



**U.S. Department of the Interior
National Park Service**

**BIG CYPRESS
NATIONAL PRESERVE**

**Fire Management Plan
OCTOBER 2019**

**2019 Fire Management Plan
Big Cypress National Preserve
Florida**

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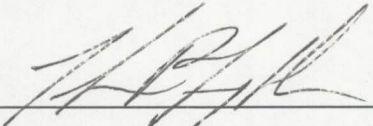
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OGANIZATION OF THE FIRE MANAGEMENT PLAN

The documentation for the Big Cypress National Preserve (BICY) Fire Management Plan (FMP) is comprised of three major elements. Each element contains unique information which must be understood to successfully implement the park fire management program.

The three elements are:

1. BICY Fire Management Plan (FMP) Framework 2019. The purpose of the FMP Framework is to briefly describe the operational aspects of the fire management program, and to identify where additional detailed information can be found. The Framework is comprised of Chapters 1 through 4 of this document.
2. Environmental Assessment for the BICY Fire Management Plan and associated Finding of No Significant Impact (FONSI) August 2018. The Environmental Assessment (EA) describes natural and cultural resources of the park relative to fire management activities and lays out the justification for selected strategies that will be implemented. The EA and FONSI also contain mitigation strategies to ensure protection of sensitive resources. Links to the EA and FONSI can be found in Appendix C: Compliance for FMP.
3. The Web Application component of the fire management plan is described below (Note: Digital copies of the web application will be maintained on the BICY fire management network and displayed on BICY's PEPC website. A summary of the web application is shown below.

Web App Tab	Subtopics in Tab	Main Frame	Links
Fire Mgmt. Overview Tab	Intro, MGMT Overview, Collab. Planning, FM Goals and Objectives, Cooperators are tab's subtopics,	Interactive Map Mainframe	Full FMP doc link
Preparedness Tab	Resource Mgmt. Goals, Fire History, Fire Behavior, Pocket Card, Response procedures, MIST Guidelines, Contracts List are tab's subtopics	Interactive Map Mainframe	Current FL fire danger, WUI guidelines, Ignition Stats, GoHydrology Website, SWFLCAR Collaboration web page links
Park Resources Tab	Resources Overview, Resource Goals, FM Requirements are tab's subtopics	Simple Map (w/Interactive legend) Mainframe	
Fuels Management Tab	Fuels Mgmt. Planning, Fuel Models & Fire Behavior/FM Descriptions, Fuels Treatments, Fuels Mgmt. Goals & Objectives are tab's subtopics	Interactive Map Mainframe	Multi-year treat plan link
Air, Smoke & Monitoring Tab	Air Quality, Smoke Management, Vegetation & Resource Monitoring are tab's subtopics	Simple Map Mainframe	
Aviation Tab	Aviation & Unmanned Aerial Systems tab's subtopic	Simple Map Mainframe	

1 INTRODUCTION, LAND MANAGEMENT PLANNING, AND COMMUNICATIONS

As stated in the Preserve’s enabling legislation, Big Cypress National Preserve (BICY) was established to ensure “the preservation, conservation and protection of the natural, scenic, hydrologic, floral and faunal, and recreational values of the Big Cypress Watershed in the state of Florida and to provide for the enhancement of public enjoyment thereof.” Fire is a critical component of achieving this.

This Fire Management Plan (FMP) differs from the previous plan by acknowledging fire’s role in helping BICY “face environmental and social changes that are increasingly widespread, complex, accelerating, and uncertain” (Director’s Order 100, Resource Stewardship for the 21st Century, NPS 2016, available online at: https://www.nps.gov/policy/dorders/do_100.htm). This is being accomplished through this document by authorizing and encouraging Administrators and Incident Commanders to apply “the full ranges of strategic and tactical options...in the response to every wildland fire,” in accordance with Reference Manual 18 (Reference Manual 18, Wildland Fire Management, NPS 2014, available online at: <https://www.nps.gov/applications/npspolicy/DOrders.cfm>).

The BICY FMP is a strategic plan that defines a program of work to manage wildland fire (including prescribed fire and wildfire) and non-fire fuel treatments and is based on direction contained in existing Preserve planning documents and national interagency wildland fire policy. This plan provides for firefighter and public safety and includes strategies for managing wildland fire. The BICY FMP addresses values to be protected and is consistent with laws and National Park Service (NPS) policies and orders, as well as BICY resource management objectives as outlined in the Preserve’s General Management Plan (GMP), as amended (NPS 1982, 1995, 2011), Resource Management Plan (RMP)(NPS 1997), and BICY Foundation Document (NPS UNPUBLISHED). This FMP is also consistent with environmental laws and regulations, including the National Environmental Policy Act, the National Historic Preservation Act, the Clean Air Act, and the Endangered Species Act.

This FMP pertains to all burnable vegetation within the Preserve that could support wildland fire. Structural fires within the Preserve will be addressed in a structural fire plan, in accordance with Director’s Order 58. For the purposes of this document, the burnable vegetation on the Preserve consists of approximately 420,100 acres of pineland, prairie, saw grass, and scrub cypress, plus 225,260 acres of cypress, portions of which may be available based on hydrology levels. Other vegetation on the Preserve’s 729,000 acres burn very infrequently or are not consequential for planning purposes.

NPS policy requires that “each park unit with burnable vegetation must have an approved Fire Management Plan that will address the need for adequate funding and staffing to support the fire management program” (Director’s Order 18, Wildland Fire Management, NPS 2008, available online at: <http://www.nps.gov/fire/wildland-fire/about/policy.cfm>).

Additionally, “park units with vegetation capable of burning will prepare a fire management plan that is consistent with federal law and departmental fire management policies, to include addressing the

need for adequate funding and staffing to support the planned fire management program” (Section 4.5, NPS Management Policies, NPS 2006).

This FMP serves as a detailed and comprehensive program of action to implement fire management policy principles and goals, consistent with the Preserve’s resource management objectives, and outlines the fire management program at Big Cypress National Preserve. The BICY fire management program, guided by federal policy and the Preserve’s resource management objectives, will serve to protect life, property, and natural and cultural resources.

1.1 FIRE PROGRAM ORGANIZATION

The BICY Fire Management Officer (FMO) works directly for the Preserve’s Superintendent as a member of the Preserve Management Team.

BICY is a part of the Southwest Florida Fire Management Zone and provides wildland fire support for the DeSoto National Monument, San Juan National Historic Site, and the Virgin Islands National Park Service units. Each of these units has their own planning documents.

The BICY Aviation Program provides aviation support to Department of Interior agencies across south Florida. The Aviation Program has its own management plan and is covered here only in general terms.

BICY’s Fire and Aviation Division is composed of two major branches: Wildland Fire and Aviation.

1.2 ENVIRONMENTAL COMPLIANCE

An environmental assessment (EA) and assessment of effect was completed in 2017 for this FMP. This EA analyzed the need to revise the 2010 BICY FMP to include the use of managing fires for multiple objectives including resource benefit to support resource management objectives at BICY. A Finding of No Significant Impact (FONSI) was signed by the NPS Southeast Regional Director on August 30, 2018 (Appendix C).

Mitigation measures to reduce impacts to resources, protect the safety of firefighters and the public, and promote biodiversity and ecosystem health are listed in their entirety in the FONSI and identified in the applicable FMP sections.

1.3 PRESERVE RESOURCE MANAGEMENT PLANNING

Authority for carrying out a fire and fuels management program originated with the 1916 Organic Act, which established the NPS. This Act states that the primary goal of the NPS is to preserve and protect the natural and cultural resources found on lands under its management in such manner as will leave them unimpaired for future generations. Additional authorities for fire management activities include: 31 U.S. Code 665 (E) (1) (B), which provides the authority to exceed appropriations due to wildland fire management activities; Section 302 (c) (2) of the Federal Property Administration Services Act of 1949, as amended; Chapter VIII of the 1983 Supplemental Appropriations Act (P.L. 97- 257), which deals with

contracting for fire protection; and the Reciprocal Fire Protection Act (42 U.S.C. 1856), that authorizes reciprocal agreements with federal, state, and other wildland fire protection organizations.

This plan is a detailed program of action to implement these fire management policies and to meet natural resource management objectives, consistent with the natural and historic role of fire as defined through scientific study.

The GMP (approved October 1991) contains a "Vision" statement that summarizes the values to be protected: "The National Park Service envisions the Preserve as a nationally significant ecological resource - a primitive area where ecological processes are restored and maintained and where cultural sites are protected from unlawful disturbance." Visitors have the opportunity to appreciate the natural resources, to relax in a natural setting, to explore the landscape and test backcountry skills, and to learn more about the natural environment. The GMP further establishes that fire is an integral part of the ecology of south Florida and that "most plant communities are not only susceptible to fire but in fact depend on periodic burning for their survival."

The Planning Issues and Management Concerns section of the GMP continues by identifying that the Preserve's current FMP concentrates on suppression activities, the use of prescribed fire to reduce hazardous fuel levels in high arson areas, and habitat protection for endemic, federally endangered species. The planning objectives of the GMP as they pertain to fire management include:

1. Protect public and private property and provide for visitor safety
2. Protect important natural and cultural resources
3. Provide for fire-dependent ecological communities and wildlife populations and restore the dynamic role of fire in the Preserve

The 2001 RMP outlines stated and implied goals from enabling legislation, other laws and government policies, and guidelines and plans that guide management of the Preserve. Fire is identified as one of seven "key processes" integral to maintaining the long-term viability of the Preserve, and the plan recommends that fire in the Preserve be managed to protect and maintain the integrity of the natural system, improve wildlife habitat, and reduce hazardous fuel loadings. The stated objectives of prescribed fire in the RMP are:

1. Reduce hazard fuel accumulations in the backcountry, around structures and along roadside corridors
2. Maintain character of wildlife habitat
3. Research
4. Control exotic species
5. Improve natural habitat

Land managers now also realize that appropriately managed fires can realize the objectives stated in the GMP and RMP. This plan, reflecting current NPS strategic planning and guidance to develop a cohesive national interagency strategy to cultivate fire resilient landscapes, will support the identified

need for greater application of fire as a means to reestablish natural systems where possible while protecting the public and sensitive or threatened resources. Additional resource information can be found on the park map with interactive legends.

1.4 COLLABORATIVE PLANNING

The fire programs at BICY work closely with interagency partners in supporting wildland fire activities. Having common staffing plans, step-up plans, severity staffing, and specialized equipment allows the units to be mutually supporting in their similar fire management goals—with proper planning and good communication.

In addition, the Department of the Interior and Florida Forest Service have a state-wide Cooperative Agreement specific to the management of wildland fire. Developing these relationships will require ongoing interagency coordination throughout the life of this FMP in order to ensure proper levels of initial attack and extended attack resources as well as maintaining the fuels treatment program.

During extended drought conditions, the state of Florida has established a unified command that functions as a state-wide multi-agency coordination group.

The South Florida Interagency Fire Management Council is a committee of fire management organizations that have worked together for over two decades. This group meets annually for information sharing, coordination of training opportunities, and continuing education. BICY has been a member and participant of this council since its inception.

The Florida Interagency Coordination Center (FICC) provides resource ordering services to BICY. FICC is the direct link for any additional resource needs beyond the local area.

BICY will continue to work with local partners in cooperative prescribed fire, suppression, planning, and field operations within the Big Cypress basin. These partners are critical to meeting both specific project objectives and long-term goals. A complete list of cooperators and specific agency agreements currently in place can be found in Appendix J. Additional information on collaborative planning can be found on a Sub-topics tab on the interactive map.

1.5 COMMUNICATION AND EDUCATION

1.5.1 Communication Plan

The park will utilize Reference Manual (RM) 18 Communication and Education chapter 21 for recommendations and additional direction.

Additional resources for planning and implementing fire information activities can be found at: http://www.nifc.gov/prevEdu/prevEdu_communicatorGuide.html.

Timely and accurate communication will be a priority at all times. During periods of low fire danger, when limited or no prescribed fire activity is being conducted and there is no wildfire activity,

communication efforts will support education and prevention outreach and/or preparation for future periods of high fire danger, prescribed fire and/or wildfire activity.

Communication efforts should be inclusive of all internal and external staff, partners, visitors, the general public, and cooperating/assisting local, state, federal and tribal agencies. Communication will focus on promoting an interagency approach to fire management activities in which activities are coordinated and information is shared quickly and efficiently to facilitate mutual cooperation and collaboration.

Until a public information officer has been identified, the Fire Duty Officer (FDO) or designee will provide relevant fire information to the Preserve's information officer or an information officer assigned to an ongoing incident. The FDO should be cognizant that the following actions are particularly important during periods of high activity:

1. Timely and accurate information will be provided to the media and Preserve visitors regarding the status of fire actions, suppression efforts, and fuels treatments
2. Potential smoke impacts to roads should be communicated to the Superintendent's office, the Preserve's information officer, and Florida Highway Patrol
3. Adjacent landowners will be notified when fire, particularly wildland fire, is a threat to off-Preserve residential areas
4. When the staffing class (Append. F-3) is 4 or 5 or there are multiple ongoing fires, information will be displayed in visitor contact points.
5. Fire danger signs will be posted on Preserve roadways as needed.
6. Patrol activity may be increased to detect potential fires and to monitor visitor activity.
7. A fire information officer may be assigned.
8. At staffing class 4 or 5 it may become necessary to close portions of the Preserve or limit visitor activities to protect both facilities and the public.

Media access to fire scenes will be facilitated when it is safe to do so. When interest is warranted, the FDO or fire information officer will be designated as the contact person for all information requests. Any media access to fires will be in compliance with the Interagency Standards for Fire and Fire Aviation Operations guidelines.

The communication plan can be found in Appendix G.

1.5.2 Fire Education and Prevention

The goal of the Preserve's fire education and prevention program is to promote the fire management program's goals and objectives while preventing unwanted, human-caused wildfires through proactive outreach efforts.

Education and prevention outreach efforts should focus on educating internal and external audiences about the natural role of fire on the Preserve and the southwest Florida landscape, mitigating the risks

of wildfire to private property and natural and cultural resources, and reducing unwanted, human-caused ignitions. All outreach efforts should promote fire safety, fuels management and defensible space, and prevention should always compliment cooperators' programs to the fullest extent possible.

2 WILDAND FIRE PROGRAM GOALS, OBJECTIVES, AND MANAGEMENT ACTIONS

2.1 FIRE MANAGEMENT GOALS

2.1.1 National Wildland Fire Management Goals

Interagency fire management goals adopted under the National Cohesive Wildland Fire Management Strategy (2014) are incorporated into the park's fire management goals. The goals of the cohesive strategy are:

1. Restore and Maintain Landscapes: Landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives.
2. Create Fire-Adapted Communities: Human populations and infrastructure can withstand a wildfire without loss of life and property.
3. Respond to Wildfire: All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.

National fire management goals as implemented by the Department of Interior are located at the following website: <https://www.doi.gov/wildlandfire/fire-policy>

2.1.2 BICY Resource Management Goals Related to Fire Management

The following resource goals and objectives pertain to fire management at BICY.

1. Protect key endangered species and their habitats (e.g., Florida Panther, Florida bonneted bat, and Red-Cockaded Woodpecker), with particular attention to denning Florida panthers and nesting RCWs; work with Resource Advisors to identify Florida panther dens in threatened areas and take measures to mitigate disturbance and harm to dens.
2. Protect key cultural features identified by the Preserve.
3. Protect the integrity of the Preserve as conditions dictate. This includes the integrity of sensitive scientific research being conducted on the Preserve.
4. Minimize impacts to the Preserve and wilderness areas through the use of appropriate strategy and minimum impact tactics.
5. Emphasize adherence to safe driving practices by personnel, especially in panther speed zones and while driving at night.
6. Where possible, fire should be allowed to play its role as a natural process, creating a diverse mosaic on the landscape.

7. Implement fire management strategies and tactics which will mitigate and minimize disturbance to soils, cultural, and natural resource values within the Preserve while considering the hydrological conditions.

Additional information on resource goals is found on the sub-topic tab on the interactive map.

2.1.3 BICY Fire Management Goals

BICY fire management goals which are tiered from national, department and agency goals, and objectives specific to the park follow:

1. Conduct all fire management activities in a manner that maintains safety of firefighters and the public.
2. Protect human life and property without compromising the safety of responders.
3. Protect natural and cultural resources from adverse effects of fire and fire management activities.
4. Maintain or improve the quality of the native fire adapted vegetative communities that occur within Big Cypress National Preserve.
5. Maintain the framework of adaptive management to ensure a responsive, efficient, safe and accountable fire management organization.
6. Allow natural processes to continue by managing fires through the use of strategic suppression actions that allow the natural spread of fire across the landscape to achieve resource benefit.
7. Use planned ignitions to supplement the natural role of fire as an ecosystem process, achieve resource management objectives, reduce hazard fuel accumulations, reduce threats to the values at risk (inholding, T & E habitat, roadway infrastructure) from wildfires, protect park resources, maintain fire adapted ecosystems, manage invasive plants, and to secure the Preserve boundary.
8. Use science-based fire management to maintain a healthy and sustainable ecosystem. To the degree possible, achieve a healthy range of variation in the fire return interval, fire size, fire behavior, fire effects and other characteristics of the fire regime using the best available science.

BICY has adapted the National Cohesive Strategy of managing fire by restoring and maintaining a fire resilient landscape by creating fire adapted communities while responding to wildfires.

Additional information on fire management goals is located on the fire management overview tab on the interactive map.

2.2 BICY FIRE MANAGEMENT OBJECTIVES

Table 1, on page 14, summarizes objectives associated with listed BICY fire management goals. Objectives are important measures of progress in achieving fire management goals at BICY.

Additional information on fire management objectives is show under the fire management overview tab on the interactive map.

Table 1: BICY Summary of Fire Management Goals and Objectives for Desired Conditions

BICY Program Goals	BICY Program Objectives
<p>Goal 1: Ensure firefighter and public safety are the foundation of every decision.</p>	<ol style="list-style-type: none"> 1. Maintain firefighter and public safety by adhering to the 10 Standard Orders, 18 Watch-out Situations, LCES, and 2:1 work to rest ratio. 2. Mitigate smoke impacts to I-75, US 41, SR 29 to the extent possible during all fire management activities and communicate with our partners when smoke threatens those roads. 3. Emphasize adherence to safe driving by all personnel, especially in panther speed zones and while driving at night. 4. Ensure that firefighter and public safety are the first priority in all fire management activities.
<p>Goal 2: Communicate and coordinate with local, federal state and tribal agencies and cooperators to facilitate close working relationships and mutual cooperation in fire management activities.</p>	<ol style="list-style-type: none"> 1. Promote public education and understanding of fire processes and fire management by following the BICY Communication and Education Plan. 2. Promote an interagency ecosystem approach for fire management activities that includes federal, tribal, state and local agencies. 3. Coordinate with partners to find opportunities for cross border cooperation.
<p>Goal 3: Use appropriate wildland fire strategies and tactics to maintain a healthy and sustainable ecosystem, achieving a range of variation in fire return interval, fire size, fire behavior, effects, and other characteristics of the local fire regime using the best available science.</p>	<ol style="list-style-type: none"> 1. Facilitate the protection of private property, infrastructure and federal facilities, critical transportation corridors, recreational values, and other special values within and adjacent to the Preserve. 2. The potential degradation of wilderness character will be considered before and given significantly more weight than economic efficiency and convenience. 3. Utilize growing season (March 15-September 30) to consider allowing fire to spread naturally across the ecosystem to maximize the effects in these variations. 4. Over any five-year period, an average of 80,000 and 125,000 acres of Preserve lands will be treated with a combination of wildfire and prescribed fire. 5. Facilitate fire management strategies to treat pinelands more frequently than 10 years, ideally on a 3 to 5-year fire return interval to sustain vegetative composition and structure. Management strategies should be utilized to treat prairies more frequently than a five-year return interval ideally 2-3 years. 6. Conduct fire management activities in an efficient, cost effective manner commensurate with these goals and objectives, as well as the management decisions outlined in the Wildland Fire Decisions Support System for each incident.
<p>Goal 4: Use prescribed fire and vegetation management activities to perpetuate and restore natural fire processes to the greatest extent possible to reduce hazardous fuels and meet BICY natural resource objectives.</p>	<ol style="list-style-type: none"> 1. Prioritize the protection of private property, infrastructure and federal facilities, critical transportation corridors, recreational values, and other special values within and adjacent to BICY, to allow for and promote the use of wildfire managed for resource benefit. 2. Treat 60 to 70 percent of pinelands and prairies within Big Cypress at least once every five years (prescribed fire treatments and wildfires are included in the evaluation).

