

Cumberland Island National Seashore




North Cut Rx, July 2019

Fire Management Plan January 2015 Updated 2021

Prepared By: 
Fire Management Officer
Cumberland Island National Seashore

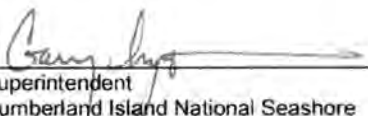
11/6/14
Date

Recommended By: 
Chief, Resource Management
Cumberland Island National Seashore

7 NOV 2014
Date

Reviewed By: 
Regional Fire Management Officer
Southeast Region, NPS

29 Jan. 2015
Date

Approved By: 
Superintendent
Cumberland Island National Seashore

6 FEB 2015
Date

FIRE MANAGEMENT PLAN (FMP) ANNUAL UPDATE CHECKLIST

PARK NAME: Cumberland Island National Seashore

YEAR OF UPDATE: 2021

National Park Service (NPS) Policy Requirement. Fire management plans do not expire and remain in effect until superseded by a new or revised plan. However, annual updates are required in order for the plan to be valid for the current year. Changes in the step-up plan, FMP terminology, cooperative agreements and the multi-year fuels treatment plan are examples of FMP sections that are often updated through the annual review process.

Directions. Please ensure that you are reviewing and updating the current signed FMP. Review the items in the Annual FMP Update Checklist. Where no update is required, check "No Update Needed: Reviewed and Current". If there are updates needed, check "Update Needed: Changes made in FMP" and describe the changes made in the space provided in each row of the checklist and include FMP section/appendix.

Notify the Regional Fire Planner when the Annual FMP Update Checklist and FMP revisions are completed. Once the Annual Update Checklist is completed and all suggested changes have been vetted through the appropriate fire management and park staff, the Superintendent must sign the FMP Annual Update Checklist. All approved changes must then be incorporated in the FMP and the Annual Update Checklist must be added to the FMP immediately following the cover-page.

The revised FMP, including the signed Annual Update Checklist, must be uploaded to the [IN2 Managing Fire - Fire Management Plans and Compliance Documents - All Documents \(sharepoint.com\)](#).

| ANNUAL FIRE MANAGEMENT PLAN UPDATE CHECKLIST | | No Update Needed: Reviewed & Current | Update Needed: Changes made in FMP |
|--|---|--------------------------------------|------------------------------------|
| 1 | Are updates needed for the Delegation of Authority from Park Superintendent to Fire Staff? <i>Describe updates made to the Delegation of Authority:</i> Current Delegations of Authority were included in Appendix G Preparedness Elements. | | X |
| 2 | Are updates needed for the FMP to conform to NPS and DOI fire management policy such as RM 18 and Redbook? <i>Describe revisions made including FMP section number/appendix:</i> | X | |
| 3 | Are updates needed for the local cooperative agreements, annual operating plans, inter-park, or other agreement(s) for Wildland Fire? <i>Describe revisions made including FMP section number/appendix:</i> Updated Annual Operating Plans were included in Appendix I Interagency Agreements. | | X |

| | | | |
|---|--|---|---|
| 4 | <p>Are updates needed for the preparedness planning elements (e.g. Step-up Plan, Response Plan or other preparedness planning elements)? <i>Describe revisions made including FMP section number/appendix:</i></p> <p>Updates to the Step-Up Plan in the FMP and Appendix G were included using the last 10 years RAWs data. Contact information was updated in Appendix G Preparedness Elements and Appendix J Duty Officer Manual.</p> | | X |
| 5 | <p>Are updates needed for the Duty Officer (DO) Roles and Responsibilities and have updates been vetted by the Park staff, Superintendent and FMO? <i>Describe revisions made including FMP section number/appendix:</i></p> | X | |
| 6 | <p>Are updates needed for the Notification Procedures and Emergency Contact List? <i>Describe revisions made including FMP section number/appendix:</i></p> <p>Contact information was updated in Appendix G and Appendix I</p> | | X |
| 7 | <p>Are fuel treatments addressing park treatment objectives and FMP programmatic goals as indicated by the current annual fire effects monitoring report or other monitoring data? (If needed, the update should document any program adjustments or decisions made as a result of reviewing monitoring data or operational concerns). <i>Describe any revisions made including FMP section number/appendix:</i></p> | X | |
| 8 | <p>Are updates to the multi-year fuels treatment plan needed? Appendix E Fuel Treatment Plan was updated to planned treatment FY22-FY26.</p> | | X |
| 9 | <p>Are there any updates not captured in questions 1 - 8? <i>Describe any revisions including FMP section number/appendix:</i></p> <p>FY21 CUIS FMP Update Errata Sheet documents all updates not mentioned above. Most are minor grammatical changes and updated fire policy.</p> | | X |

