing area for smokejumpers.

Jump Suit: Approved protection suit worn by smokejumpers.

K

Keech Byram Drought Index (KBDI): Commonly used drought index adapted for fire management applications, with a numerical range from 0 (no moisture deficiency) to 800 (maximum drought).

Knock Down: To reduce the flame or heat on the more vigorously burning parts of a fire edge.

L

Ladder Fuels: Fuels that provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. They help initiate and assure the continuation of crowning.

Large Fire: 1) For statistical purposes, a fire burning more than a specified area of land e.g., 300 acres. 2) A fire burning with a size and intensity such that its behavior is determined by interaction between its own convection column and weather conditions above the surface.

Lead Plane: Aircraft with pilot used to make dry runs over the target area to check wind and smoke conditions, topography, and to lead air tankers to targets and supervise their drops.

Light (Fine) Fuels: Fast-drying fuels, generally with comparatively high surface area-to-volume ratios, which are less than 1/4-inch in diameter and have a timelag of one hour or less. These fuels readily ignite and are rapidly consumed by fire when dry.

Lightning Activity Level (LAL): A number, on a scale of 1 to 6, which reflects frequency and character of cloud-to-ground lightning. The scale is exponential, based on powers of 2 (i.e., LAL 3 indicates twice the lightning of LAL 2).

Line Scout: A firefighter who determines the location of a fire line.

Litter: Top layer of the forest, scrubland, or grassland floor, directly above the fermentation layer, composed of loose debris of dead sticks, branches, twigs, and recently fallen leaves or needles, little altered in structure by decomposition.

Live Fuels: Living plants, such as trees, grasses, and shrubs, in which the seasonal moisture content cycle is controlled largely by internal physiological mechanisms, rather than by external weather influences.

M

Micro-Remote Environmental Monitoring System (Micro-REMS): Mobile weather monitoring station. A Micro-REMS usually accompanies an incident meteorologist and ATMU to an incident.

Mineral Soil: Soil layers below the predominantly organic horizons; soil with little combustible material.

Mobilization: The process and procedures used by all organizations, federal, state and local for activating, assembling, and transporting all resources that have been requested to respond to or support an incident.

Modular Airborne Firefighting System (MAFFS): A manufactured unit consisting of five interconnecting tanks, a control pallet, and a nozzle pallet, with a capacity of 3,000 gallons, designed to be rapidly mounted inside an unmodified C-130 (Hercules) cargo aircraft for use in dropping retardant on wildland fires.

Mop-up: To make a fire safe or reduce residual smoke after the fire has been controlled by extinguishing or removing burning material along or near the control line, felling snags, or moving logs so they won't roll downhill.

Multi-Agency Coordination (MAC): A generalized term which describes the functions and activities of representatives of involved agencies and/or jurisdictions who come together to make decisions regarding the prioritizing of incidents, and the sharing and use of critical resources. The MAC organization is not a part of the on-scene ICS and is not involved in developing incident strategy or tactics.

Mutual Aid Agreement: Written agreement between agencies and/or jurisdictions in which they agree to assist one another upon request, by furnishing personnel and equipment.

N

National Environmental Policy Act (NEPA): NEPA is the basic national law for protection of the environment, passed by Congress in 1969. It sets policy and procedures for environmental protection, and authorizes environmental impact statements and environmental assessments to be used as analytical tools to help federal managers make decisions.

National Fire Danger Rating System (NFDRS): A uniform fire danger rating system that focuses on the environmental factors that control the moisture content of fuels.

National Wildfire Coordinating Group: A group formed under the direction of the Secretaries of Agriculture and the Interior and comprised of representatives of the U.S. Forest Service, Bureau of Land Management, Bureau of Indian Affairs, National Park Service, U.S. Fish and Wildlife Service, and Association of State Foresters. The group's purpose is to facilitate coordination and effectiveness of wildland fire activities and provide a forum to discuss, recommend action, or resolve issues and problems of substantive nature. NWCG is the certifying body for all courses in the National Fire Curriculum.

Nomex ®: Trade name for a fire resistant synthetic material used in the manufacturing of flight suits, pants, and shirts used by firefighters (see Aramid).

Normal Fire Season: 1) A season when weather, fire danger, and number and distribution of fires are about average. 2) Period of the year that normally comprises the fire season.

O

Operations Branch Director: Person under the direction of the operations section chief who is responsible for implementing that portion of the incident action plan appropriate to the branch.

Operational Period: The period of time scheduled for execution of a given set of tactical actions as specified in the incident action plan. Operational periods can be of various lengths, although usually not more than 24 hours.

Overhead: People assigned to supervisory positions, including incident commanders, command staff, general staff, directors, supervisors, and unit leaders.

P

Pack Test: Used to determine the aerobic capacity of fire suppression and support personnel, and assign physical fitness scores. The test consists of walking a specified distance, with or without a weighted pack, in a predetermined period of time, with altitude corrections.

Paracargo: Anything dropped, or intended for dropping, from an aircraft by parachute, by other retarding devices, or by free fall.