	<ol style="list-style-type: none"> 3. Top kill ≥ 75 percent of herbaceous and understory shrub cover during each treatment we desire to reduce understory fuel loading by ≥ 40 percent immediate post burn. 4. Reduce woody species shrub height by ≥ 50 percent <u>as measured one-year post burn.</u>
<p>Goal 5: Enhance the protection of natural and cultural resources with fire management activities.</p>	<ol style="list-style-type: none"> 1. Protect and enhance threatened and endangered (T&E) species and their habitats, including migratory birds and T&E species (Florida panther, Florida bonneted bat, and red-cockaded woodpecker), with particular attention to protecting denning Florida panthers. 2. Protect cultural and historic features identified by the Preserve. 3. Implement fire management strategies and minimum impact tactics that will mitigate and minimize disturbance to soils, cultural, and natural resource values within the Preserve. 4. Work with Resource Management Division to implement appropriate decontamination methods on incidents to prevent the further invasion and spread of non-native invasive plants. 5. Encourage and support of monitoring and research to advance the understanding of local fire behavior, fire effects, ecology, and fire management while using adaptive management to update and improve fire management activities. 6. Work with Resource Management Division to utilize prescribed fire in conjunction with mechanical and chemical treatments to effectively manage existing species invasions and to prevent new species from becoming established. 7. Burns will be conducted in each of the 6 burn units annually to ensure a Preserve wide mosaic.
<p>Goal 6: Develop a professional, learning-focused team.</p>	<ol style="list-style-type: none"> 1. Set the standard for professionalism among wildland firefighters in the Southeast Region and NPS. 2. Set aside time and financial resources for firefighter development. 3. Encourage and support research and training to advance the understanding of local fire behavior, effects, and ecology. 4. Meet no less than once a month to cover a continuous improvement topic, such as developmental or educational subjects.

2.3 APPROVED WILDLAND FIRE MANAGEMENT ACTIONS

BICY has all current fire management actions/strategies available for managing wildland fire in the Preserve. Wildland fire can be planned (prescribed fire) or unplanned (wildfire). A prescribed fire is any fire intentionally ignited by management under an approved plan to meet specific objectives. A wildfire is an unplanned ignition or a prescribed fire that has been declared a wildfire.

Wildland fire is a desirable natural process on BICY and provides opportunities for the accomplishment of resource management objectives. Thus, the full range of strategic options is available to fire managers on the Preserve, including prescribed fire, managed wildfire, and full suppression. This may include using a mix of those strategies on the same fire.

All wildland fire management actions at BICY will be taken with the safety of firefighters and the public as the highest priority. Management actions that are applied to wildland fires will be based on social, political, and environmental considerations as well as the conditions of the fire, fuels, weather, topography and hydrologic conditions in order to accomplish specific objectives for the individual fire, whether a wildfire or prescribed fire. Fire managers and agency administrators should acknowledge that more aggressive action shifts risk and risk management to field-going firefighters, but that agency administrators bear the ultimate responsibility for ensuring that strategies and the risks to which they expose firefighters are commensurate with the values at risk.

Management objectives for wildland fires may change as the fire moves across the landscape. Additional information on fire management actions is shown under the park resources tab on the park simple map with interactive legends.

2.3.1 Management of Wildfires

Federal fire policy allows wildland fires to be managed concurrently for one or more objectives. When managing any wildland fire at BICY, the following must be considered:

1. The protection of human life is the single overriding priority in making decisions regarding actions on wildfires
2. Fires may be managed for multiple objectives, including allowing fire to burn naturally in some areas while providing point protection or engaging in full suppression in others
3. All fires that go into extended attack or are being managed for multiple objectives will have a published decision in the Wildland Fire Decision Support System (WFDSS)
4. Management objectives may change as the fire spreads across the landscape
5. A wildfire resulting from a prescribed fire may be managed like any other wildfire
6. Every reasonable effort will be made to contain portions of fires threatening BICY's boundary.

Every wildfire should be evaluated for its potential to be managed for resource benefits.

There is a risk associated with managing wildfires for resource benefits. It is critical that decisions to manage or suppress fires are documented in WFDSS and that hazards, values, and action points are identified and acted on.

2.3.2 Management of Fuels Treatments

Fuels management activities include prescribed fire, mechanical, manual fuels reduction, and chemical applications to control unwanted vegetation.

The purpose of BICY's prescribed fire program is to supplement wildfire's role as an ecosystem process, to reduce wildfire threats to the wildland urban interface (WUI), including private structures and public roads adjacent to and within the Preserve, maintain fire-dependent ecosystems, protect and improve T&E species habitat, assist in the management of exotic plants, and to secure the Preserve boundary to reduce the threat of managed fires leaving the Preserve. A landscape-scale adaptive management approach will be used to accomplish this.

Fire management staff will meet annually with the interdisciplinary team to identify and prioritize areas to be burned the following year. The final planning product of this meeting will be updated in the five-year fuels plan. These treatments may be mechanical or prescribed fire or a combination of both. After consultation with the FMO and Agency Administrator, a prescribed fire may be utilized for training purposes.

Prescribed fire treatment boundaries will be based on local conditions, utilizing roads, trails, and natural features within the area corresponding with prescribed burn plans. Collaborating with resource management, annual landscape burn priorities will be determined to concentrate on breaking of the continuity of fuels on a landscape scale. These treatments are implemented to mitigate the negative impacts from large wildfires to the natural and cultural resources. Tactics will be adjusted when hydrological conditions warrant and transition to a more aggressive suppression strategy are deemed appropriate. Because the acres treated within the Preserve annually make site-specific burn plans impractical, burn plans may be general in nature and made more specific through the use of Incident Action Plans. Prescribed burns that exceed the scope of the approved prescribed burn plan may be managed as wildfires.

At the discretion of the FMO and Burn Boss, and in consultation with the Agency Administrator, a prescribed fire that exceeds the treatment area may be permitted to burn out naturally if values at risk are not threatened and adequate natural barriers or trails are available for containment. This type of additional acreage may continue to burn for more than one operational period if prescription parameters are met. The FMO and AA should be brought into the conversation at the earliest possible time to begin considering alternatives to wildfire declaration, such as the benefits to continuing into another burn unit to bring the burn to a better holding feature.

Mechanical or non-fire fuel reduction methods will be used as needed and where appropriate to prepare for, or in place of, prescribed burns to achieve similar fuels mitigation goals. Typically,

mechanical treatments will be completed in a linear fashion, to construct projects that require equipment with possible ground-disturbing effects will be planned and implemented with mitigation measures when resource conditions allow for reduced impacts to soil and vegetation.

Additional information on fuels is found under the fuels management tab on the interactive park map.

2.3.3 Defensible Space

Annual meetings with those owning property within the Preserve will cover creating defensible space around private inholdings and the proper procedures for requesting burn permits from the state of Florida. The Florida Forest Service has jurisdictional authority of the private in-holdings within BICY's administrative boundary.

The Facility Wildfire Risk Assessments can be accessed on the Wildfire Risk Assessment website:

<https://sites.google.com/a/firenet.gov/wildfireriskassessments/>

The NPS has adopted the International Code Council's (ICC's) International Urban-Wildland Interface Code (2015), (Chapter 6: sections, 603: Defensible Space and 604: Maintenance of Defensible Space), that contains descriptions of defensible space and maintenance requirements for urban wildland interface areas. BICY will follow these recommendations for the development of defensible space around Preserve buildings. A link to the 2015 International Wildland Urban Interface Code follows.

<https://codes.iccsafe.org/content/IWUIC2015>

Additional information on defensible space is found preparedness tab on the interactive map through a WUI Guidelines link.

3 WILDLAND FIRE OPERATIONAL GUIDANCE

3.1 RESPONSE TO WILDFIRE

Wildland fire is a desirable natural process on BICY and provides opportunities for the accomplishment of resource management objectives. Thus, the full range of strategic options is available to fire managers on the Preserve, including prescribed fire, managed wildfire, and full suppression. This may include using a mix of those strategies on the same fire.

All strategies and actions taken on wildfires should be commensurate with the values at risk and environmental conditions. Suppression activities will strive to minimize potential damage to natural and cultural resources and will take into consideration the threat to public safety (including firefighting personnel), hydrologic conditions, economic expenditures, firefighting resources, and other fire priorities (local, regional, and national preparedness).

It should be noted that many of the lands adjacent to the Preserve have management objectives that discourage the use of managed wildfire as a tool. In general, every reasonable effort should be made to contain fires within the Preserve's boundary while maintaining goals related to firefighter safety.

3.1.1 Wildfire Response Planning

3.1.1.1 Expected Fire Behavior

Fire growth and fire behavior in BICY is driven by hydrology. The best publicly available information on the hydrology of the Preserve can be found at www.gohydrology.org. This website contains frequently updated information from hydro-stations around the Preserve, and during fire season correlates those levels with historical large fires, much as a pocket card does with Burn Index (BI) and Energy Release Component (ERCs). It is only after hydrologic levels drop below certain thresholds that BI and ERC become relevant. BICY's staffing classes are tied to hydrology ERCs, fuel moisture, and lightning activity level.

3.1.1.2 Minimum Impact Strategy and Tactics (MIST)

Utilization of Minimum Impact Strategy and Tactics (MIST) as described in RM 18 Chapter 2 is the policy for all NPS units where feasible. Links to MIST are located in Appendix Q: Minimum Impact Strategy and Tactics.

The Preserve's hydrology will frequently dictate appropriate strategies and tactics, but the use of hydrologic features and existing trails is consistent with the desire to develop strategies and tactics that will have a minimum impact on the Preserve's landscape. Tactics and equipment used for suppression and for holding operations on prescribed burns will be selected to minimize the impact commensurate with values at risk.

A significant portion of the Preserve is eligible or proposed wilderness, although there is a 0.25-mile non-wilderness corridor along each side of all primary and secondary off-road vehicle trails, roads, canals, and levees. The tools and tactics allowable within and outside of wilderness, however, are much the same:

1. Off-trail use of equipment is discouraged across the Preserve
2. The use of street-legal vehicles should be limited to the parts of the Preserve where that equipment is permitted for use by the public
3. Use of retardant or tracked vehicles is prohibited except with the permission of the Superintendent
4. In areas closed to public motorized use, vehicles will only be used when necessary for protection of sensitive resources, life, safety, and private property
5. Snag falling will be limited to those trees that are safety hazards or are necessary to secure control lines.

The Minimum Requirements Analysis in Appendix S details equipment allowable without further analysis in eligible and proposed wilderness areas. The BICY Wildfire Incident Resource Protection

Manual located in the BICY Fire Management Office details specific approved tactics and constraints. A copy of this manual is provided to all incoming resources prior to deploying into the field.

3.1.2 Wildfire Response Objectives

Incident objectives will be developed by the Incident Commander and approved at the appropriate level for implementation. All wildfires within the Preserve will typically include the following response objectives:

1. Prioritize firefighter safety by developing strategies commensurate with values at risk
2. Provide for public safety, protection of private property, and critical infrastructure
3. In implementing strategy, the potential degradation of wilderness character will be considered before, and given significantly more weight, than economic efficiency and convenience. MIST will be used, and all off-trail vehicle use must be pre-approved by the Agency Representative
4. Use fire management activities to replicate natural fire processes to the greatest extent possible, to reduce hazardous fuels and meet BICY natural resource objectives
5. Manage the fire(s) in a cost-effective manner commensurate with values at risk
6. Mitigate smoke impacts to I-75, US 41, and State Road (SR) 29 to the extent possible during all fire management activities, and communicate with our partners when smoke threatens those roads

3.1.3 Wildfire Response Procedures

3.1.3.1 Decision Support

Current direction on decision support information pertaining to the NPS can be found in the current year's *Interagency Standards for Fire and Fire Aviation Operations* (Red Book) in Chapters 3 and 11.

Managing fires carries risks. Often these risks are transferred from one group to another, such as ground resources to aerial resources, or from political risks to operational risks. Documenting decisions at every step of the incident is important in accounting for this transfer. WFDSS provides both a decision documentation platform and operational planning tools that can aid in decision making.

All fire that go into extended attack or are being managed for multiple objectives will have a published decision in WFDSS; every fire that escapes initial attack or is managed for resource benefit will utilize the tools in WFDSS appropriate to the scale of the incident.

Initiating WFDSS begins with the requesting a Fire Code and is typically done by the dispatcher—locally or at the Florida Interagency Coordination Center (FICC). The FMO or designee is then responsible for ensuring a decision is published when required and for utilizing the planning tools in WFDSS to the degree relevant to the incident.

The FMO or acting FMO may approve WFDSS decisions for type-4 incidents, when delegated to do so by the Superintendent; the Superintendent or designee will approve WFDSS decisions for type-3 incidents and above. In accordance with Red Book guidance, the regional and national office will

become involved with the decision approval process at pre-established financial thresholds (Red Book chapter 3).

Situations that could require selection of a new strategy through the WFDSS analysis include, but are not limited to:

1. Exceeding periodic assessment criteria, i.e. trigger points, air quality;
2. Unacceptable risk to firefighter safety, natural or cultural resources, improvements;
3. Fire leaving or threatening to leave the Maximum Manageable Area boundary or Park boundary;
4. Increasing demand on local and/or national fire management situation;
5. Agency administrator prerogative.

See Appendix K for current Strategic Objectives and Management Requirements loaded in WFDSS.

3.1.3.2 Initial Response Procedures

All unplanned wildland fires will be initially sized-up by the initial attack Incident Commander (IC). This size-up information will be immediately communicated to Big Cypress Fire Dispatch and the FDO.

1. All initial responses to wildfires will include a size-up to include fire behavior, fuels, and weather (see Append. F-2). During this size-up, proximity to values at risk will also be assessed.
2. Using the fire size up and other sources, the IC, in discussion with the FDO and FMO, will develop and implement an initial plan of action based on the size-up, an assessment of the current fire situation, opportunities for the fire to accomplish resource objectives, ongoing events, and additional factors mentioned in the "Approved Wildland Fire Management Actions" section of this document.
3. Immediate actions will include securing and protecting values at risk.
4. Wildfires will be managed to accomplish the Fire Management goals and objectives outlined in section 2.1 and 2.2 of this document.
5. Initial action on trespass and human-caused wildfires will be to suppress the fire at the lowest cost with the fewest negative consequences with respect to firefighter and public safety
6. All actions taken on wildfires should be consistent with the BICY Wildfire Incident Resource Protection Manual (Appendix F).
7. Due to the remote nature and limited access of the Preserve, aviation resources are frequently used in fire management operations. Such operations will be conducted in accordance with BICY's Aviation Management Plan located in the BICY fire management

office and NWCG Standards for Helicopter Operations, located at:
www.nwcg.gov/publications/510

Upon discovery of an active wildfire, the FDO will send notification to interested parties at the earliest possible time. At a minimum, this should include the Preserve Senior Staff, the NPS Southeast Regional fire management staff and any affected landowners. Additional notifications should be made as determined by the FDO, in consultation with the Preserve staff, particularly in regard to wildlife and the public. Updates may be done via email. For a list of current contacts, see Appendix P.

Until a Public Information Officer (PIO) is assigned or PIO organization created, the FDO is the primary source of information for all fire-related activities. The FDO should bear in mind that information dissemination is critically important, and if other duties interfere with the ability to get timely, accurate information to all concerned parties, serious consideration should be given to formally assigning those duties to someone else.

3.1.3.3 Typical Fire Response

Response time varies throughout the Preserve dependent on location of resources. Response of ground resources to an ignition may be as little as an hour and up to four hours. Aviation resources may be on scene between 15 to 45 minutes when staffed.

3.1.3.4 Transition to Extended Response

Extended response occurs when a fire has not been controlled by the initial response forces and continues either until transition to a higher level incident management team is completed or until the fire has been controlled.

Fires will transition from initial response to extended response when the fire cannot be contained by initial attack resources within two operational periods (48 hours) of fire detection

The Preserve has a history of extended attack fires and is generally adequately prepared to manage these incidents. Additional support is typically available from the members of the South Florida Fire Planning Unit (e.g. EVER and Florida Panther National Wildlife Refuge), cooperators (Florida Forest Service, Naples Fire Rescue, Florida State Preserves, Seminole Tribe of Florida) and Administratively Determined hiring sources.

The Incident Complexity Analysis (Types 3, 4, 5) located in the Interagency Standards for Fire and Fire Aviation Operations guide will be used by the IC and FDO to determine the appropriate management complexity level.

The FMO is responsible for ensuring that a WFDSS derived periodic assessment is completed and documented as required with assistance, review and concurrence by park staff. The Superintendent will approve WFDSS decision documentation and any revisions.

A unified command structure will be a consideration in all multijurisdictional incidents.

In the event an Incident Commander Type 3 or Incident Management Team is ordered, the transfer of responsibility for suppression actions on the fire will be documented through a Delegation of Authority signed by the Superintendent or designated acting official.

In cases when Type 3 fires require increased levels of overhead in coordination with neighboring federal and state partners, the Preserve has the capability of assembling a Type 3 incident management team. A Type 3 organization gives the Preserve the capability of managing most extended attack incidents. The Florida Interagency Coordination Center is utilized to obtain additional resources.

If a fire exceeds the capability of the Type 3 management organization, the same processes are utilized to order a Type 1 or Type 2 incident team. Guidance for determination of Type 1 or 2 complexity need will come from the extended attack transition analysis from the Interagency Standards for Fire and Fire Aviation Operations guide and supported in the relative risk and organizational needs analysis in WFDSS. A briefing for the incoming team will be conducted by the FMO, DO, and Agency Administrator.

Extended attack and large fire suppression activities within BICY will be carried out in a manner that minimizes impacts to the area's natural and cultural resources, while maintaining the safety of firefighters, the public, and other personnel. Minimum Impact Suppression Tactics will be used when possible during wildfire suppression incidents at BICY.