FMP/NEPA REVISION TRIGGERS

Over time, an FMP and its supporting NEPA document may become outdated due to changes in policy or circumstances in the park and thus require revision.

The following questions will help you to determine whether FMP revisions and a new environmental compliance process needs to be initiated. Some items may require discussions with staff from other divisions to complete. An FMP can be amended through a categorical exclusion (CE), environmental assessment (EA) or environmental impact statement (EIS) depending on the complexity of the issues involved.

If you answer YES to any of the questions below, additional compliance may be necessary. Consult with your

Regional Fire Planner and Park Compliance Specialist to determine if additional NEPA and/or other compliance (section 7, section 106, etc.) will be necessary.


In the space to the right, please list the current FMP NEPA compliance with date: EA FONSI 2014

| FMP/NEPA REVISION TRIGGERS | | YES | NO |
|----------------------------|---|-----|----|
| 1 | Is the park strategy for managing wildfires and implementing fuel treatments <u>inconsistent</u> with the FMP and NEPA documents? | | X |
| 2 | Are FMP goals and objectives <u>inconsistent</u> with newer, approved park planning documents (Foundation Document, GMP, RSS, etc.)? <i>If FMP goals and objectives are inconsistent with park planning documents, please provide a brief description of the inconsistency or conflict:</i> | | X |
| 3 | Have there been changes in the status of cultural resources, historic properties and/or sensitive species in the park that could affect FMP implementation? <i>If yes, consult with appropriate specialist.</i> | | X |
| 4 | Since FMP approval or update, have there been changes in park policy or legal requirements that require changes to the FMP and supporting compliance documents? <i>Explain if yes:</i> | | X |
| 5 | If new lands with burnable vegetation have been added to the park since the last FMP approval or FMP NEPA review/amendment: <ul style="list-style-type: none"> • Is the new land going to have a fuels treatment plan this year? • Is management of the new land different from the rest of the unit? • Does the new land have any threatened or endangered species? • Does the new land have any cultural resources and/or historic properties? <i>Note: if you answered YES to any of these questions, consult your regional fire planner to determine if additional environmental compliance is needed for the area.</i> | | X |

Prepared by: RICHARD SINKOVITZ
Fire Management Officer

Digitally signed by RICHARD SINKOVITZ
Date: 2021.05.13 10:31:29 -0400

Date:

Approved by: 
Superintendent

Date: *17 May 2021*

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1. INTRODUCTION

1.1 Purpose and Need for the Fire Management Plan

In accordance with National Park Service policy ([*Director's Order #18: Wildland Fire Management*](#)), Cumberland Island National Seashore is required to have an approved Fire Management Plan (FMP):

“Each park with burnable vegetation must have an approved Fire Management Plan that will address the need for adequate funding and staffing to support its fire management program. Parks having an approved Fire Management Plan and accompanying National Environmental Policy Act (NEPA) compliance may utilize wildland fire to achieve resource benefits in predetermined fire management units. Parks lacking an approved Fire Management Plan may not use resource benefits as a primary consideration influencing the selection of a suppression strategy, but they must consider the resource impacts of suppression alternatives in their decisions.”

The FMP serves as a detailed and comprehensive program of action to implement fire management policy principles and goals, consistent with the unit’s resource management objectives. This plan outlines the fire management program at Cumberland Island National Seashore (hereinafter referred to as the “Seashore” or by NPS alpha code “CUIS”).

The CUIS FMP is supplemented by an ArcGIS Online (AGOL) Storymap. The storymap is available to NPS AGOL user and can be accessed at this [link](#). The storymap is intended to be the source for the most current spatial representation of the CUIS FMP goals, preparedness activities, accomplishments, fire history, and fuel treatment plans.