Peak Fire Season: That period of the fire season during which fires are expected to ignite most readily, to burn with greater than average intensity, and to create damages at an unacceptable level.

Personnel Protective Equipment (PPE): All firefighting personnel must be equipped with proper equipment and clothing in order to mitigate the risk of injury from, or exposure to, hazardous conditions encountered while working. PPE includes, but is not limited to: 8-inch high-laced leather boots with lug soles, fire shelter, hard hat with chin strap, goggles, ear plugs, aramid shirts and trousers, leather gloves, and individual first aid kits.

Preparedness: Condition or degree of being ready to cope with a potential fire situation.

Prescribed Fire: Any fire ignited by management actions under certain, predetermined conditions to meet specific objectives related to hazardous fuels or habitat improvement. A written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition.

Prescribed Fire Plan (Burn Plan): This document provides the prescribed burn boss information needed to implement an individual prescribed fire project.

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

Prevention: Activities directed at reducing the incidence of fires, including public education, law enforcement, personal contact, and reduction of fuel hazards.

Project Fire: A fire of such size or complexity that a large organization and prolonged activity is required to suppress it.

Pulaski: A combination chopping and trenching tool, which combines a single-bitted axe-blade with a narrow adze-like trenching blade fitted to a straight handle. Useful for grubbing or trenching in duff and matted roots. Well-balanced for chopping.

R

Radiant Burn: A burn received from a radiant heat source.

Radiant Heat Flux: The amount of heat flowing through a given area in a given time, usually expressed as calories/square centimeter/second.

Rappelling: Technique of landing specifically trained firefighters from hovering helicopters; involves sliding down ropes with the aid of friction-producing devices.

Rate of Spread: The relative activity of a fire in extending its horizontal dimensions. It is expressed as a rate of increase of the total perimeter of the fire, as rate of forward spread of the fire front, or as rate of increase in area, depending on the intended use of the information. Usually it is expressed in chains or acres per hour for a specific period in the fire's history.

Reburn: The burning of an area that has been previously burned but that contains flammable fuel that ignites when burning conditions are more favorable; an area that has reburned.

Red Card: Fire qualification card issued to fire rated persons showing their training needs and their qualifications to fill specified fire suppression and support positions in a large fire suppression or incident organization.

Red Flag Warning: Term used by fire weather forecasters to alert forecast users to an ongoing or imminent critical fire weather pattern.

Rehabilitation: The activities necessary to repair damage or disturbance caused by wildland fires or the fire suppression activity.

Relative Humidity (RH): The ratio of the amount of moisture in the air, to the maximum amount of moisture that air would contain if it were saturated. The ratio of the actual vapor pressure to the saturated vapor pressure.

Remote Automatic Weather Station (RAWS): An apparatus that automatically acquires, processes, and stores local weather data for later transmission to the GOES Satellite, from which the data is re-transmitted to an earth-receiving station for use in the National Fire Danger Rating System.

Resources: 1) Personnel, equipment, services, and supplies available, or potentially available, for assignment to incidents. 2) The natural resources of an area, such as timber, crass, watershed values, recreation values, and wildlife habitat.

Resource Management Plan (RMP): A document prepared by field office staff with public participation, and approved by field office managers that provides general guidance and direction for land management activities at a field office. The RMP identifies the need for fire in a particular area and for a specific benefit.

Resource Order: An order placed for firefighting or support resources.

Retardant: A substance or chemical agent that reduces the flammability of combustibles.

Run (of a fire): The rapid advance of the head of a fire with a marked change in fire line intensity and rate of spread from that noted before and after the advance.

Running: A rapidly spreading surface fire with a well-defined head.

S

Safety Zone: An area cleared of flammable materials used for escape in the event the line is outflanked, or in case a spot fire causes fuels outside the control line to render the line unsafe. In firing operations, crews progress so as to maintain a safety zone close at hand allowing the fuels inside the control line to be consumed before going ahead. Safety zones may also be constructed as integral parts of fuel breaks; they are greatly enlarged areas, which can be used with relative safety by firefighters and their equipment in the event of a blowup in the vicinity.

Scratch Line: An unfinished preliminary fire line hastily established or built as an emergency measure to check the spread of fire.

Severity Funding: Funds provided to increase wildland fire suppression response capability necessitated by abnormal weather patterns, extended drought, or other events causing abnormal increase in the fire potential and/or danger.

Single Resource: An individual, a piece of equipment and its personnel complement, or a crew or team of individuals with an identified work supervisor that can be used on an incident.

Size-up: To evaluate a fire to determine a course of action for fire suppression.

Slash: Debris left after logging, pruning, thinning or brush cutting; includes logs, chips, bark, branches, stumps, and broken understory trees or brush.

Sling Load: Any cargo carried beneath a helicopter and attached by a lead line and swivel.

Slop-over: A fire edge that crosses a control line or natural barrier intended to contain the fire.

Smokejumper: A firefighter who travels to fires by aircraft and parachute.