3.2 FUELS TREATMENTS

3.2.1 Fuels Planning

The fuels management program is designed to achieve BICY fire management and resource management program goals and objectives, as well as help achieve resource management and fire management goals as defined in National Park Service policy.

The fuels management program takes the lead in designing an annual work plan that will complement natural fire in achieving the BICY fire program's fuels management goals and objectives.

Projects are prioritized using the following criteria:

1. values at risk within or adjacent to unit boundaries
2. degree of hazard to the public and infrastructure
3. strategic areas that break up continuity of fuels on the landscape to support wildfire suppression alternatives
4. project sequence (e.g., there may be a logical sequence to implementing linked or adjacent projects that suggest a priority)
5. extent of departure from historical fire regime (e.g., 3-7 years in pine and prairie)
6. areas identified by resource managers (for specific species or exotics treatments)
7. coordination with adjacent efforts and land managers

3.2.2 General Fuels Management

All activities proposed in this FMP will be planned and implemented in accordance with Reference Manual 18, Fuels Management, Chapter 7, the *Interagency Prescribed Fire Implementation Guide*, and the Red Book. Additional fuels management information is found on the fuels management tab on the interactive map.

BICY Fire Management will:

1. propose, plan, and implement approved fuels treatments and activities
2. report accomplishments in the National Fire Plan Operations and Reporting System
3. ensure policy and standard practices are adhered to in all aspects of fuels management
4. coordinate with other local partners and intra-park divisions to further the goals of the Preserve's fuels management program
5. provide employees developmental opportunities in the fuels program

3.2.3 Multiyear Fuels Treatment Plan

The Preserve's burnable acres will be targeted for treatment at least once with prescribed fire or wildfire in a five-year span due to the three to seven-year fire return interval that characterizes the Preserve's most fire-adapted systems. Natural boundaries will change with seasonality, hydrology, and fire history.

Appendix D lists two years' priorities, and subsequent years may be extrapolated. Projections are useful for resource management, research, and other activities for which knowledge of prescribed fire implementation would provide planning benefits. Private inholdings and infrastructure should be on the shortest fire return interval possible to protect them and give managers the maximum amount of latitude in allowing fire to move naturally across the landscape.

The highest priority is given to WUI areas, values at risk (including natural resource and T&E species habitat), and the two east-west highways (I-75 and US 41), which should be on a three-year interval for asset protection. Project sequence—building off of recent wildfires and burns—is the next priority, allowing more cost-efficient burns to take place in a seasonal mosaic. Finally, deviation from fire-return interval is important from a maintenance perspective, but if program objectives are achieved will diminish in importance.

Over the five projected years, the annual acreage from prescribed fire is anticipated to average between 25,000 and 75,000 acres per year. It should be stressed that future wildfire activity, weather patterns, staffing/funding levels or institutional changes may result in alterations to this five-year plan. Annual reviews will provide the opportunity to adapt projections based on these factors. A multi-year fuels treatment project map is found in appendix D.

3.2.4 Non-Fire Fuels Treatment

Mechanical or non-fire fuel reduction methods will be used as needed and where appropriate to prepare for, or to augment, prescribed burns, to achieve similar fuels mitigation goals. Projects that require equipment with possible ground-disturbing effects will be planned and implemented with mitigation measures when resource conditions allow for reduced impacts to soil and vegetation. Projects require compliance with NEPA and a Superintendent-approved implementation plan.

Non-fire fuels management at BICY includes the continued practice of mowing and weed eating to maintain existing defensible space of at least 30 feet around maintained park buildings. Maintenance of defensible space is an NPS-funded activity. The NPS has adopted the International Code Council's International Urban-Wildland Interface Code (2006). Contained in ICC's code (Sections 603 and 604) are descriptions of defensible space and maintenance requirements for wildland urban interface areas.

Other mechanical treatments could include linear treatments with a mulching head or machete-boom to maintain and/or cordon off an area with a fuel break.

3.2.5 Fuels Management Goals and Objectives

Fuels Management Goal: *Use prescribed fire and vegetation management activities to perpetuate, restore, replace or replicate natural fire processes to the greatest extent possible, to reduce hazardous fuels and meet BICY natural resource objectives.*

1. Prioritize the protection of private property, infrastructure and federal facilities, critical transportation corridors, recreational values, and other special values within and adjacent to BICY, to allow for and promote the use of wildfire managed for multiple objectives, including resource benefit.
2. Treat ≥ 70 percent of pinelands and prairies within Big Cypress at least once every five years (prescribed fire treatments and wildfires are included in the evaluation.)
3. Top kill ≥ 75 percent of herbaceous and understory shrub cover during each treatment.
4. Reduce woody species shrub height by ≥ 50 percent one-year post-burn.
5. Over any five-year period, an annualized average of ≥ 50 percent of acres burned occur during the growing season each year (March 15-September 30).
6. Over any five-year period, an annualized average of between 25,000 and 75,000 acres of Preserve lands will be treated by prescribed fire.

3.2.6 Prescribed Fire Staff Responsibilities

The BICY Fire Management Officer and fire management staff will manage the prescribed fire program in collaboration with other BICY staff.

3.3 PREPAREDNESS

Fire preparedness is the state of being ready to provide an appropriate response to wildland fires based on identified objectives. Preparedness is the result of activities that are planned and

implemented prior to fire ignitions. Preparedness requires identifying necessary firefighting capabilities and implementing coordinated programs to develop those capabilities.

Preparedness requires a continuous process of developing and maintaining firefighting infrastructure; predicting fire activity; implementing prevention activities; identifying values to be protected; hiring, training, equipping, pre-positioning, and deploying firefighters and equipment; evaluating performance; correcting deficiencies; and improving operations. All preparedness activities should be focused on developing fire operations capabilities and on performing successful fire operations (refer to RM 18 – Chapter 5 and 10 of Interagency Standards for Fire and Fire Aviation Operation). Additional information on preparedness is found under the preparedness tab on the interactive map.

3.3.1 Preparedness Activities

Further discussion of preparedness activities is discussed in Appendix F: *Preparedness Planning Documents*.

3.3.1.1 Training

Annual Fireline Safety Refresher Training and Work Capacity Tests are required for all personnel participating in fire suppression or prescribed fire activities that are subject to assignments on the fire line. This training is scheduled between October and January annually and will include NPS requirements and meet National Wildfire Coordinating Group (NWCG) standards. The FMO will ensure that an annual training program is established that surpasses Interagency Fire Program Management (IFPM) qualification standards for fire program personnel.

The Assistant Fire Management Officer (AFMO) is designated as the Training Officer and is responsible for facilitating the aforementioned training needs and overseeing the management of the Incident Qualification and Certification System (IQCS). Annually, training is achieved through a combination of courses held locally, regionally, and nationally. Training will be obtained in the most cost-effective manner possible.

3.3.1.2 Readiness

Wildland fire and aviation preparedness reviews will be conducted annually in January, but no later than mid-March. This review should identify operational, procedural, personnel or equipment deficiencies and recommend corrective actions. Standards for preparedness reviews are based on the Interagency Standards for Fire and Fire Aviation Operations and conducted according to the Fire Preparedness Review Guide. The FMO will ensure this is completed.

3.3.1.3 Fire Weather and Fire Danger

Fire Weather and Fire Danger Indices are tracked via the Weather Information Management System (WIMS). WIMS can be accessed via the internet at: <http://fam.nwcg.gov/fam-web/>. Fire weather observations will be entered daily when the dispatcher is on duty. WIMS indices may be used to influence daily staffing classes for use in the Preserve's Step-up Staffing during levels 4 and 5.

Current and recent weather activities are monitored via National Weather Service radar website and other public websites. Lightning strike data is available through the Bureau of Land Management and can be accessed at: <https://www.nifc.blm.gov/cgi/nsdu/Lightning.cgi>

BICY maintains five permanent remote automated weather stations (RAWS). Sensor observations are uploaded hourly via satellite and relayed to the public via the National Oceanographic and Atmospheric Administration's (NOAA's) Roman website and to approved station monitors via the Famweb WIMS integrated system.

3.3.1.4 National Fire Danger Rating System (NFDRS)

BICY monitors both short-term fire danger and long-term drought conditions. Short-term fire danger is tracked using 1988 NFDRS Energy Release Component (ERC), Burning Index (BI) 1 hour (hr.) and 10 hr. fuel moistures. Hydrology levels and 1000 hr. fuel moisture are indicators of potential long-term drought conditions.

Fire managers have found that multiple combinations of NFDRS components and indices can help fire managers prepare for an approaching fire season. For seasonal trending ERC, hydrology levels, 100 hr. and 1000 hr. fuel moisture levels are recommended.

Fire danger "pocket cards" have been developed which display critical thresholds of fire danger. This is valuable to both local and out of area fire suppression resources to make them aware of local trends (Append. F-4).

3.3.1.5 Step-Up Staffing Plan

Emergency preparedness involves actions taken to provide extra protection during very high or extreme fire danger when staffing classes 4 or 5 are in effect.

Appropriate activities for use of emergency preparedness funds include hiring of emergency temporary firefighters, placing existing staff on extended tours of duty, pre-positioning resources, increasing or initiating special detection operations, and leasing initial attack aircraft. All of these actions are aimed at ensuring prompt responses to protect values at risk.

There are five staffing classes that describe escalations in preparedness responses to increased fire danger. See Appendix. F-3 for Staffing Step-Up Plan that shows the actions to be taken for each of the five staffing classes in the Preserve.

For the purpose of determining appropriate step-up staffing, BICY uses a seasonal trending ERC, hydrology levels, 100 hr. and 1000 hr. fuel moisture levels are recommended. The FDO uses this information in combination with real-time observations and predicted weather and other seasonal indicators to determine necessary staffing.

3.3.1.6 Incident Management

ICs have the authority to respond to wildfires with a full range of suppression strategies between aggressive direct or indirect attack, which can include confinement strategies or surveillance and monitoring to ensure the fire spread will be limited to designated areas. When evaluating the initial response, the IC and fire management staff will consider risks to public and firefighter safety, values at risk, negative impacts to natural and cultural resources, and the cost of various strategies and tactics.

As the incident progresses, it is the IC's responsibility to ensure equipment and material broken in the incident are fixed or replaced. This can be done with general message forms to supply or ordering. The incident should not be considered complete until this process is finished.

3.3.1.7 Implementation Plan Requirements

All fires which go into extended attack or are being managed for multiple objectives will have a published decision in WFDSS. The FMO or FDO is responsible for initiating a complexity rating, assigning or ordering the appropriate IC, and initiating the WFDSS process. The WFDSS decision will be approved by the Superintendent or designee, unless financial limits are exceeded. In such cases, Regional Director or National Director approval is required (Red Book Chapter 3). The decision document will be updated to implement significant changes in management strategies and/or objectives.

3.3.1.8 Delegation of Authority

The delegation of authority for Type 4 and 5 fires is given to all FDOs and ICs (Append. F-1). Type 3, 2, and 1 ICs will receive a formal written delegation of authority and will receive a briefing describing their responsibilities and authorities from the FMO, the DO, and/or the Preserve Superintendent or designee.

3.3.1.9 Fire Duty Officer (FDO)

BICY utilizes a duty officer system to assist the fire and aviation management staff to include coordinating daily activities; fire size-up; setting priorities; mobilizing resources; and fire management planning, approval and reporting. This is not a permanent staff position, and the FDO assignment rotates among staff members. The responsibilities of the FDO require a combination of fire management qualifications and fire program management skills. The FDO must be well versed in Preserve policies and procedures as well as resource mobilization processes. At a minimum, the FDO must be a fully qualified ICT 4, have detailed knowledge of Preserve values at risk and special resource issues, and have a working knowledge of the FMP. A written delegation of authority is given to all qualified local fire duty officers.

FDO responsibilities include:

1. Monitor unit incident activities for compliance with NPS safety policies
2. Coordinate and set priorities for unit suppression actions and resource allocation

3. Document all decisions and actions.
4. Must be available by phone 24 hours a day (2-hour call back when in Staffing Level 1-3)
5. Review, update, and distribute Daily Staffing
6. Review Step-Up-Plan requirements and ensure they are being met
7. Authorize extended staffing
8. Prioritize incidents
9. Assign an IC
10. Approve strategy and review the complexity analysis
11. Ensure compliance with the FMP
12. Approve ordering of local and non-local resources for small fires. Type 3 incidents or larger need FMO/AFMO approval
13. Ensure logistical considerations are being met
14. Be familiar with and follow protocols for assistance with cooperators and mutual aid response

Additional information can be found in the Fire Duty Officer Handbook (Appendix I).

3.3.1.10 Aviation Operations

The South Florida Aviation Program (SFLAP) is a complex aviation program located at BICY serving the aviation needs of Department of Interior units across south Florida. SFLAP manages fleet aircraft, contract aircraft for both fixed and rotor wing and Unmanned Aircraft Systems (UAS). Aviation use offers the least impact and least invasive means of access to conduct fire, research and resource management, law enforcement, and search and rescue activities.

SFLAP conducts missions almost daily. This staff is responsible for the consistent interpretation of Departmental, Service and local policies to ensure a safe and efficient use of aviation resources. The Unit Aviation Manager, the Aviation Operations Specialist and the NPS Pilot will be the primary contacts for inter- and intra-park aviation-related projects. Project Supervisors and Project Coordinators have been identified in the Special Use Plans, which are updated annually. They will plan and coordinate directly with the aviation staff in day-to-day operations. Supervisors and managers are ultimately responsible for their employees' projects, so it is imperative that the managers and project coordinators maintain a strong presence during any aviation-related activities.

In addition to meeting NPS policy requirements, all personnel involved in aviation operations for wildfire and prescribed fire operations will meet NWCG qualifications appropriate to their position and documented by a current and valid incident qualification card or "Red Card."

3.4 POST-FIRE PROGRAMS AND RESPONSE

The National Park Service Fire Management Post-Wildfire Program is dedicated to protecting lives, property, and resources while promoting the restoration, maintenance, and integrity of ecosystems. The program determines the need to prescribe and implement emergency treatments to meet the following objectives:

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

Natural recovery after a wildfire is preferable if immediate stabilization and rehabilitation needs have been met or are assessed to not be necessary. In situations where a burned area emergency exists and it is possible to restrict access to protect life and safety or where valid uses will significantly interfere with emergency treatment objectives or delay recovery, administrative closures should be the first consideration. Treatments should be disallowed if they are experimental or proven to be ineffective.

Current direction for post-fire programs and response are found in RM 18: Chapter 18 and the Red Book. (Chapter 11) provide direction on current processes and timeframes for post-fire response. BICY is responsible for taking prompt action after a wildfire to minimize threats to life and property, and to prevent unacceptable degradation to natural and cultural resources.

The expected damages resulting from wildfires are addressed through four activities (see Reference Manual 18 and the Red Book for further guidance on allowable activities):

1. **Suppression Repair**: the intent is to repair suppression damages and is the responsibility of the IC. Rehabilitation of fire lines and other efforts to control erosion will start as soon as possible, even before a fire is declared out. This is especially important if firefighting equipment and personnel are still available. All suppression fire management activities will be carried out in accordance with MIST guidelines to cause the least amount of resource damage. Localized rehabilitation and restoration may be completed as part of ongoing fire operations. These actions may include stabilization, repair, replacement, or construction of improvements to prevent degradation to natural or cultural resources.
 - a. This activity is paid for from wildfire suppression funding.
2. **Emergency Stabilization (ES)**: the intent is to protect life and property and critical resource values and is the responsibility of the Preserve superintendent. Actions may include repair, replacement, or construction of physical improvements in order to prevent unacceptable degradation to natural and cultural resources. The objectives of ES are to first determine the need for emergency treatments, and then to prescribe and implement the treatments. Life and property are the first priority. Cultural and natural resources treated through ES should be unique and immediately threatened.
 - a. This activity is paid for from ES funding. ES treatments are projects requiring immediate action. They are therefore funded for only one year from the containment date of the

wildfire. Further information should be obtained from the SER Region Post Wildfire Coordinator prior to requesting these funds.

3. **Rehabilitation:** the intent is to repair wildfire damaged lands that are unlikely to recover naturally to management approved conditions or to repair or replace minor facilities damaged by wildfire. The objectives of burned area rehabilitation are to:
 - a. evaluate actual and potential long-term post-wildfire impacts to critical cultural and natural resources and to identify those areas unlikely to recover naturally from severe wildfire damage
 - b. develop and implement cost-effective plans to emulate historical or pre-wildfire ecosystem structure, function, diversity, and dynamics consistent with approved land management plans, or if that is not feasible, to restore or establish a healthy, stable ecosystem in which native species are well represented
 - c. repair or replace minor facilities damaged by wildfire
 - d. This activity is paid for from Burned Area Rehabilitation (BAR) funds.
 - e. Funding for BAR is competitive among bureaus and is based on proposed projects submitted through a common database and evaluated using common criteria. Projects are funded in one-year increments, and activities or treatments are reviewed at the end of each fiscal year and funded with the next fiscal year funds, as appropriate. BAR plans may be submitted at any time within the three-year anniversary of the containment date of the wildfire.
4. **Restoration:** the intent is to continue the rehabilitation efforts started in the BAR process beyond the time period limitation set by the department.
 - a. This activity is paid for from regular non-fire program funds.

The BICY ES and BAR coordinator will notify the SER Region Post Wildfire Coordinator when an ES or BAR plan is under development and submit the plan within the current established timeframes for approval. If the timeframe cannot be met, the Regional Post Wildfire Programs Coordinator will be contacted to request an extension from the National Post Wildfire Coordinator.

The Regional Coordinator will review ES and BAR plans produced by BICY and recommend them for approval to the appropriate approving authority.

Funds for post-wildfire treatments and activities will only be allocated for actions identified in approved ES or BAR plans. The BICY ES or BAR coordinator is responsible for tracking funding expenditures and ensuring funds are spent within the current timeframes established in Reference Manual 18 (Chapter 19) or superseding guidance.

Following plan approval, the BICY ES and BAR coordinator is responsible for requesting BAR funds through the National Fire Plan Operations and Reporting System (NFPORS) by September 15 of each year.

For each post-wildfire project, BICY must prepare annual and final reports that document total funding approved and expended; treatments; and treatment effectiveness as determined through monitoring. The annual reports are due to the SER Region Post Wildfire Coordinator by September 15 of each year until the project expires. Additional funds will not be approved until accomplishment and monitoring reports are submitted.

3.5 AIR QUALITY/SMOKE MANAGEMENT

3.5.1 Air Quality Issues

BICY is a designated Class II air shed, while the adjoining EVER is a Class I area. While the 2006 NPS Management Policies (Chapter 4.5) states “naturally ignited fire, including the smoke it produces, is part of many of the natural systems that are being sustained in parks”, air quality concerns relative to fire management exist and require active management. Air quality concerns include the proximity of the metropolitan Miami-Dade County and Naples areas, major transportation corridors crossing and adjacent to the Preserve, and emissions contributing to the degradation of regional air quality. Therefore, it is essential that fires be managed to avoid potential conflicts and problems with local residents, highway traffic, and adjacent air sheds.

Wildland fire events have the potential to create air quality problems beyond human control. Judicious use of prescribed fire can reduce smoke-related air quality problems by providing managers the opportunity to select the timing of burns to obtain acceptable smoke dispersion. All prescribed fires on the Preserve will meet applicable interstate, state, and local air pollution control regulation as required by the Clean Air Act, 42 U.S.C., Section 7418.

The Florida Forest Service is the regulatory agency responsible for enforcing clean air standards in Collier and Monroe Counties. All prescribed fires must be authorized by FFS on a daily basis. Authorization approval is based on the Dispersion Index, transport wind speed, and mixing height, as well as the Prescribed Fire Burn Boss’s state certification level. In Miami-Dade County permits are secured through the Department of Environmental Resources Management (DERM).

The dispersion index, transport wind speed and mixing height are obtained from the daily fire weather forecast and spot weather forecast. These parameters are used in the Go/No-Go decision for each prescribed fire.

3.5.2 Smoke Management Activities

The greatest hazards from smoke incidents within BICY are smoke impacts to the three highways after dark. At present, avoidance and dilution strategies are used for smoke mitigation.

Each prescribed fire plan will address smoke management by using a smoke-screening system described in the *Southern Forestry Smoke Management Guidebook* (USDA, Forest Service) and recommended by the Florida Forest Service. All affected smoke sensitive or smoke critical areas will be identified for each prescribed wind direction in a plan.

No prescribed fire will be initiated unless a Burn Authorization is issued by Florida Forest Service. The permitting process ensures that minimally acceptable atmospheric conditions are present to ensure adequate dispersal and mixing of emissions.

In addition to the weather indices, the following guidelines will also be followed:

1. Direction of dispersal and duration of the smoke episode will be considered to avoid any smoke impacts on highways
2. Spot weather forecasts will be obtained daily for the duration of the fire to check that all prescription parameters are not exceeded
3. Test fires will be used to confirm smoke dispersal on all prescribed fires.

In the event that smoke from a fire obscures visibility below the state defined limit (visibility < 500'), the following process is instituted:

1. The Burn Boss or IC requests that Preserve law enforcement personnel respond to the scene for traffic control.
2. The Burn Boss or IC requests through Big Cypress Fire Dispatch that the Collier County Sheriff's Office, State Highway Patrol, and State Department of Transportation be notified of the smoke incident, and dispatch personnel to the scene. If it is determined that the highway must be closed to protect public safety, the request will be made to the Florida Highway Patrol (FHP), and the road will be closed by State law enforcement personnel. Additional information on smoke management can be found on the interactive map under Air, Smoke and Monitoring tab.

3.6 DATA AND RECORDS MANAGEMENT

All electronic documents generated by BICY will be stored on the Fire Operations Center share all drive.

Each wildfire action requires the submission of an Individual Fire Report, currently submitted via Wildland Fire Management Information (WFMI) system or entered using standard operating procedures developed for future reporting systems. Currently a WFMI report is required regardless of who takes action. When BICY staff take or assist in initial attack off BICY lands, the agency with jurisdiction will file a report. BICY must also file a report to document BICY support action and to support potential billing to non-federal entities for trespass fires. The following types of fires must be reported within 10 days of a fire being declared out:

1. All wildfires on NPS and NPS-protected lands
2. Wildfires threatening NPS lands on which we take action
3. All escaped planned ignitions, where a wildfire declaration is made
4. All false alarms

Wildland fire reporting will follow guidelines established by NPS policy and Director's Order 18 and the associated reference manual, NPS RM 18, Chapter 11: Wildland Fire Reporting. Currently the primary record may be a digital copy or a hardcopy wildland fire report, and it is a permanent record of wildland fires on NPS lands and/or fire responses completed by the NPS. The hard copy is maintained at the park until transfer to archival storage. The report includes descriptive and statistical information such as fire name, date, location, cause; resources dispatched, fire size, etc. The initial report format is the NPS Wildland Fire Report Form which covers the basic fire information needed to size-up a wildfire. BICY fire staff will input fire reports into the appropriate fire reporting system, and the park will follow all required protocols for keeping and maintaining fire records.

It is the responsibility of the IC to provide the information necessary to complete the fire report in the appropriate NPS fire reporting system and make sure the information is entered into the system.

Other required reports include:

1. ICS-209 for large fires (over 100 acres in timber fuels), or any incident with a NIMO, Type 1, or Type 2 Incident Management Team assigned will be submitted daily through the 209 system on the internet by the Florida Interagency Coordination Center (FICC).
2. Close of Business (COB) report (forwarded to "Florida Interagency Coordination Center). This COB will be submitted by the BICY fire management office and will include information for fires that occur on BICY property (fire size, status, start date, discovery time and resources assigned). Table 2 indicates documentation required, timing and position responsible for completion.

Table 2: Checklist of Wildland Fire Documents and Reports

NA	Checklist of Wildland Fire Documents and Reports	NA
Document	Revision or Preparation Frequency	Person Responsible for Completion (Filer, tracker)
DI-1202	Each incident	IC/Burn Boss/Dispatcher
ICS -201	Each incident	IC/Burn Boss
ICS-214, w/narrative	Each incident	IC and/or Unit Leader
Resource Orders	As needed	IC/FDO/ Dispatcher
Fire Map/GPS data	Each incident	IC/Fire Monitor
Archived Photographs	Each incident	All photos taken w/government equipment
WFSS (Including periodic review)	As required in Red Book	As required in Red Book or delegated
WFMI	Each incident	Fuels staff
Burn Severity Mapping Request	Each Incident larger than 500 acres	Fire effects and Fuels staff
Spot Weather Forecast	Each operational period as needed	IC or FDO
Fire Monitoring Reports (includes smoke emission and transport observations)	Required for planned/unplanned ignitions	FEMO
Incident Status Summary ICS-209	Each operational period as needed	IC/FDO/Fire Dispatcher
Fire Behavior Predictions	Each operational period as needed	IC/FDO
Incident Complexity Analysis	Each operational period as needed	FDO/IC
Incident Action Plan (IAP)	Each operational period as needed	IC/FDO
After Action Review (AAR)	Each operational period	IC/Burn Boss

NA	Checklist of Wildland Fire Documents and Reports	NA
Document	Revision or Preparation Frequency	Person Responsible for Completion (Filer, tracker)
Cost Tracking	Each incident/daily as needed	IC/FDO/FMO/FPMA

3.7 GEOSPATIAL DATA MANAGEMENT FOR WILDLAND FIRE PROJECTS

Park/Incident Geographic Information System (GIS) coordinator will ensure that GIS Standard Operating Procedures are understood and followed. Reference to GIS Standard Operating Procedures on Incidents, Chapter 2, File Naming and Directory Structure. In-depth direction found at the following link: <http://www.nwcg.gov/pms/pubs/GSTOP7.pdf>

Wildland Fire Qualifications Management

BICY fire staff, typically the Fire Dispatch, will enter all BICY employee wildland fire training, experience, and qualification records into the DOI Incident Qualification System. Red cards will be issued after completion of the annual fireline refresher, physical clearance (annual, periodic, baseline exams), and appropriate physical fitness test (pack, field, or walk test). Red Cards may also be issued following the issuance or completion of position task books in order to reflect changes to employee qualifications.

4 PROGRAM MONITORING AND EVALUATION

4.1 MONITORING THE USE OF WILDFIRE

“All NPS units applying prescribed fire, using wildfire for resource objectives, or altering the arrangement of wildland fuels for the purpose of modifying fire behavior beyond defensible space building codes must prepare a fire monitoring plan”. (NPS RM 18, 2019 Sec. 4.8: Monitoring Plans)

Monitoring is the primary means of assessing whether the fire program is meeting management goals and objectives. BICY staff utilizes monitoring results in annual assessment of the fire management program. Fire effects data is maintained at BICY, and a copy is also available at the NPS Data Store (<https://irma.nps.gov/DataStore/>).

Monitoring is described in RM 18 - Chapter 8 with specific details in the NPS Fire Monitoring Handbook.

In addition to assessing management goals and objectives, the monitoring program will:

1. Provide managers with information essential for decision making
2. Advise on the effects of planned strategies

3. Increase knowledge of fire behavior and effects on park ecosystems
4. Provide long-term documentation for actions taken on a wildland fire
5. Support management decisions and practices with science-based expertise
6. Articulate ecologically sound objectives to strengthen and facilitate the land management planning process
7. Collect, analyze, report, and interpret fire effects data for managers
8. Facilitate communication and coordination between the park-level wildland fire and resource management programs
9. Complete National Fire Plan Operations and Reporting System monitoring request entries
10. Implement adaptive management into prescribed fire tactics and strategies by working with burn bosses and firing bosses.

BICY will conduct its fire monitoring program in accordance with the NPS Fire Monitoring Handbook 2001, which outlines standardized methods to be used for monitoring wildland fires. Monitoring protocols will be reviewed and approved at the Southeast Regional Office level before receiving funding. A copy of the BICY monitoring plan can be found in Appendix E.

New research and information are constantly considered to increase the Preserve's ability to apply the best available knowledge to fire and fuels management. While everyone has a responsibility to contribute to the growing body of knowledge, the nexus of collecting and integrating this information is the Preserve's fuels staff and fire effects monitoring program. Analyses are updated annually and can reflect changes in management objectives, values, local conditions, and new scientific information applying adaptive management to fire and fuels management planning.

4.2 SCIENCE AND CLIMATE CHANGE

4.2.1 Science

As of this writing, BICY has no active fire-related research occurring. However, several topics are of interest as researchers are identified:

1. Develop a fuel loading photo series to research the changes in vegetative fuel loads using historical photo points plot photos
2. Examine the effectiveness of fire treatments to help further refine management objectives.
3. Examine the changes in vegetation from the 1940's to the present using GIS to develop a predictive model for plant community changes
4. Perform large-scale aerial monitoring to detect changes across the landscape from large treatments and shifting hydrology

4.2.2 Climate Change

Climate change and associated sea level rise are of acute concern in Florida. The South Florida Water Management District (SFWMD) climate change and sea level rise models predict drought conditions with decreased freshwater input and increased fire activity in the region, which could have an overall

negative impact on vegetation communities and associated wildlife. However, climate change and sea level rise models are not currently precise enough to address increases in temperature and water stress over the short duration of the planning period and the small scale of any FMP.

Considered over a broad scale, areas treated with wildland fire management tools could remove additional environmental stressors and competition on remaining species and allow them to better adapt to climate change. Burn plan prescriptions and real-time fire modeling rely on current meteorological conditions and fuel characteristics, which reflect the uneven progression of longer-term changes. As additional scientific information becomes available at a useful temporal, spatial, and/or ecological scale, it should be integrated into the prescribed fire planning and longer-term adaptive management process through annual program reviews and revisions to the FMPs.

4.3 ANNUAL PROGRAM EVALUATIONS AND FIRE MANAGEMENT PLAN REVIEW PROCESS

This FMP will be reviewed annually in accordance with RM18, Chapter 4, to incorporate new knowledge, program adjustments and refinements, and updates as needed. This review/update requires Superintendent's approval and is accomplished through the checklist in NPS RM-18 Chapter 4 exhibit 2. Mapsheet updates will also be printed and submitted to the park for the administrative record. A copy of all changes will be provided to the Southeast Regional Office FMO and Southeast Regional Office Fire Planner for review and comment. The BICY FMO will forward the signed copy to the Southeast Regional Fire Management Staff who will make the update available to the National Office and ensure it is uploaded to the NPS Datastore. Changes requiring approval will be submitted with a new FMP cover sheet for signatures and dates, which will then replace the original cover sheet.

An annual update will be conducted on the Fire Management Plan. The plan's updates will incorporate any policy changes that have occurred during the previous year.

An annual preparedness review will be conducted by an interagency taskforce using a risk assessment template, in accordance with the Red Book and the NPS Wildland Fire Program Review Guide.

Every fifth year, a program review initiated by the Southeast Regional Office will be conducted in accordance with the NPS Wildland Fire Program Review Guide.

4.3.1 Wildfire Review

All wildland fires and fire-related incidents will be reviewed in accordance with Reference Manual 18, Chapter 17, and the Red Book.

The park Superintendent or designee may conduct a post-fire review of every wildfire on BICY lands. Post-fire reviews are typically completed by the incident commander as part of an After-Action Review (AAR) using the guidelines in the Redbook but could be completed in any format as directed by the Superintendent. The review will include as many personnel who participated in the incident as possible, and will cover all aspects of the incident, including but not limited to safety, tactics, difficulties encountered, areas needing improvement, and whether specified objectives were met. The information gathered will be used to continually improve the effectiveness and efficiency of the fire

management program. Notes from the reviews will be included in the permanent fire record, which is maintained in park and zone files.

Any incident that results in human entrapment, serious injury, fatalities, or near misses, will be investigated and reviewed, with appropriate administrative action taken based upon investigation results.

A regional-level review may be conducted for any fire that:

1. The fire crosses park boundaries into another jurisdiction without the approval of an interagency agreement.
2. The park receives adverse media attention.
3. Significant property or resource damage occurs.
4. Controversy involving another agency occurs

A national level review may be conducted for any fire that involves Service wide or national issues, including:

1. Significant adverse media or political interest.
2. Multi-regional resource response.
3. A substantial loss of equipment or property.
4. A fatality, or multiple, serious fire-related injuries (three or more personnel). This is in addition to the required serious accident investigation outlined in RM18
5. Any other fires that the Associate Director, Visitor and Resource Protection wants reviewed.

Consultation and Coordination

The following persons participated directly in the preparation of this Fire Management Plan:

Michael O’Leary	BICY Deputy Fire Management Officer
Orlando Genao	BICY Assistant Fire Management Officer
James Sullivan	Acting Chief of Fire and Aviation South Florida National Park Lands
Tony Pernas	Chief of Resource Management
Deborah Jensen	BICY Wildlife Biologist
Robert Sobczak	BICY Hydrologist
Richard Smedley	Chief Fire Planner, ELYON International

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Appendix B-Definitions

The National Wildfire Coordinating Group (NWCG) has approved this information for the guidance of its groups and member agencies and is not responsible for the interpretation or use of this information by anyone except its groups and member agencies.

Sponsored for NWCG publication by the Data Standards and Terminology Subcommittee.

Previous editions: 2012, 2011, 2008, 2007, 2006, 2005

This publication is published electronically by the NWCG on the NWCG website at:

<http://www.nwcg.gov/pms/pms.htm>.

Appendix C- Compliance for FMP

The Finding of No Significant Impact for the Environmental Assessment for the Fire management Plan, Big Cypress National Preserve was signed on August 30, 2018. A copy of the associated EA and signed FONSI are found on the BICY FOC Shareall Z drive in the following location: Z:\03-Fire Management Planning\Compliance

Appendix D-BICY Multi-year Fuels Treatment Plan

The multi-year fuels treatment plan is updated annually by BICY staff. At this time BICY staff will determine *what projects have been accomplished, which projects are still viable and need to be completed and finally* prioritizing and scheduling those projects in an updated multi-year fuels treatment plan. Projects listed in the plan may or may not be accomplished during the fiscal year depicted as budget constraints, environmental conditions outside project prescriptions or lack of availability of fuels treatment staff may not allow the project to proceed. Initially BICY will plan on burning 40,000- 100,000 acres per year, which is reflected in Figure Append. D-1: BICY Fuels Treatment Summary Table. The planned treated acres will decrease over time as the park returns the burning cycle to a more natural fire return interval.

Completion of the Fuels Treatment Plan is ongoing and will be included as an update item.

Figure Append. D-1: BICY Fuels Treatment Summary Table

Big Cypress Fire & Aviation 5 Year Fuels Plan

National Park Service
U.S. Department of Interior
Big Cypress National Preserve

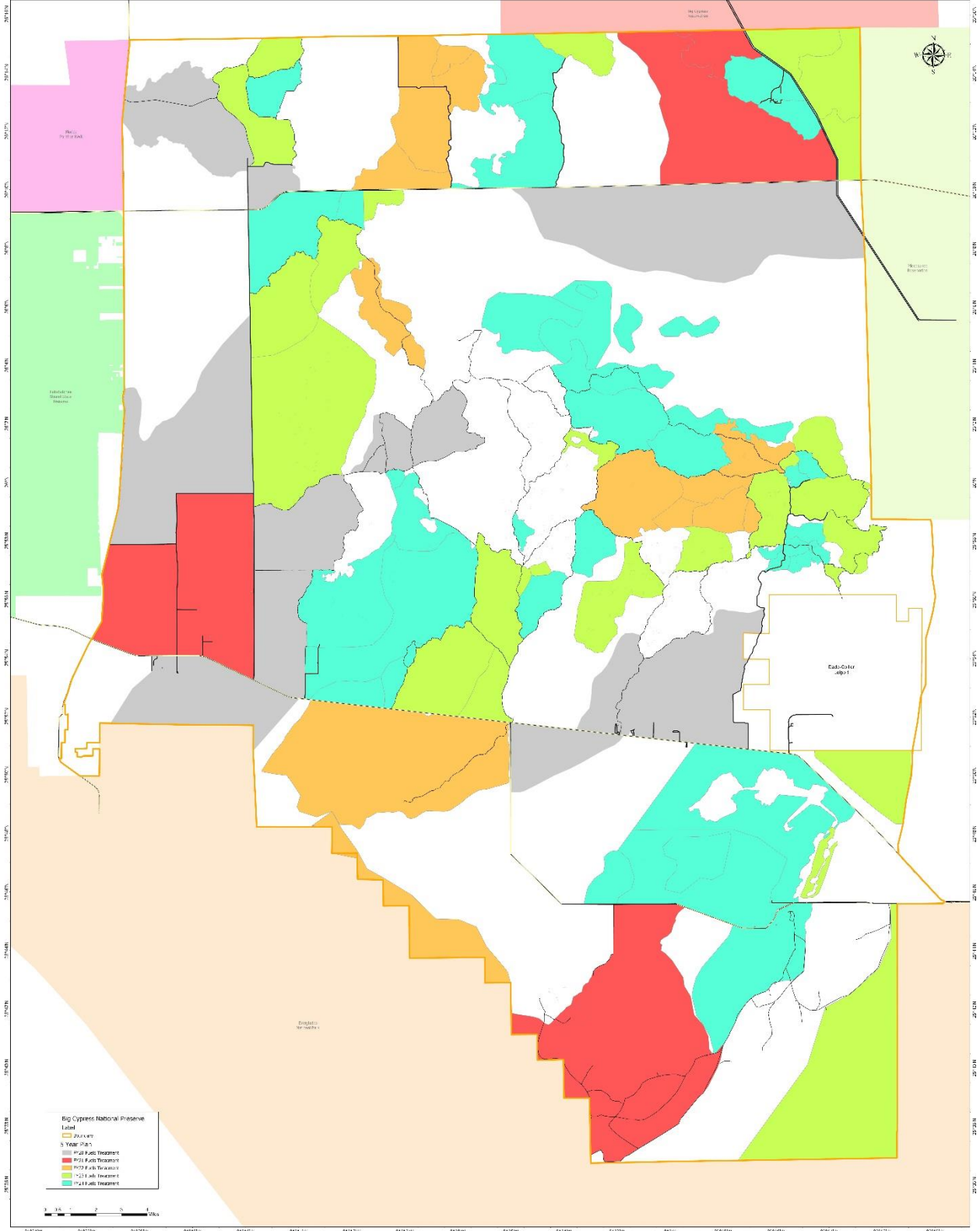


Table: Append. D-1: Minimum Required Prescribed Fire Documentation

1. Original signed prescribed fire plan
2. Checklist of pre- burn activities
3. All reviewer comments
4. All maps
5. Notification checklist
6. All permits (burn, smoke, others)
7. Monitoring data
8. Weather forecasts
9. Agency administrator ignition authorization
10. Operational go/no- go checklist
11. Incident action plan(s)
12. Unit logs, daily validation, other unit leader documentation
13. Press releases, public comments, complaints
14. Smoke dispersal information
15. Post- fire analysis
16. DI- 1202, Photographs

Appendix E-Fire Monitoring Plan

BICY fire monitoring is based upon the concept of adaptive management. Adaptive management is an iterative learning process requiring continual evaluation of the results of management actions and the associated management objectives. The NPS Fire Management Program is committed to implementing adaptive management across the spectrum of fire management activities. Adaptive management consists of several steps including:

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

Source for the following information: DOI Adaptive Management Initiative Website:

<http://www.doi.gov/initiatives/AdaptiveManagement/whatis.html>

BICY coordinates a short-term and long-term monitoring program with the assistance of the Southern Appalachian/Piedmont Fire Effects Monitoring Team to ensure that prescribed fire at the park effectively meets overall objectives.