Smoke Management: Application of fire intensities and meteorological processes to minimize degradation of air quality during prescribed fires.

Smoldering Fire: A fire burning without flame and barely spreading.

Snag: A standing dead tree or part of a dead tree from which at least the smaller branches have fallen.

Spark Arrester: A device installed in a chimney, flue, or exhaust pipe to stop the emission of sarks and burning fragments.

Spot Fire: A fire ignited outside the perimeter of the main fire by flying sparks or embers.

Spot Weather Forecast: A special forecast issued to fit the time, topography, and weather of each specific fire. These forecasts are issued upon request of the user agency and are more detailed, timely, and specific than zone forecasts.

Spotter: In smokejumping, the person responsible for selecting drop targets and supervising all aspects of dropping smokejumpers.

Spotting: Behavior of a fire producing sparks or embers that are carried by the wind and start new fires beyond the zone of direct ignition by the main fire.

Staging Area: Locations set up at an incident where resources can be placed while awaiting a tactical assignment on a three-minute available basis. Staging areas are managed by the operations section.

Strategy: The science and art of command as applied to the overall planning and conduct of an incident.

Strike Team: Specified combinations of the same kind and type of resources, with common communications, and a leader.

Strike Team Leader: Person responsible to a division/group supervisor for performing tactical assignments given to the strike team.

Structure Fire: Fire originating in and burning any part or all of any building, shelter, or other structure.

Suppressant: An agent, such as water or foam, used to extinguish the flaming and glowing phases of combustion when direction applied to burning fuels.

Suppression: All the work of extinguishing or containing a fire, beginning with its discovery.

Surface Fuels: Loose surface litter on the soil surface, normally consisting of fallen leaves or needles, twigs, bark, cones, and small branches that have not yet decayed enough to lose their identity; also grasses, forbs, low and medium shrubs, tree seedlings, heavier branchwood, downed logs, and stumps interspersed with or partially replacing the litter.

Swamper: (1) A worker who assists fallers and/or sawyers by clearing away brush, limbs and small trees. Carries fuel, oil, and tools, and watches for dangerous situations. (2) A worker on a dozer crew who pulls winch line, helps maintain equipment, etc., to speed suppression work on a fire.

T

Tactics: Deploying and directing resources on an incident to accomplish the objectives designated by strategy.

Temporary Flight Restrictions (TFR): A restriction requested by an agency and put into effect by the Federal Aviation Administration in the vicinity of an incident, which restricts the operation of nonessential aircraft in the airspace around that incident.

Terra Torch ®: Device for throwing a stream of flaming liquid, used to facilitate rapid ignition during burn out operations on a wildland fire or during a prescribed fire operation.

Test Fire: A small fire ignited within the planned burn unit to determine the characteristic of the prescribed fire, such as fire behavior, detection performance, and control measures.

Timelag: Time needed under specified conditions for a fuel particle to lose about 63 percent of the difference between its initial moisture content and its equilibrium moisture content. If conditions remain unchanged, a fuel will reach 95 percent of its equilibrium moisture content after four timelag periods.

Torching: The ignition and flare-up of a tree or small group of trees, usually from bottom to top.

Two-way Radio: Radio equipment with transmitters in mobile units on the same frequency as the base station, permitting conversation in two directions using the same frequency in turn.

Type: The capability of a firefighting resource in comparison to another type. Type 1 usually means a greater capability due to power, size, or capacity.

U

Uncontrolled Fire: Any fire that threatens to destroy life, property, or natural resources,

Underburn: A fire that consumes surface fuels but not trees or shrubs. (See Surface Fuels.)

V

Vectors: Directions of fire spread as related to rate of spread calculations (in degrees from upslope).

Volunteer Fire Department (VFD): A fire department of which some or all members are unpaid.

W

Water Tender: A ground vehicle capable of transporting specified quantities of water.

Weather Information and Management System (WIMS): An interactive computer system designed to accommodate the weather information needs of all federal and state natural resource management agencies. Provides timely access to weather forecasts, current and historical weather data, the National Fire Danger Rating System (NFDRS), and the National Interagency Fire Management Integrated Database (NIFMID).

Wet Line: A line of water, or water and chemical retardant, sprayed along the ground, that serves as a temporary control line from which to ignite or stop a low-intensity fire.

Wildland Fire: Any nonstructure fire, other than prescribed fire, that occurs in the wildland.

Wildland Fire Implementation Plan (WFIP): A progressively developed assessment and operational management plan that documents the analysis and selection of strategies and describes the appropriate management response for a wildland fire being managed for resource benefits.

Wildland Fire Situation Analysis (WFSA): A decision-making process that evaluates alternative suppression strategies against selected environmental, social, political, and economic criteria. Provides a record of decisions.

Wildland Fire Use: The management of naturally ignited wildland fires to accomplish specific prestated resource management objectives in predefined geographic areas outlined in fire management plans.

Wildland Urban Interface: The line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

Wind Vectors: Wind directions used to calculate fire behavior.

APPENDIX O
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