The BICY Fire Monitoring Plan was signed in 2014 and is available in the BICY Fire Management Office. It defines fire monitoring goals and objectives, minimum qualification standards for fire monitors, and monitoring levels and minimum acceptable standards for documenting fire weather, and behavior and effects. Monitoring protocols adhere to those described in the Fire Monitoring Handbook, the NPS's national standard.

A representative sample of planned and unplanned ignitions is monitored for their effects on the ecosystem. Information gathered during fire monitoring is needed to keep fires within predetermined criteria, to determine the appropriate management response, and to protect human life and/or property. Fire personnel will observe the fire, assess its potential and provide a historical record. Monitoring will include documenting the fire environment, fire behavior, and fire effects. Weather readings will be made periodically at the fire site and photographs may be taken. Forms for recording data will be supplied to monitors.

The NPS Fire Monitoring Handbook will be used in whole or in part to fulfill monitoring plan requirements. Other valid monitoring strategies and protocols developed locally may be substituted for the standard monitoring protocols to meet specific management and information needs. The plan must be reviewed and approved at the Regional Office level before receiving funds.

In brief, fire effects monitoring in BICY consists of sampling permanent vegetation plots, which includes measurements of canopy and pole-size trees, ground cover, dead and down fuels, and duff, and taking photographs. Plots are sampled pre-burn, immediately post-burn, and one, two, five, and ten years post-burn. Fire monitors are essential to the early detection and eradication of invasive species in burned areas. Data gathered on pre-burn invasive plant infestations can help prevent further spread during fire management activities as well as giving specific locations for future monitoring. Post-burn sampling is also critical as preventing invasive plants from becoming established is by far the most effective and least costly management approach. Annual fire effects monitoring information is provided to resource management staff to provide feedback on the success of fire use with respect to meeting Park vegetation management goals and to approaching the desired future condition of Park vegetation.

Monitoring and evaluation procedures will be professionally conducted to ensure the Fire Management Program and projects are implemented to achieve management/project objectives, and such results are utilized to improve quality of the program and future projects. Normally this is a joint effort between NPS research and resource management. Research scientist from outside the agency may be involved.

Evaluation is the task of comparing whether or not program activities or project objectives were achieved. In most case, a professional evaluation cannot be performed unless some information is available or collected prior to implementation.

Most programs identified in the park's overall management plan(s) suggest monitoring and evaluation actions. Three levels of monitoring and evaluation will be performed: implementation monitoring, effectiveness monitoring and validation monitoring.

The purpose of implementation monitoring is to determine if the individual program activities or projects are being implemented and managed in accordance with the RMP Standards and Guidelines, strategies or procedures outlined in this FMP.

The purpose of effectiveness monitoring is to determine if the individual program activities, or projects, are effective in meeting the management goals and objectives of the park, and/or Fire Management Program.

Purpose of validation monitoring is to determine whether the assumptions used in developing the Fire Management Program or this FMP need adapted to achieve the goals and objectives.

Appendix F- Preparedness Planning Documents

A Job Hazard Analysis for each general activity the Fire and Aviation Division engages in will be updated annually during refresher training. Signed copies from the current year can be found in the Fire Operations Center conference room.

Append. F-1: Sample Delegation of Authority

Append. F-2: Initial Response plan

Append. F-3: BICY Step-up Plan

Append. F-4: Florida Fire Danger Operating Plan

Append. F-5: BICY Pocket Cards

Append F-1 Sample Delegation of Authority

A sample delegation of Authority for BICY follows.

DATE: XX May, 20XX
TO: XXXXXX, Incident Commanders
FROM: Thomas Forsyth, Superintendent, Big Cypress National Preserve
SUBJECT: **Delegation of Authority** –Fire Season 20XX

List of IC 4 and 5s:

You are hereby delegated authority to manage the XXXX Fire. You have full authority and responsibility for managing the fires within the framework of law, agency policy, and direction provided in this Delegation of Authority.

The fire and environmental conditions in Big Cypress are unique, and before assuming command I expect your team to complete a thorough shadowing of the outgoing team and local resources to familiarize yourselves with the operational and functional aspects of the incident.

Protecting human life is your top priority, followed by protecting communities and specifically identified facilities within the Preserve.

The fire should be managed under a strategy commensurate with risk, and suppression action taken with as little environmental impact as possible. Particular attention should be paid to Red-Cockaded Woodpecker habitat and Florida Panther den sites. Approved suppression tactics for these species will be provided by the Resource Advisor. Additional MIST guidance can be found attached to this delegation.

Protect all private in-holding camps, commercial infrastructure, and keep disruption of landowner access to a minimum, when safe to do so.

Restrictions for suppression actions include: (1) use of tracked vehicles (i.e., dozers and tractor plows), unless specific permission is obtained from the Agency Representative or the Resource Advisor; and (2) use of foam or aerial retardant within the Preserve boundary.

You are authorized to expend funds within the purchasing rules and policy of the Department of Interior. If a question or situation occurs outside of normal interagency incident business practices, coordinate with business management personnel of the appropriate jurisdictional agency.

You are also delegated responsibility for initial attack within the Big Cypress National Preserve and the Florida Panther National Wildlife Refuge. Coordinate initial attack efforts with the Preserve's Duty Officer.

We expect you to work closely and maintain communication with the appropriate county emergency management personnel, Seminole and Miccosukee Tribal representatives, Florida Division of Forestry, Florida Highway Patrol, Florida Panther National Wildlife Refuge, and structural fire departments assisting in the fire effort. Your team will be responsible for press releases and social media related to the fires you are managing.

Provide training opportunities for Preserve, State, and other local federal fire agency personnel as possible. The Preserve exercises a "No A.D. without a trainee" policy and encourages you to have trainees work at all levels of the incident to address shortages within the ICS system.

Resource Advisors will be assigned to this incident and identified in the Incident Action Plan.

In accordance with SER DIR-COM 4, I expect local employees assigned to the incident in a field-going operational role to have food provided for them as long as the operational period begins before 0800 and ends after 1800.

Additional resource considerations appropriate to each agency are attached and a part of this delegation. This delegation is effective at 0730 on May XX, 20XX, and will remain in effect until you transition to another organization or until rescinded.

/s/
T. Forsyth DATE
Superintendent

**SPECIFIC FIRE MANAGEMENT AND RESOURCE OBJECTIVES FOR
BIG CYPRESS NATIONAL PRESERVE
Attached and Made a Part of the Delegation of Authority Dated XX May, 20XX**

Fire Management Objectives:

1. Prioritize firefighter safety by developing strategies commensurate with values at risk.
2. Provide for public safety, protection of private property, and critical infrastructure.
3. Contain all new fires at the smallest size practical size emphasizing firefighter safety and resource objectives and constraints unless otherwise directed by the Fire Duty Officer.
4. Limit the growth of the XXXX Fire south of the Preserve boundary, west of Nobles Grade, east of Perocchi Grade, and north of I-75, with impacts to I-75 and the Seminole Nation kept to a minimum.
5. In implementing strategy, the potential degradation of wilderness character will be considered before, and given significantly more weight, than economic efficiency and convenience. MIST techniques will be used, and all off-trail vehicle use must be pre-approved by the Agency Rep.
6. Where possible, use fire management activities to replicate natural fire processes to the greatest extent possible, to reduce hazardous fuels and meet BICY natural resource objectives.
7. Manage the fire(s) in a cost effective and efficient manner commensurate with estimate developed or revised in the WFDSS.
8. Minimize smoke impacts on I-75, SR 29, and US 41.

Resource Objectives:

1. Protect key endangered species and their habitats (e.g., Florida Panther, Florida bonneted bat, and Red-Cockaded Woodpecker), with particular attention to denning Florida panthers and nesting RCWs; work with Resource Advisors to identify Florida panther dens in threatened areas and take measures to mitigate disturbance and harm to dens.
2. Protect key cultural features identified by the Preserve.
3. Protect the integrity of the Preserve as conditions dictate. This includes the integrity of sensitive scientific research being conducted on the Preserve.
4. Minimize impacts to the Preserve and wilderness areas through the use of appropriate strategy and minimum impact tactics.
5. Emphasize adherence to safe driving practices by incident personnel, especially in panther speed zones and while driving at night.
6. Where possible, fire should be allowed to play its role as a natural process, creating a diverse mosaic on the landscape.
7. Implement fire management strategies and tactics which will mitigate and minimize disturbance to soils, cultural, and natural resource values within the Preserve.

**SPECIFIC MINIMUM IMPACT SUPPRESSION TACTICS
FOR BIG CYPRESS NATIONAL PRESERVE
Attached and Made a Part of the Delegation of Authority Dated XX May, 20XX**

The Big Cypress General Management Plan's vision for the future of BICY is as a "primitive area where ecological processes are restored and maintained and where our cultural sites are protected from unlawful disturbance." Therefore, fire management decisions should emphasize techniques that minimize negative impacts to the naturalness, solitude, and undeveloped nature of the Preserve, especially in our eligible, proposed, or defined wilderness areas.

All aspects of fire management must be given careful consideration prior to engagement with fire personnel and equipment. Initial engagement decisions can affect future fire management options, costs, implementation exposure, and limit the ability to protect the natural character of the Preserve. Long-term effects of suppression, both in tactics and exclusion of fire, should be given considerable attention when developing engagement options.

Pre-emptive burnouts should be done with careful consideration of the tradeoffs with letting the fire burn in a natural mosaic and implanted with that in mind. Large scale burns should be done in consultation with the Agency Rep and Natural Resource Advisor.

In order to meet BICY GMP and fire management goals, the following Minimum Impact Suppression Tactics (MIST) have been developed for broad use across the Preserve:

1. Select procedures, tools, and equipment that least impact the environment.
2. Give serious consideration to the use of water (e.g., cypress strands, SEATS, other aircraft) as a tactic.
3. Consider "herding" the fire into lighter fuels to facilitate the use of aircraft.
4. In **light fuels**:
 - a. consider the use of natural barriers
 - b. consider burn outs
 - c. constantly recheck cold trailed fireline
 - d. if vehicle traffic is required, consider limiting use to ATVs/UTVs
5. In **medium or heavy fuels**:
 - a. consider use of natural barriers
 - b. minimize bucking to establish fireline; preferably build line around logs

6. **Aerial fuels** –brush, trees, and snags:
 - a. adjacent to fireline: limb only enough to prevent additional fire spread
 - b. inside fireline: remove or limb only those fuels which if ignited, would have potential to spread fire outside the fireline
7. **Trees, burned trees, and snags:**
 - a. minimize cutting of trees, burned trees, and snags
 - b. live trees will not be cut, unless determined they will cause fire spread across the fireline or seriously endanger workers. If tree cutting occurs, cut stumps flush with the ground
 - c. scrape around tree bases near fireline if hot and likely to cause fire spread
 - d. identify hazard trees with either an observer, flagging, and/or glowsticks
8. **When using indirect attack:**
 - a. do not fall snags on the intended unburned side of the constructed fireline, unless they are an obvious safety hazard to crews working in the vicinity
 - b. on the intended burnout side of the line, fall only those snags that would reach the fireline should they burn and fall over.
 - c. pre-emptive burnouts should be done with careful consideration of the tradeoffs with letting the fire burn in a natural mosaic and implemented with that in mind.
 - d. large scale burnouts should be done in consultation with the Agency Rep and/or Natural Resource Advisor.
 - e. review items listed above (i.e., aerial fuels; brush, trees, and snags)
9. A resource advisor will be assigned to each wildland fire within or with the potential to burn into **eligible/proposed/designated wilderness** areas. Resource advisors will:
 - a. ensure incident commander and ground resources are aware of wilderness areas and management direction.

- b. coordinate with fire suppression personnel to ensure appropriate suppression actions are used that minimize the rehabilitation requirements.
 - c. support appropriate rehabilitation actions prior to release of suppression forces.
 - d. Ensure that a Minimum Requirements Analysis has been conducted for any fire-related activities in wilderness and that analysis results are communicated.
10. Support appropriate rehabilitation actions prior to release of suppression forces.

Append. F-2: Initial Response Plan

Initial Response Plan – The following is the wildfire initial response plan currently utilized at BICY.

a) New Fire Start Procedures

- i) Dispatch: If a new start is reported to the dispatch, they will notify the FDO. Once notified, the FDO will coordinate with
 - (1) If there is no incident management team (IMT) - initial response resources on needs and appropriate course of action.
 - (2) If there is an IMT - operation section chief on resource needs and appropriate course of action.
- ii) FDO: If a new start is reported to the FDO, they will coordinate with:
 - (1) If there is no IMT - initial response resources on needs and appropriate course of action. Dispatch will be notified.
 - (2) If there is an IMT - operation section chief on resource needs and appropriate course of action.
- iii) IMT: If a new start is reported to the IMT, they will notify the FDO and dispatch. Once notified, the FDO will coordinate with the operation section chief on resource needs and appropriate course of action.

b) Ordering Resource Procedures

- i) Ordering must go through Big Cypress Fire Dispatch. If unavailable, orders can be placed directly through Florida Interagency Coordination Center.

c) Dispatching Procedures

- i) Utilize Big Cypress Fire Dispatch. If unavailable, the FDO will be utilized to track and order resources.

d) Cooperator Assist Procedures

- i) Florida Forest Service Information
 - (1) We border two separate Florida Forest Service (FFS) Districts jurisdiction.
 - (a) The Caloosahatchee Forestry Center covers Collier, Hendry, and Lee County; we predominately interact with this district the most. The majority of our jurisdictional area falls within Collier County. Additionally, our northern boundary borders or is in close proximity to Hendry County. Dispatch Phone Number: 239-690-8000
 - (b) Everglades Forestry District covers Monroe, Miami-Dade, Broward, and Palm Beach County. Portions of our jurisdictional area falls within Monroe and Miami-Dade County; southeast side of the Preserve. Additionally, portions of

our eastern boundary borders Broward County. Dispatch Phone Number:
954-453-2818

(2) Officer-in-Charge (OIC) and Forest Area Supervisor (FAS) Interactions

- (a) When coordinating with the FFS, we typically communicate with the OIC or FAS. The OIC is their equivalent of our FDO. This position usually rotates through their overhead. The FAS is the county supervisors and are the main point of contact for fire activity within their respective counties. Fire activity communications can occur with either one of these positions; in most cases the OIC will be a FAS. Additionally, Caloosahatchee Forestry Center has an Operations Specialist that we can communicate with if the OIC or FAS is unavailable.

ii) Wildfire Assist Procedures

- (1) National Park Service Regional Office has set up a Florida Support Fire Code that we will utilize for local cooperator support (State of Florida Cooperators) for the first 24 hours outside of the Mutual Threat Zone (more than one mile from the boundary). If the need for federal resources exceeds 24 hours, the requesting agency needs to pull a new Fire Code. Utilization of agency aircraft is permissible; we are able to use the Florida Support Fire Code to charge flight time within the first 24 hours.
- (2) The FFS has jurisdiction on all State public and private lands; including Florida Department of Environmental Protection Lands (e.g. Rookery Bay, Seminole-Collier, Fakahatchee Strand, etc.). If there is a need for federal resources on FFS run incidents, the FFS needs to be the requesting agency. Furthermore, if an FFS run fire moves on to our cooperators' lands we cannot fill request directly from our cooperators. This request needs to come from the FFS, our cooperators need to work with the FFS to request our resources to assist. With that being said, if there is a new start on our cooperators' lands prior to the FFS taking command, we are able to fill request directly from our cooperators once we have notified FFS of our response to the new start. We will utilize the existing Florida Support Fire Code to charge the use of federal resources for the first 24 hours. If the need for federal resources exceeds the first 24 hours, the requesting agency needs to pull a new Fire Code.
- (3) We are able to respond to any new start within one mile of our boundary; Mutual Threat Zone. Prior to responding to the new start in the Mutual Threat Zone on State public or private lands, notification and approval is required from the FFS. If we are first on-scene, we will take command of the incident until the agency with jurisdiction arrives on-scene. At this point we will transfer command over to this agency. We will need to pull a new Fire Code to charge the use of federal resources for the first 24 hours. If the need for federal resources exceeds the first 24 hours, the requesting agency needs to pull a new Fire Code.

- (4) Tribal and Federal cooperators can request our assistance direct. The requesting agency needs to pull the Fire Code.

iii) Rx Assist Procedures

- (1) We are able to assist federal and local cooperators with Rx incidents. Prior to committing federal resources to federal and local cooperators' Rx incidents, confirmation of payment is needed.
- (2) Federal cooperators will provide a project account code.
- (3) Approval is required from the FMO or AFMO prior to supporting local cooperators' Rx incidents. The base account will be utilized to charge personnel times for federal resources assigned to cooperators' Rx incidents.

Append. F-3: BICY Step-up Plan

BICY Step-up Plan is displayed on the following page in Table Append. F-3.

Table Append. F-3: BICY Step-up Plan

NA	NA	BIG CYPRESS NATIONAL PRESERVE STEP-UP PLAN	NA	NA	
STAFFING CLASS (SC)	SC-1	SC-2	SC-3	SC-4	
FIRE DANGER	Low Fire Danger	Moderate Fire Danger	High Fire Danger	Very High Fire Danger	Ex
AVIATION	None	1 T3 Helo HMGB+2 2 Hr. Callback	1 T3 Helo HMGB+2 1 Hr. Callback	1 T3 Helo HMGB+2 1 SEAT 1 Hr. Avail.	1 T
ENGINES	1 Buggy ENGB+1	1 Buggy ENGB+1	2 Buggies ENGB+1	2 Buggies ENGB+1	
OVERHEAD	C&G ICT5	C&G ICT4	C&G 2 ICT4	C&G 2 ICT4, ICT3 Operations 2 TFLD Aviation HEBM, SEMG	
SUPPORT FUNCTION	None	None	Dispatch IADP Finance TIME Planning GISS	Dispatch IADP Finance TIME Planning GISS	

NA	NA	STAFFING CLASS INDICES	NA	NA	
AVERAGE HYDRO	8.05 <	7.66 - 8.05	6.94 - 7.66	6.12 - 6.94	
ERC	15 >	15 - 25	25 - 35	35 - 45	
100 HR FM	14 <	12 - 14	10 - 12	8 - 10	
1000 HR FM	21 <	18 - 21	15 - 18	12 - 15	

**Trigger Staffing Class Level: Three or more criteria met. increasing to next Staffing Class.*

**LAL of 3 or Higher: Consider*

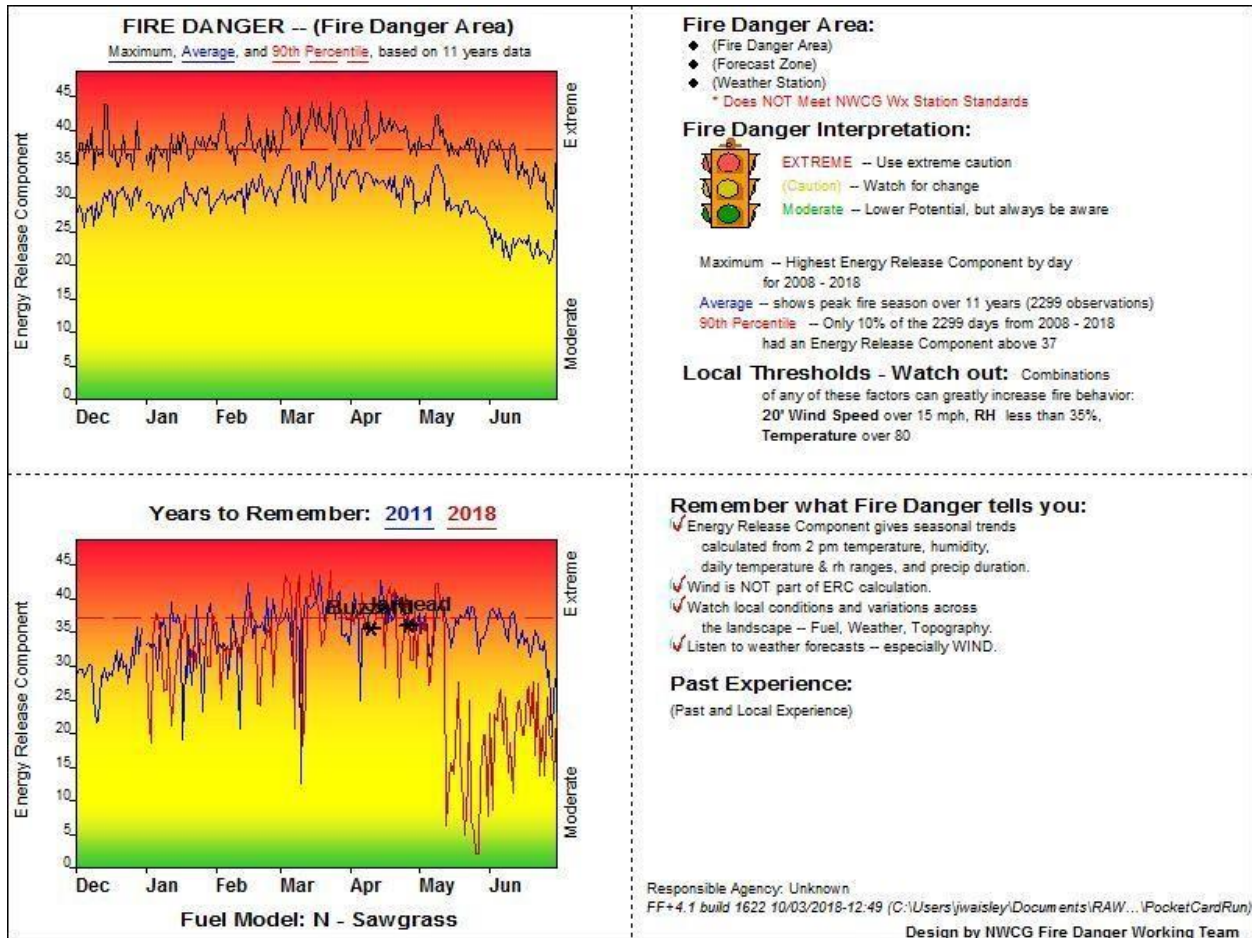
BIG CYPRESS NATIONAL PRESERVE MANAGEMENT ACTIONS by STAFFING CLASS (SC)

<p>SC-1</p>	<ol style="list-style-type: none"> 1. Duty Officer Coverage: 7 day/12 Hr. availability, 1 Hr. call back. 2. Initial response personnel available within 3 hours. 3. Daily coordination within fire management program.
<p>SC-2</p>	<ol style="list-style-type: none"> 1. Duty Officer Coverage: 7 day/12 Hr. availability, 1 Hr. call back 2. Initial response personnel available within 2 hours. 3. Daily coordination within fire management program.
<p>SC-3</p>	<ol style="list-style-type: none"> 1. Duty Officer Coverage: 7 day/16 Hr. availability, 1 Hr. call back. 2. Initial response personnel available within 1 hour. 3. Daily coordination within fire management program. 4. Evaluate the need for opening a step-up or severity account. 5. Evaluate the need for 7-day staffing coverage. 6. Evaluate the need for extended tour of duty and additional staffing. 7. Evaluate the need for incident management support functions. It is management's discretion on resources and qualifications needed. 8. The emergency hire of AD personnel is authorized. 9. Detection flights may be requested based on current conditions.
<p>SC-4</p>	<ol style="list-style-type: none"> 1. Duty Officer Coverage: 7 day/16 hr. availability, 30-minute call back. 2. Initial response personnel available within 30 minutes. 3. Weekly coordination with Agency Administrator, local cooperators, Florida Interagency Coordination Center, and regional office. 4. Authorize opening a step-up or severity account. 5. Authorize 7-day staffing coverage. 6. Authorize extended tour of duty and additional staffing. 7. Authorize incident management support functions. It is management's discretion on resources and qualifications needed. 8. The emergency hire of AD personnel is authorized. 9. Detection flights may be requested based on current conditions. 10. Evaluate the need to post "Fire Danger Signs." Fire Management will determine locations. 11. Superintendent may restrict campfires based on current activities and conditions.
<p>SC-5</p>	<ol style="list-style-type: none"> 1. Duty Officer Coverage: 7 day/16 hr. availability, 30-minute call back. 2. Initial response personnel available within 15 minutes. 3. Daily coordination with Agency Administrator, local cooperators, Florida Interagency Coordination Center, and regional office. 4. Authorize opening a step-up and severity account. 5. Authorize 7-day staffing coverage. 6. Authorize extended tour of duty and additional staffing. 7. Authorize incident management support functions. It is management's discretion on resources and qualifications needed. 8. The emergency hire of AD personnel is authorized. 9. Detection flights may be requested based on current conditions. 10. Evaluate the need to post "Fire Danger Signs." Fire Management will determine locations. 11. Superintendent may restrict campfires based on current activities and conditions. 12. All applicable Preserve staff is made available to support emergency preparedness work.

Append. F-4: Florida Fire Danger Operating Plan

At this time an Interagency Florida Fire Danger Operating Plan (Florida FDOP) is being worked on. Upon completion and due to the size of the Florida FDOP, a link to the Florida FDOP will be inserted into Append. F-4.

Append. F-5-Pocket Cards



Big Cypress National Preserve

Wildfire Incident Resource Protection Manual



Created 6/15

Updated 10/16

Special thanks to Bob Dellinger, Rick Anderson, Carol Fields, and Carrie Sekerak for their lead in developing this guide.

Big Cypress National Preserve

Wildfire Incident Resource Protection Manual

Introduction:

This manual is intended to serve as an introduction to protection of critical natural resources during a wildfire incident at Big Cypress National Preserve (BICY). The main focus is to help fire operations personnel develop strategies and implement tactics to facilitate a safe but rapid response to protect crucial resources which could be impacted by wildfire or suppression actions.

Background:

Fire is critically important to the ecosystems of BICY. Wildfire ignitions from lightning and Native Americans burned significant acreage long before the arrival of Europeans. With European settlement and rapid development in South Florida during the twentieth century came major disruptions of hydrology and natural vegetation, and an alteration of the fire regime. Restoration of a more natural fire regime is critical in order to restore healthy ecosystems to a healthy condition. Fire and hydrology are inextricably linked in the Preserve and must be restored in tandem for the whole system to function well. These factors, and the subtropical climate which allows for rapid plant growth, created an unnatural fuel bed over large areas of the Preserve and require a careful approach to managing wildfire events.

Resource Concerns:

The Big Cypress General Management Plan's vision for the future of BICY is as a "primitive area where ecological processes are restored and maintained and where our cultural sites are protected from unlawful disturbance." Therefore, fire management decisions should emphasize techniques that minimize negative impacts to the naturalness, solitude, and undeveloped nature of the Preserve, especially in our eligible, proposed, and designated wilderness areas.

All aspects of fire management must be given careful consideration prior to engagement with fire personnel and equipment. Initial engagement decisions can affect future fire management options, costs, implementation exposure, and limit the ability to protect the natural character of the Preserve. In particular, the use of large acreage burn-out operations, especially in the dry season (as occurred on the 2011 Jarhead Fire) can have severe impact on vegetation communities, hydric soils, and wildlife (including endangered species and nesting birds) and should be avoided when possible. Long-term effects of suppression, both in tactics and exclusion of fire, should be given considerable attention when developing engagement options and weighed against the benefits of naturally spreading fires with point protection.

Specific concerns include red cockaded woodpeckers (RCWs), Florida panthers, off-trail and tracked vehicle use, wilderness, invasive vegetation, and the Florida bonneted bat. Each of these, with the exception of the bonneted bat, is covered in detail below.

Solutions:

This manual is intended for use by fire operations personnel to help them develop strategies and implement tactics that fit the Preserve's needs for fire management and the protection of critical resources during a rapidly evolving wildfire situation. It should not be considered the final word for protection of these resources for longer duration or slower moving events. Local fire management staff and resource advisors should still be consulted with any questions or on the specifics of balancing preservation with fire management.

GENERAL WILDFIRE MANAGEMENT AND RESOURCE GOALS FOR BIG CYPRESS NATIONAL PRESERVE

Wildfire Management Goals:

1. Prioritize firefighter safety by developing strategies commensurate with values at risk.
2. Provide for public safety, protection of private property, and critical infrastructure.
3. In implementing strategy, the potential degradation of wilderness character will be considered before, and given significantly more weight, than economic efficiency and convenience. Use Minimum Impact Suppression Tactics (MIST) techniques and all off-trail vehicle use must be pre-approved by the agency representative.
4. Use fire management activities to replicate natural fire processes, to the greatest extent possible, to reduce hazardous fuels and meet BICY natural resource objectives.
5. Manage the fire(s) in a cost effective and efficient manner commensurate with estimate developed or revised in the WFDSS.
6. Minimize smoke impacts on I-75, SR 29, and US 41.

Wildfire Resource Goals:

1. Protect key endangered species and their habitats (e.g., Florida panther, Florida bonneted bat, and red-cockaded woodpecker), with particular attention to denning Florida panthers and nesting RCWs. Work with resource advisors to identify Florida panther dens in threatened areas and take measures to mitigate disturbance and harm to dens.
2. Protect key cultural features identified by the Preserve.
3. Protect the integrity of the Preserve as conditions dictate. This includes the integrity of sensitive scientific research being conducted on the Preserve.
4. Minimize impacts to the Preserve and wilderness areas through the use of appropriate strategy and minimum impact tactics.
5. Emphasize adherence to safe driving practices by incident personnel, especially in panther speed zones and while driving at night.
6. Where possible, fire should be allowed to play its role as a natural process, creating a diverse mosaic on the landscape.
7. Implement fire management strategies and tactics that mitigate and minimize disturbance to soils, cultural, and natural resource values within the Preserve.

Prescribed Fire

Big Cypress National Preserve has one of the largest prescribed fire programs in the country, burning between 50,000 and 100,000 acres annually. Based on current understanding of historical fire-return intervals this falls short of the estimated 125,000 acres per year needed to maintain a resilient natural ecosystem. Using an appropriate management response to wildfires is a critical tool for leaving the Preserve resources “unimpaired for the enjoyment of future generations,” part of the mission of the National Park Service.

SPECIFIC MINIMUM IMPACT SUPPRESSION TACTICS FOR BIG CYPRESS NATIONAL PRESERVE

In order to meet BICY General Management Plan and fire management goals, the following Minimum Impact Suppression Tactics (MIST) have been developed for broad use across the Preserve:

- Select procedures, tools, and equipment that least impact the environment.
- Give serious consideration to the use of water (e.g., cypress strands, SEATS, other aircraft) as a tactic.
- Consider “herding” the fire into lighter fuels to facilitate the use of aircraft.
- In **light fuels**:
 - Consider the use of natural barriers.
 - Consider burnouts.
 - Constantly recheck cold trailed fireline.
 - If vehicle traffic is required, consider limiting use to ATVs/UTVs.
- In **medium/heavy fuels**:
 - Consider use of natural barriers.
 - Minimize bucking to establish fireline; preferably build line around logs.
- **Aerial fuels**: brush, trees, and snags:
 - Adjacent to fireline: limb only enough to prevent additional fire spread.
 - Inside fireline: remove or limb only those fuels which if ignited, would have potential to spread fire outside the fireline.
- **Trees, burned trees, and snags**:
 - Minimize cutting of trees, burned trees, and snags.
 - Do not cut live trees, unless determined they will cause fire-spread across the fireline or seriously endanger workers. If tree cutting occurs, cut stumps flush with the ground.
 - Scrape around tree bases near fireline if hot and likely to cause fire-spread
 - Identify hazard trees with either an observer, flagging, or glowsticks.
- **When using indirect attack**:
 - Do not fall snags on the intended unburned side of the constructed fireline, unless they are an obvious safety hazard to crews working in the vicinity.
 - On the intended burnout side of the line, fall only those snags that would reach the fireline should they burn and fall over.
 - Pre-emptive burnouts should be done with careful consideration of the tradeoffs that come with letting the fire burn in a natural mosaic and implemented with that in mind.
 - Large scale burnouts should be done in consultation with the agency representative and natural resource advisor.
 - Review items listed above (i.e., aerial fuels; brush, trees, and snags).
- A resource advisor will be assigned to each wildland fire within or with the potential to burn into **eligible/proposed/designated wilderness** areas. Resource advisors will:
 - Ensure incident commander and ground resources are aware of wilderness areas and management direction.
 - Coordinate with fire suppression personnel to ensure appropriate suppression actions are used that minimize the rehabilitation requirements.
 - Support appropriate rehabilitation actions prior to release of suppression forces.
 - Ensure that a Minimum Requirements Analysis has been conducted for any fire-related activities in wilderness and that analysis results are communicate

Florida Panthers Verify from resource advisors if known panther den or females with kittens less than six months of age are in your portion of the fire. **Known panther dens in your division should be identified ahead of time** and marked to aid in future action.

- Get the approximate latitude and longitude of site from the READ –you may have to convert these from UTM.
- Understand that den areas are very important to protect.
- Assess fuel loading around den area. Work with the READ to determine if clearing fuels from around the den site is a viable option.
- Make a plan to use natural barriers, mash line, and black line to defend the area. Driving off-trail is likely to be approved in this situation, but make sure to work with the READ.
- Avoid approaching identified den areas and disturbing the mother and kittens any more than needed.



- Consider if aircraft can be used to pre-treat the area with water to slow fire progression.
- Avoid direct drops on the den site. Kittens are small and vulnerable to direct impacts. Trailing drops in the fuels near the den will work best.
- Use area markers such as traffic cones to identify the site for aircraft and ground personnel. Avoid these areas unless approved.



- Use caution when working around dens; the activity may cause the female panther to temporarily leave the den, returning after the fire and firefighters have left the area. In the 2011 Jarhead Fire, the mother panther returned to the den site for weeks looking for the kittens lost in that fire.

Red-cockaded Woodpeckers (RCW) Resource advisors will share the location of RCW's. Your operation may be asked to prep around trees they occupy. RCWs occupy old growth South Florida Slash Pines. Trees of a suitable size are rare on the Big Cypress landscape and care should be taken to preserve this important habitat. RCWs require living trees for cavities, and protecting these stands of old, large pines from intense fire is essential to the future of this species.

Obtain detailed maps of RCW trees from the Situation Unit as soon as it is known that they exist in your division. Begin prep work as soon as practical in active fire and contingency areas. Resource advisors will provide direction on which individual trees need to be prepped.



- RCW trees may be marked with a combination of pink or orange ribbons, aluminum tree tags, or nothing at all.
- The primary technique to mitigate unwanted impacts to RCW tree is removing fuel accumulation and vegetation from around the base of trees to prevent fire and heat from reaching cavities or igniting exposed resin.
- **Vegetation higher than 1 foot should be removed within 5 paces (10 to 12 feet) of the tree.**
- Debris should be distributed downwind outside of the cleared area. In addition to handtools, heavy fuels may require the use of chainsaws or brushcutters.
- Scraping and ground disturbance can be harmful to living trees and should be done lightly or not at all.
- If possible, do not operate ORVs within 50 feet of RCW cavity trees.
- Firing on the downwind side of a tree will further reduce fire behavior and heat around known cavities.
- When planning back-firing operations, verify the locations of RCW clusters with resource advisors or Big Cypress biologists.
- When firing and clearing, care should be taken to ensure the resinous dripping along the bole of the tree cannot be ignited.
- **Mitigations for known Florida bonneted bat trees are the same as for RCWs.**



Trailside Line Prep and Fuels Reduction Equipment such as track-hoes with articulating masticators work well for reducing fuel loadings and creating fire breaks along existing ORV trails and Preserve roads. Preserve roads are often straight and linear with canals or ditches alongside. ORV trails are rarely straight and provide access to the Preserve's interior, hunting camps, and private property. Users can easily observe post-fire impacts on roads and trails.

Clearing along trails identified as holding or contingency lines should be considered; but give plenty of time to get equipment approval, equipment arrival, and equipment travel-time to work site. Feedback to your operators will go a long way to making sure they adhere to specs below.

- The use of any tracked vehicles on the Preserve requires prior approval from the agency representative through the incident commander. Don't let this discourage you from making the request.
- Feedback to your operators will go a long way to making sure they adhere to specs below.
- Rubber tracked skid-steers with a masticator have worked well adjacent to trails on past incidents.
- Larger equipment with a machete-boom has worked well when the operator has kept the equipment on the trails. John Deer 160 and smaller excavators have worked well in the past.
- Turning the equipment causes the most damage, so plan your day's work to minimize turning.
- **Vegetation reduction should not occur more than 15 feet from centerline of trail.**



- Not all road and trail side vegetation are flammable (coco plum, etc.). Line prep will go much quicker if locals are consulted to identify non-flammable species. By skillfully selecting to reduce the most flammable fuels and leaving identified non-flammable species, fuel reduction can be accomplished just as effectively and more quickly.



Spills from hydraulic fluids and other equipment fluids are unwanted in a sensitive wetland environment. These spills can interrupt operational progress as well. Have a plan for mitigation or consider contractors that use non-toxic peanut oil as a lubricant.

Handline Construction Handline is rarely used at BICY because conducting a slow burnout through light fuels supported by flappers and bladder bags is often more efficient. If this technique is used in place of handline, be sure to check your burned line constantly to prevent periphyton and other light fuels from re-igniting.

Handline is occasionally used, especially through heavier fuels.

- Handline should blend with natural features of wetlands to the extent possible.
- Light scraping is all that is necessary and should only reach the surface of mineral soil.



- Trenching, rutting, and cupping are typically not needed.



Off-trail Use Much of the Preserve is eligible or proposed wilderness, although there is a quarter-mile corridor along each side of all primary and secondary trails, roads, canals, and levees. Driving off-trail, however, is highly discouraged.

- A high percentage of local “close calls” on fires have occurred while buggies have been operating off-trail. If you have to operate off-trail, brief crews on LCES and maintain 10 and 18 at all times.
- The sandy soil of the Preserve holds imprints for decades: rows from fields farmed in the 1940s are still visible from aircraft, and buggy tracks more than 2 inches deep are likely to remain visible for decades.
- The Preserve requires visitors and landowners using ORVs to remain on the designated trail system, and the Preserve holds its employees to this as well, except in specific circumstances. Stopping the fire may not be one of those circumstances! **Keep in mind that off-trail tracks that you create are likely to remain visible, and the public may follow them in the future.**
- Trail impacts typically fall into three categories:
 - off-trail use to catch slop-overs,
 - heavy suppression traffic on the designated trail, or
 - braided and expanded traffic along the designated trail and adjacent to prairie wetlands.



- Consider seeking approval to use equipment to improve trail edges to reduce spotting potential and the need to go off-trail (see Trailside Line-Prep and Fuels Reduction section).



If off-trail use is needed to catch spots, encourage buggies to make a single pass. Depressions of less than 1 inch may disappear during the next wet season.

- UTVs and ATVs will leave a less permanent mark than buggies. Consider this equipment when off-trail travel is necessary.
- Enforce crews staying on designated trails and not taking short cuts around holes or rocky areas.
- Street legal vehicles are not permitted on the Preserve’s trail system except in the Bear Island area.

Wilderness Considerations Much of the Preserve (36 percent) is eligible or proposed wilderness, although there is a quarter mile corridor along all primary and secondary trails, roads, canals, and levees. If you are staying on trails, those buffers should keep your crews out of the wilderness. The suggestions below apply both in and out of the wilderness:

- Landing helicopters in wilderness does not need prior authorization if the flight has been deemed necessary and within the overall strategy of managing the fire. If considering landing a helicopter in wilderness, however, make sure the strategy is in line with the Preserve’s desires, or if further consultation should take place.
- Chainsaw use should be minimized but based on risk of fire-spread. No prior authorization is required.
- Vehicles should be staying on trails, and thus should not be a factor for impacting wilderness.



Firing Operations Several recent fires have been managed to limit fire growth by conducting firing operations and large-scale burnouts. While this is a viable technique that should be given serious consideration, there is the potential to fail to meet several of the wildfire management and resource objectives.

Burnout Guidelines:

- If BICY is dry enough and the complexity is high enough that a team is ordered, there's a good chance a burning operation started before 1900 will either kill the overstory or won't hold. **Plan ahead for a swing shift and burn at night.**
- Red flag days in South Florida are characterized by **RHs below 35 percent and 20' wind speeds over 15 mph**. It's unlikely a burnout will hold or meet objectives if both of these conditions exist.
- Swamp buggies are notorious for breaking down at the wrong time. Consider if the operation can be completed one or two swamp buggies are lost. If a buggy does break down, make sure it is in the black.
- Consider using helos or SEATs to pre-treat the green side of the burning operation prior to and during ignitions.
- Establish a solid blackline before bringing in the ship.
- Before planning a burnout, consider that values at risk are on the other side of the line. What are the costs of allowing the fire to continue across the line that is planned to burn? What are the risks of conducting a burnout operation at night?



General Rehab Because much of the Preserve is eligible or proposed wilderness, take care during and after operations to restore the landscape and minimize the side-effects of suppression activities. The following apply both in and out of wilderness areas:

- Pull handline over itself or cover with brush.



- Cut stumps flush and ensure the butt ends of trees are turned away from trails and camps.



- Remove rash, flagging, and other debris when leaving the line as operations slow.
- GPS all pumps, sling loads, and other equipment; pass along to DIVS and SITL to ensure removal at the end of the incident.
- Create a track log, using a GPS, of all off-trail use and give to the READ for documentation.
- Work with OPSC as the incident winds down.

Document Evaluation Form

Was this guide useful?

Definitely. Mostly. Somewhat. Just glad to be headed home.

Further comments or suggestions:

Position on Incident (Optional) _____

Please give your feedback on how to improve this guide to the resource advisor or agency representative.

Appendix G-Communication and Education Plan

FIRE COMMUNICATION PLAN

Timely and accurate communication will be a priority at all times. During periods of low fire danger, when limited or no prescribed fire activity is being conducted and there is no wildfire activity, communication efforts will support education and prevention outreach and/or preparation for future periods of high fire danger, prescribed fire and/or wildfire activity.

Communication efforts should be inclusive of all internal and external staff, partners, visitors, the general public, and cooperating/assisting local, state, federal and tribal agencies.

Communication will focus on promoting an interagency approach to fire management activities in which activities are coordinated and information is shared quickly and efficiently to facilitate mutual cooperation and collaboration.

Working with the Preserve's Interpretation Division and other partners, BICY Fire will:

1. Reinforce the Preserve's key education and prevention messaging to internal and external audiences in all communication efforts.
2. Create and maintain a database of internal and external stakeholders, partners, local, state, federal and tribal fire professionals, and media contacts to consistently collaborate on information sharing and communication activities; this database will be updated regularly and maintained digitally so that it can be accessed in a timely manner, utilized as needed for wildland fire management planning and emergency purposes, and shared quickly as appropriate during wildland fire management activities.
3. Establish and maintain common protocols and procedures to follow when coordinating and collaborating on communication efforts:
 - Identify standard procedural steps to disseminate mass messaging in times of planned and unplanned Preserve fire management activities.
 - Coordinate messaging with the Preserve's public affairs officer and Superintendent's office.
4. Participate in meetings inside and outside of the Preserve to meet and interact with local surrounding community members, private property (inholding) owners, partners and other local, state, federal and tribal professionals, media, Preserve visitors and the general public.
5. Fire information should be shared with local, state, federal and tribal governments, media and interested user groups, neighbors and park employees in a timely and consistent manner.

6. Public information officers should be employed when appropriate during wildfire and prescribed fire activities to communicate with Preserve staff, visitors, private property (inholding) owners, adjacent property owners, and other interested groups or individuals.
7. Public information officer training will be supported for members of the Preserve who show interest in the Preserve fire management program; fire management staff will work with Preserve staff to identify possible opportunities for recruitment of collateral duty public information officers and trainees.
8. During wildfires, and during prescribed fire activities when appropriate, current information should be posted on the BICY website (www.nps.gov/bicy) and the NPS Fire News website (www.nps.gov/fire/firenews); this should be a coordinated effort between the Preserve fire management program, the assigned public information officer (when in use), and the public affairs and superintendent's offices.
9. Create and publish news articles on a range of Preserve wildland fire topics monthly or bi-monthly on InsideNPS for internal audiences;
10. Create and publish Success Stories according to the National Cohesive Wildland Fire Management Strategy and NPS Success Story Protocols, include one per quarter;
11. Utilize internal and external partners to plan, film, edit and distribute one video project per year that seeks to further educate internal and external audiences on basic fire ecology and the natural role of fire in the Preserve, covers various other Preserve fire management topics, enhances education and prevention efforts, and aids in communicating key Preserve fire management messages.

Until a public information officer has been identified, the Fire Duty Officer (FDO) or designee will provide relevant fire information to the Preserve's information officer or an information officer assigned to the incident.

The FDO should be cognizant that the following actions are particularly important during periods of high activity:

1. Timely and accurate information will be provided to the media and Preserve visitors regarding the status of fire actions, suppression efforts, and fuels treatments.
2. Potential smoke impacts to roads should be communicated to the Superintendent's office, the Preserve's information officer, and Florida Highway Patrol.
3. Adjacent landowners will be notified when fire, particularly wildland fire, is a threat to off-Preserve residential areas.

When the staffing class is 4 or 5 or there are multiple ongoing fires, information will be displayed in visitor contact points. Fire danger signs will be posted on Preserve roadways as needed. Patrol activity may be increased to detect potential fires and to monitor visitor activity. A fire information officer may be assigned. At staffing class 5 it may become necessary

to close portions of the Preserve or limit visitor activities to protect both facilities and the public. Fire management may increase participation with Florida Forest Service to support community awareness and fire prevention.

Media access to fire scenes will be facilitated when it is safe to do so. When interest is warranted, the FDO or fire information officer will be designated as the contact person for all information requests. Any media access to fires will be in compliance with the Interagency Standards for Fire and Fire Aviation Operations guidelines.

Appendix H: FIRE PREVENTION PLAN

The goal of the Preserve's fire education and prevention program is to promote the Fire Management program's goals and objectives while preventing unwanted human-caused wildfires through proactive outreach efforts.

Education and prevention outreach efforts should focus on educating internal and external audiences about the natural role of fire on the Preserve and the Southwest Florida landscape, mitigating the risks of wildfire to private property and natural and cultural resources, and reducing unwanted human-caused ignitions. All outreach efforts should promote fire safety, fuels management and defensible space, prevention, and should always compliment cooperators' programs to the fullest extent possible.

Education and Prevention efforts will focus on:

1. Participating in surrounding community events such as public meetings, parades, fairs, and school programs, when appropriate and feasible, and when opportunities exist to increase public awareness about the role of fire's role in the local ecosystem.
2. Presenting and/or providing input to partners responsible for presenting school programming at local schools and within the Preserve designed to teach wildfire awareness, management and prevention.
3. Working with internal and external partners to incorporate current technologies such as mobile social media applications, into the Preserve's fire education and prevention outreach efforts.
4. Collaborating with internal partners (NPS) and local cooperating agencies to conduct regular and frequent education and prevention outreach activities that:
 - i. Educate internal and external audiences on basic fire ecology and the natural role of fire in the Preserve and in Southwest Florida.
 - ii. Enhance knowledge and understanding of wildland fire management policies and practices among internal and external audiences.
 - iii. Aid in preventing catastrophic wildfires by building public and stakeholder support for fuels reduction efforts in and around the Preserve.
 - iv. Inform Preserve staff of hazards and mitigations relating to risk of wildfire.
 - v. Specifically target owners of private property (inholdings) within the Preserve and on land adjacent to the Preserve with printed brochures and direct outreach in order to reduce risk of wildfire to their property or to make their property safe for firefighters to enter in the event of a fire.
 - vi. Aid in reducing the risk of human-caused wildfires with emphasis on fires caused by recreational activities.

- vii. Provide printed prevention materials to Preserve staff, for dispersal to their employees and to visitors, such as information brochures on reducing fire risks to local communities and creating defensible space.
- 5. Conducting wildland fire prevention, information, education and other outreach activities within the Preserve, including;
 - i. Collaborating with other divisions, such as Interpretation, to promote fire education by providing input for interpretive discussions with visitors and designing educational programming for group tours and activities.
 - ii. Providing information brochures and other materials to be used as discussion tools or informative pieces of information for visitors, especially recreational users such as campers and hikers.
 - iii. Working with other divisions such as interpretation and law enforcement to ensure recreation and high use areas are patrolled or monitored and fire education and prevention signs and materials are posted, visible and maintained.

Appendix I: Duty Officer Handbook

A copy of BICY's Duty Officer Handbook is in the Fire Management Office as well as with all assigned duty officers.

Appendix J: Cooperative and Interagency Agreements

BICY has entered into the following agreements/MOUs in order to more effectively and efficiently manage the park’s wildland fire program:

Table Append. J -1: Cooperative and Interagency Agreements

Cooperator	Function
Cooperator: Big Cypress Seminole Bureau of Indian Affairs (BIA)	Function: Adjacent Landowner / Fire Assistance
Cooperator: Collier County Bureau of Emergency Services (BES)	Function: All Risk Management Response
Cooperator: Collier County Sheriff’s Office (CCSO)	Function: Roadway Assistance / Emergency Assistance
Cooperator: Everglades National Park	Function: Adjacent Landowner / Fire Assistance
Cooperator: Florida Forest Service (FFS)	Function: Fire Assistance
Cooperator: Florida Division of Recreation and Parks/Fakahatchee Strand Preserve State Park	Function: Adjacent Landowner / Fire Assistance
Cooperator: Florida Highway Patrol (FHP)	Function: Roadway Assistance / Emergency Assistance
Cooperator: Florida Panther National Wildlife Refuge	Function: Adjacent Landowner / Fire Assistance
Cooperator: Miccosukee Tribe	Function: Adjacent Landowner
Cooperator: National Weather Service (NWS)	Function: Weather Information / Updates
Cooperator: Ochopee Fire Control District	Function: Fire Assistance
Cooperator: Big Cypress Ranger Division	Function: Internal Partner
Cooperator: Big Cypress Resource Management Division	Function: Internal Partner
Cooperator: Big Cypress Roads and Trails	Function: Internal Partner
Cooperator: Big Cypress Visitor Services	Internal Partner

Appendix K: WFDSS Objectives and Requirements

WFDSS Overview

WFDSS is an interagency, web-based application that helps agency administrators and fire managers make risk informed decisions for all types of wildland fire, regardless of complexity. WFDSS integrates the various applications used to manage incidents into a single risk informed, collaborative system to streamline the analysis and reporting processes, providing one decision documentation system tiered to Land and/or Resource management plans.

NPS Use of WFDSS

As discussed in the Red Book, February 2019 version, the internet based WFDSS will be the primary decision support documentation platform for all NPS wildfires. Refer to Chapter 11 of the Interagency Standards for Fire and Fire Aviation Operations for further guidance.

Current BICY Wildland Fire Decision Support System Strategic (WFDSS) Objectives and Management Requirements can be found in the WFDSS production system

<https://wfdss.usgs.gov/WfdssApp/faces/facelets/login/WFDSSLogin.xhtml>

Appendix L: Contracts for Prescribed Fire and Suppression Resources

At this time there are no contracts for prescribed fire or suppression resources.

Appendix M-Standards for BAER, BAR, and ES

Standards for BAER, BAR and ES are found in the READ Guide for BICY. Digital copies of the READ Guide will be stored on the BICY fire management share drive.

The Burned Area Emergency Response program is the NPS post-fire response program that implements Emergency Stabilization (ES) treatments to minimize threats to life or property resulting from the effects of a wildfire, or to stabilize and prevent unacceptable degradation to natural and cultural resources resulting from the effects of a fire. The Fire Management Officer, Fire Ecologist and Resource Management Staff will address damages resulting from wildfires are addressed through these four activities:

1. **Wildfire Suppression Activity Damage Repair** – Planned actions taken to repair the damages to resources, lands, and facilities resulting from wildfire suppression actions and documented in the Incident Action Plan. Fire suppression activity damage repair is not the responsibility of the BAER program. These are actions that are planned and performed primarily by the suppression incident organization as soon as possible prior to demobilization. However, some actions may need to be conducted by the local unit following containment and incident management team demobilization. For fires where the local agency administrator delegates the authority for fire suppression repair to an incident management team, the incident management team must document the fire suppression activity repair actions and those still needed to ensure that all planned actions are completed during transition back to the local unit. These actions will be paid for by account number for the suppression incident.
2. **Emergency Stabilization (ES)** – Emergency stabilization is an extension of emergency actions. These actions may also include repair, replacement, or construction of physical improvements in order to prevent unacceptable degradation to natural and cultural resources. The objectives of emergency stabilization are to first determine the need for emergency treatments, and then to prescribe and implement the treatments. Life and property are the first priority. Cultural and natural resources treated through ES should be unique and immediately threatened. Assigned personnel will jointly assess and, if necessary, formulate a BAER emergency stabilization plan. The BAER plan will be submitted to the Regional BAER Coordinator through the FMO for approval within 7 days from the date the fire is declared contained. BAER project requests totaling \$500,000 or less can be approved by the Regional Director. Submissions over this amount are reviewed at the regional level and forwarded to the NPS Fire Management Program Center for approval. Emergency stabilization actions must be taken within one year following containment of a wildfire and documented in a Burned Area Emergency Response Plan.
3. **Post-fire Burned Area Rehabilitation (BAR)** – Post-fire BAR projects is the NPS post-fire response program that implements the types of long-term actions to repair or improve lands damaged directly by a wildland fire. BAR consists of nonemergency efforts

undertaken to repair or improve wildfire-damaged lands unlikely to recover naturally, or to repair or replace minor facilities damaged by wildfire. The objectives of BAR are to (1) evaluate actual and potential long-term post-wildfire impacts to critical cultural and natural resources and identify those areas unlikely to recover naturally from severe wildfire damage; (2) to develop and implement cost-effective plans to emulate historical or pre-wildfire ecosystem structure, function, diversity, and dynamics consistent with approved land management plans, or if that is infeasible, to restore or establish a healthy, stable ecosystem in which native species are well represented; and (3) to repair or replace minor facilities damaged by wildfire. The assigned personnel will jointly assess and if necessary, formulate a non-emergency Burned Area Rehabilitation Plan. BAR project requests are approved as part of a competitive process within the Department of Interior and project selections are made at the beginning of each fiscal year or after an approved appropriations bill, whichever is later. The BAR plan will be submitted to the Regional BAER Coordinator through the Fire Ecologist. Projects are reviewed at the regional level and forwarded to the NPS Fire Management Program Center for processing. It should be submitted by the end of the first fiscal year in order to be funded in the next fiscal year. Projects are eligible for BAR funding up to three years of the containment date of the fire. All BAR and ES projects will be documented in the National Fire Plan Operating Reporting System (NFORS).

4. **Restoration** – Continuing the rehabilitation beyond the initial three years or the repair or replacement of major facilities damaged by the wildfire.

Table: Append. M-1: Burned Area Emergency Response Components

NA	Suppression Rehabilitation	Emergency Stabilization	Rehabilitation	Restoration
Objective:	Repair Suppression Damages	Protect Life and Property	Repair Damages	Long Term Ecosystem Restoration
Damage Due To:	Suppression Activities	Post-Fire Events	Fire	Fire
Urgency:	Before Incident Close-out	1 – 12 Months	1 – 3 Years	3 + Years
Responsibility:	Incident Commander	Agency Administrator	Agency Administrator	Agency Administrator
Funding Type:	Suppression	Emergency Stabilization	Rehabilitation	Regular Program

BURNED AREA EMERGENCY RESPONSE (BAER)

STEPS FOR SUBMISSION OF EMERGENCY STABILIZATION (ES) OR BURNED AREA REHABILITATION (BAR) PLANS

Emergency Stabilization (ES) and Burned Area Rehabilitation (BAR), collectively referred to as Burned Area Emergency Response (BAER), programs are funded by the Wildland Fire Management appropriation to address consequences of wildfire on lands and resources.

Reference Manual 18 (Chapter 19) and the Red Book (Chapter 11) provide direction on current processes and timeframes for post-fire response.

STEPS FOR SUBMISSION OF AN ES and BAR PLAN

1. The Park will notify the SER Regional BAER Coordinator when an ES or BAR plan is under development. The SER Regional BAER Coordinator will notify the National Post Wildfire Programs Coordinator that a plan is under development and the expected timeline for submittal.

Emergency Stabilization (ES): is an extension of emergency actions and consists of planned actions taken to minimize threats to life and property resulting from the effects of a wildfire.

Burned Area Rehabilitation (BAR): consist of non-emergency efforts undertaken to repair or improve wildfire damaged lands unlikely to recover naturally, or to repair or replace minor facilities damaged by wildfire.

- i. ES plans must be signed and approved within 21 days from ignition of the fire.
 - ii. Extensions may be granted by the National Post Wildfire Programs Coordinator.
 - iii. BAR plans may be submitted at any time within the three-year anniversary of the containment date of the wildfire.
2. The Park will prepare the BAER plan including the project specification forms.
3. The BAER plan is reviewed by the Park/Zone FMO and forwarded for review to the:
 - i. SER Regional BAER Coordinator/ National Post Wildfire Programs Coordinator
 - ii. Southeast Regional FMO (SER RFMO).

4. The Regional/National Coordinators will review the plan and send it back to the park with edits/comments.
5. The park will use the BAER park approval to RD memo for approval by the Regional Directorate (RD).
6. The memo to the RD and final plan will be sent to the SER Regional BAER Coordinator who will prepare the approval memo that will come from the RD back to the park.
7. The SER BAER Coordinator and SER RFMO will facilitate RD signature and approval.
8. The signed approval memo will be sent to
 - i. National Post-Fire Programs Coordinator
 - ii. Southeast Region Fire Management Officer
 - iii. Southeast Region BAER coordinator
 - iv. Southeast Region Budget Analyst
 - v. Zone Fire Management Officer
 - vi. Park BAER Coordinator
9. ES funding is approved by the RD and is immediately available.
 - i. Funding is provided for no more than one year plus 21 days after the ignition date of a wildfire.
 - ii. If ES treatments cannot be completed within one year, a local unit may request from the Bureau Director an extension based on factors such as climatic conditions or similar significant circumstances.
10. BAR funding is approved by the RD; however, it is competitive among bureaus and is based on proposed projects submitted through the National Fire Plan Operations and Reporting System (NFPORS) and evaluated using common criteria. Funds may not be immediately available.
11. The Park ES or BAR coordinator is responsible for tracking funding expenditures and ensuring funds are spent within the current timeframes established in Reference Manual 18 (Chapter 19) or superseding guidance. The Park is responsible for coordinating expenditures with the SERO Budget Analyst.
12. Following the signed plan, the Park is responsible for requesting additional year BAR funds through the National Fire Plan Operations and Reporting System (NFPORS) by September 28.
13. For each post-wildfire project, the park must prepare annual and final reports that document total funding approved and expended; treatments; and treatment effectiveness as determined through monitoring.

- i. Annual reports are due to the SER Region Post Wildfire Coordinator by September 15 of each year until the project expires.
- ii. Additional funds will not be approved until accomplishment and monitoring reports are submitted.

Appendix N-Serious Injury or Death Procedure

Information on Serious Injury or Death Procedures is covered in detail in BICY's Employee Handbook and Duty Officer Guide and.

Serious Injury or Death Procedure

Wildland fire management programs routinely expose firefighters to risks. Risks are minimized through effective safety programs integrated into standard operating procedures for all wildland fire management operations. In spite of these efforts serious injuries and sometimes fatalities occur. At these times it is important that managers follow the procedures outlined in PMS 926 "Agencies Administrator's Guide to Critical Incident Management".

Agency administrators should review this guide with their fire management staff annually, ensuring that pre-work is accomplished, and standard operating procedures are known prior to the field season.

A current copy of the guide and procedures is found at: *Loss of Human Life Response Handbook* https://www.nps.gov/policy/LOHL_MasterDocument_NLCFinal_08-21-13_optimalsize.pdf

It is important that administrators use the current version of the guide.

Critical Incident Stress Management

Critical Incident Stress Management (CISM) provides an organized approach to the management of stress responses for personnel having been exposed to a traumatic event in the line of duty. The use of CISM may decrease post-traumatic stress disorder, acute stress disorder, workman's compensation claims, fatalities, injuries, and suicide. The use of CISM does not prevent an employee from seeking individual consultation through the Employee Assistance Program or a trained Peer Supporter.

Appendix O-Safety Program

The Fire Management Program will adhere to the general safety requirements as listed in BICY's Safety Plan, as well as the specific fire-related requirements outlined in the current Inter-agency Standards for Fire and Fire Aviation Operations (Red Book), RM-18, the Incident Response Pocket Guide (IRPG), and fire-related JHAs.

Appendix P-Smoke Management Plan

The smoke management program at BICY is generally discussed in Section 3.5 Air Quality. Prescribed fire projects will be developed utilizing the guidelines contained in the Interagency Prescribed fire: Planning and Implementation Procedures Reference Guide 2006 with specific smoke management recommendations incorporated from PMS 420-2: NWCG Smoke Management Guide for Prescribed Fire 2018.

NPS fire managers coordinate prescribed fire project timing with other jurisdiction's prescribed fire projects in a manner designed to reduce smoke impacts. At this time there are no smoke management requirements in effect.

Planning

1. Smoke management mitigation measures will be included in each prescribed fire plan. A smoke contingency plan will also be included, and arrangements made prior to ignition to ensure designated resources are available if needed to implement the mitigation measures.
2. Smoke trajectory maps will be developed, and sensitive targets identified.
3. A spot weather forecast will be requested the day of the prescribed fire from the National Weather Service (NWS) prior to ignition of any prescribed fire.
4. Advanced notice will be provided to the local fire district, and the district will be provided the following information:
 - i. Location
 - ii. Fuels to be treated
 - iii. Proposed ignition time
5. Media releases will be used to inform the public and park visitors about wildland fire, informing them about potential smoke impacts, closures, or restrictions. Signs will be used throughout the park to inform visitors, and caution signs will be installed where smoke may impact transportation corridors inside and outside the park. If necessary, the superintendent will authorize temporary closure of some areas to the public and visitors.

Avoidance

Prescribed fire will not be initiated unless fuel and weather conditions are within the prescription parameters in the Prescribed Fire Plan.

Reduction

1. If the smoke dispersion indices are predicted to be within the prescription parameters of the Prescribed Fire Plan, the prescribed fire can be initiated If the

amount of smoke produced is a concern, the burn boss should consider breaking the prescribed fire unit into smaller parcels or waiting until better smoke dispersal conditions are present.

2. Initiate aggressive mop-up, as needed.
3. Interior fuel breaks may be established to limit the spread of a prescribed fire.
4. Where practical mechanical fuel reduction may be utilized to reduce fuel loading.

Dilution

All prescribed fire projects in the Park will be conducted under adequate smoke dispersion conditions.

Traffic Management and Public Safety

1. Prescribed fire plans will include requirements for posting smoke warning signs along roadways, monitoring roadway visibility, evaluating the potential for overnight smoke impacts, and assigning evening road patrols as needed.
2. If smoke from a fire impacts roadway visibility to a level that cannot be mitigated by burn personnel, the following actions will be initiated:
 - i. NPS Rangers will be requested to respond to the scene to provide for public safety.
 - ii. If a park road is involved, the Ranger(s) on scene will determine what type of traffic control is needed and take immediate action. Additional rangers and/or fire management staff will assist as needed.
 - iii. The appropriate State Highway Patrol and/or Department of Transportation and the appropriate county law enforcement agency will be notified of the smoke incident and requested to dispatch personnel to the scene to provide for public safety. NPS Rangers will assist as needed.

The following is a list of common smoke mitigation measure used by fire management.

Smoke mitigation measures include:

1. Burn Concentrations – sometimes concentrations of fuels can be burned rather than using fire on 100 percent of an area requiring treatment. The fuel loading of the areas burned using this technique tends to be high. This can also apply to areas that have “jackpots” of fuels or broadcast slash burns (slash that has not been piled).
2. Isolate fuels – large logs, snags, deep pockets of duff, sawdust piles, squirrel middens, or other fuel concentrations that have the potential to smolder for long periods of time can be isolated from burning (reducing the area burned). This can be accomplished by several techniques including: 1) constructing a fireline around fuels of concern, 2) not lighting individual or concentrated fuels, 3) using natural

barriers or snow, 4) scattering the fuels, and 5) spraying with foam or other fire-retardant material. Eliminating these fuels from burning is often faster, safer, and less costly than mop-up, and allows targeted fuels to remain following the prescribed burn.

3. Mosaic burning – landscapes often contain a variety of fuel types that are noncontiguous and vary in fuel moisture content. Prescribed fire prescriptions and lighting patterns can be assigned to use this fuel and fuel moisture non-homogeneity to mimic natural wildfire and create patches of burned and non-burned areas or burn only selected fuels. Areas or fuels that do not burn do not contribute to emissions.
4. Site Conversion – natural site productivity can be decreased by changing the vegetation composition lessening the need to burn as often.
5. Having high moisture content in non-target fuels – this can result in only the fuels targeted being dry enough to burn. High moisture in large woody fuels – burning when large-diameter woody fuels (three plus inch diameter or greater) are wet can result in lower fuel consumption and less smoldering.
6. Mass ignition/shortened fire duration/aerial ignition – “mass” ignition can occur through a combination of dry fine-fuels and rapid ignition, which can be achieved through the use of a helitorch. The conditions necessary to create a true mass ignition situation include rapid ignition of a large open area with continuous dry fuels.
7. Rapid mop up – rapidly extinguishing a fire can reduce fuel consumption and smoldering emissions somewhat, although this technique is not particularly effective at reducing total emissions and can be expensive.
8. Burn before precipitation – scheduling a prescribed fire before a precipitation event will often limit the consumption of large woody material, snags, stumps, and organic ground matter, thus reducing the potential for a long smoldering period and reducing the average emission factor.
9. Burn before green up – burning in cover types with a grass and/or herbaceous fuel bed component can produce fewer emissions if burning takes place before these fuels green-up for the year.
10. Burn before litter fall– under burning before deciduous trees and shrubs drop their leaves reducing ground litter that contributes extra volume to the fuel bed.
11. Backing fire – flaming combustion is cleaner than smoldering combustion. A backing fire takes advantage of this relationship by causing more fuel consumption to take place in the flaming phase than would occur if a heading fire were used. Backing fires do burn with more heat intensity, and resource objectives must be balanced with smoke concerns.
12. Dry conditions – burning under dry conditions increases combustion efficiency and fewer emissions may be produced.

Appendix Q-Minimum Impact Strategy and Tactics

A more in-depth discussion of Minimum Impact Strategy and Tactics is found in NPS Reference Manual 18 Chapter 2 *Managing Wildland Fire*, Exhibit 2: *Minimum Impact Strategy and Tactics*

A link to the NPS fire management website and NPS Reference Manual 18 follows:

<https://www.nps.gov/fire/wildland-fire/about/nps-reference-manual-18.cfm>

Specific MIST procedures at BICY are:

1. Any off-road use of vehicles, plows and other mechanized equipment must be approved by the Superintendent
2. Any use of retardant will be reviewed by an assigned resource advisor and approved by the Superintendent
3. Consider during mop-up: Cold-trailing fireline, using wetline or sprinklers as control line, using natural or human made barriers to limit fire spread, burning out sections of fireline, limiting width and depth of fireline necessary to limit fire spread
4. Locate pumps and fuel sources to minimize impacts to streams
5. Minimize cutting of trees and snags to those that pose safety or line construction concerns, prune lower branches to remove ladder fuels as opposed to falling the tree.
6. Minimize bucking of logs to check/extinguish hot spots; preferably roll logs to extinguish and return logs to original position: scatter branches and other debris in accordance with guidelines contained in the Fireline Handbook (PMS 410-1)
7. Utilize extensive cold-trailing and/or hot-spot detection devices along perimeter
8. Use mop-up kits and other low-pressure nozzles setting to prevent erosion

Tactics and equipment used for suppression and for holding operations on prescribed fires will be selected to minimize the impact commensurate with values at risk. Use of bull dozers or tractor plows is prohibited except with the permission of the Superintendent. In areas closed to public motorized use, vehicles will only be used when necessary for protection of sensitive resources, life, safety and private property. Snag falling will be limited to those trees necessary to secure control lines.

Appendix R-FMP Framework: Section Crosswalk Tracking Form

Spatial FMP Crosswalk									
BICY	New Location of NPS Framework (2019 version) Information Utilizing Spatial FMP Format								
2019 NPS FMP Framework Section	Interactive Map and Topic Tab Name	Text Under Topic Tab	Table Under Topic Tab	Chart or Graph Under Topic Tab	Text in DOC	Table/Figure in DOC	Appendix to DOC	EA/EIS	Link
1. Introduction, Land Management Planning, and Communication	NA	NA	NA	NA	X	NA	NA	NA	NA
1.1 Program Organization	NA	NA	NA	NA	X	NA	NA	NA	NA
1.2 Environmental Compliance	NA	NA	NA	NA	X	NA	NA	X	NA
1.3 BICY Resource Management Planning	Interactive Map: <i>Park Resources</i> Tab	X	NA	NA	X	NA	NA	NA	NA
1.4 Collaborative Planning	Interactive Map: <i>Fire Management Overview</i> Tab	X	NA	NA	X	X	NA	NA	NA
1.5 Communication and Education	NA	NA	NA	NA	X	NA	X	NA	NA
2. Wildland Fire Program Goals	NA	NA	NA	NA	X	NA	NA	NA	NA
2.1 Goals	Interactive Map: <i>Fire Management Overview</i> Tab	X	X	NA	X	NA	NA	NA	X

Spatial FMP Crosswalk									
BICY	New Location of NPS Framework (2019 version) Information Utilizing Spatial FMP Format								
2019 NPS FMP Framework Section	Interactive Map and Topic Tab Name	Text Under Topic Tab	Table Under Topic Tab	Chart or Graph Under Topic Tab	Text in DOC	Table/Figure in DOC	Appendix to DOC	EA/EIS	Link
2.2 Objectives	Interactive Map: <i>Fire Management Overview</i> Tab	X	X	NA	X	NA	NA	NA	NA
2.3 Approved Wildland Fire Management Actions	NA	NA	NA	NA	X	NA	NA	NA	NA
2.3.1 Management of Wildfires	Interactive Map: <i>Park Resources, Fuels Management and Preparedness</i> Tabs Mapsheet 3 <i>Operations</i>	X	NA	NA	X	NA	NA	NA	NA
2.3.2 Management of Fuels Treatments	Interactive Map: <i>Park Resources and Fuels Management</i> Tabs	X	X	NA	X	NA	NA	NA	NA
2.3.3 Defensible Space	NA	NA	NA	NA	X	NA	NA	NA	X
3. Wildland Fire Operational Guidance	NA	NA	NA	NA	X	NA	NA	NA	NA
3.1 Response to Wildfire	Interactive Map:	X	NA	NA	X	NA	X	NA	X

Spatial FMP Crosswalk									
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	<i>Preparedness Tab</i>								
3.1.1 Wildfire Response Planning	NA	NA	NA	NA	X	NA	X	NA	X
3.1.1.1 Expected Fire Behavior	Interactive Map: <i>Fuels Management Tab</i>	X	X	NA	X	NA	NA	NA	NA
3.1.1.2 MIST	NA	NA	NA	NA	X	NA	X	NA	X
3.1.2 Wilderness	NA	NA	NA	NA	X	NA	X	NA	X
3.1.3 Wildfire Response Objectives	Interactive Map: <i>Fire Management Overview Tab</i>	X	NA	NA	X	NA	NA	NA	NA
3.1.4 Wildfire Response Procedures	NA	NA	NA	NA	X	NA	NA	NA	NA
3.1.4.1 Decision Support	Interactive Map: <i>Fire Management Overview, Park Resources and Fuels Management Tabs</i>	X	NA	NA	X	NA	X	NA	X
3.1.4.2 Initial Response Procedures	Interactive Map: <i>Preparedness Tab</i>	X	NA	NA	X	NA	X	NA	NA

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3.1.4.3 Transition to Extended Response	NA	NA	NA	NA	X	NA	NA	NA	NA
3.2 Fuels Treatments	Interactive Map: <i>Fuels Management</i> Tab	X	NA	NA	X	NA	NA	NA	NA
3.2.1 Fuels Planning	Interactive Map: <i>Fuels Management</i> Tab	X	NA	NA	X	NA	NA	NA	NA
3.2.1.1 Project Prioritization	NA	NA	NA	NA	X	NA	NA	NA	NA
3.2.1.2 General Fuels Planning Implementation Procedures	NA	NA	NA	NA	X	NA	NA	NA	NA
3.2.1.3 Multi-year Fuels Treatment Plan	Interactive Map: <i>Fuels Management</i> Tab	NA	NA	X	X	NA	X	NA	X
3.2.1.4 Non-Fire Fuels Treatments	NA	NA	NA	NA	X	NA	X	NA	NA
3.2.2 Fuels Management Goals and Objectives	Interactive Map: <i>Fuels Management</i> and <i>Park Resources</i> Tabs	X	NA	NA	X	NA	NA	NA	NA
3.2.3 Prescribed Fire Staff Responsibilities	NA	NA	NA	NA	X	X	NA	NA	NA

Spatial FMP Crosswalk									
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3.3 Preparedness	NA	NA	NA	NA	X		NA	NA	NA
3.3.1 Preparedness Activities	Interactive Map: <i>Preparedness</i> Tab	X	X	X	X	NA	NA	NA	NA
3.3.1.1 Coordination and Dispatching	NA	NA	NA	NA	X	NA	NA	NA	X
3.3.1.2 Duty Officer	NA	NA	NA	NA	X	NA	X	NA	NA
3.4 Post Fire Programs and Response	NA	NA	NA	NA	X	NA	NA	NA	NA
3.5 Air Quality/Smoke Management	Interactive Map: <i>Air, Smoke & Monitoring</i> Tab	X	NA	NA	X	NA	X	NA	X
3.5.1 Air Quality Issues	NA	NA	NA	NA	X	NA	X		X
3.5.2 Smoke Management Activities	NA	NA	NA	NA	X	NA	X		X
3.6 Data and Records Management	NA	NA	NA	NA	X	NA	NA	NA	NA
3.6.1 Wildfire Report	NA	NA	NA	NA	X	NA	NA	NA	NA
3.6.2 Geospatial Data Management for	NA	NA	NA	NA	X	NA	NA	NA	X

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Wildland Fire Projects									
3.6.3 Wildland Fire Qualifications Management	NA	NA	NA	NA	X	NA	X	NA	NA
4. Program Monitoring and Evaluation	NA	NA	NA	NA	X	NA	NA	NA	NA
4.1 Monitoring	NA	NA	NA	NA	X	NA	X	NA	X
4.2 Science and Climate Change	NA	NA	NA	NA	X	NA	NA	NA	NA
4.2.1 Science	NA	NA	NA	NA	X	NA	X	NA	NA
4.2.2 Climate Change	NA	NA	NA	NA	X	NA	NA	NA	NA
4.3 Annual Program Evaluation and Fire Management Review Process	NA	NA	NA	NA	X	NA	NA	NA	NA

Appendix S-Minimum Requirements Decision Guide Workbook

A minimum requirements decision guide workbook (MRA) has been prepared for the Wilderness portions of BICY. The complete document is located on the BICY Shareall drive at the following address:

Z:\03-Fire Management Planning\FMP