The CUIS fire management program, guided by federal policy and the seashore’s resource management objectives, will serve to accomplish the following:

- Consider firefighter and public safety (always the highest priority)
- Protect life, property, and natural and cultural resources
- Provide consistent planning and operational guidance to the Superintendent and Fire Management Officer for all fire related activities
- Provide stakeholders with a concise description of why and how fire will be managed in the park
- Provide park managers a concise communications tool for understanding actions, roles and responsibilities
- Provide the connection between park wide goals and objectives and incorporate them into the fire management actions and decisions.
- Document fire program logic and objectives

The preceding CUIS Fire Management Plan was completed and approved in 2004 and supported by National Environmental Policy Act (NEPA) compliance. The 2004 FMP was updated for two primary reasons;

- 1) Research and knowledge of Seashore lands and resources indicate more active management of vegetation is necessary to protect, maintain, and perpetuate Seashore values.
- 2) As of 2015 the NPS will no longer base management actions on the Hazardous Fuels Categorical Exclusion (CE) which will invalidate many of the activities in the 2004 FMP.

The NPS includes more active fire management strategy activities in this new FMP such as prescribed burning, wildfire managed for resource objectives, and targeted herbicide use. The updated FMP better protects island visitors, residents, structures, facilities, and natural and cultural resource values; addresses the need to restore fire to its natural role in the ecology of Cumberland Island; and updates language in the plan to follow National Fire Policy terminology changes. Seashore fire management includes planning, preparedness, prevention, suppression, restoration and rehabilitation, and education; all are conducted on an interagency basis and frequently involve cooperators and partners.

1.2 General Description of the Park

1.2.1 Background

Cumberland Island National Seashore was created by Congress in 1972 (Public Law (PL) 92-536, codified at 16 U.S.C. 459i et seq. (the Act) “to provide for public outdoor recreation use and enjoyment of certain significant shoreline lands and waters of the United States and to preserve related scenic, scientific, and historical values”. Section 6 of the Act states that “Except for certain portions of the seashore deemed to be especially adaptable for recreational uses... the seashore shall be permanently preserved in its primitive state”. On September 8, 1982, much of the northern half of Cumberland Island was designated as wilderness or potential wilderness to be managed as part of the National Wilderness Preservation System (PL 97-250, as amended by PL 108-447, 16 U.S.C. 113).

Cumberland Island is the southernmost barrier island along the Georgia coastline in Camden County, and is bounded by the Cumberland River on the west, St. Andrew’s Sound on the north, the Atlantic Ocean on the east, and Cumberland Sound on the south (Figure 1). The island is 17.5 miles long, ranging from just over a half mile to three miles wide, and totals 36,415 acres of which 16,850 are marsh, mud flats, and tidal creeks. There are no roads or bridges that connect the island with the mainland; access is solely by boat or, on a more uncommon basis, aircraft. In addition to Cumberland Island, Little Cumberland Island is included within the legislated boundaries of the Seashore. However, all land on Little Cumberland is privately owned, fee-simple property and is not managed by the NPS. The NPS also has facilities on the mainland in St. Marys, Georgia, including the visitor center, ferry landing, headquarters building, and museum/curatorial building.

Cumberland Island supports multiple diverse ecosystems of which all are fire adapted. Island vegetation includes marshlands, live oak forests, pine stands, palmetto, swamps, and coastal scrub-shrub species. Visitors can see white-tailed deer, raccoon, river otter, bobcat, alligators, manatees, and an impressive variety of birds. The island provides excellent nesting habitat for loggerhead sea turtles. The Seashore’s undeveloped natural areas attract visitors for activities such as swimming, camping, backpacking, fishing, hiking, bird and wildlife watching and beachcombing.

For more than 4,000 years human visitors and residents have interacted with and relied on the natural resources of Cumberland Island. Numerous shell middens throughout the island provide the most conspicuous clues to a complex American Indian population that once prospered here. Buildings, landscape features, structural ruins, artifact and archival collections, and archeological sites depict a historical record of the island through colonial times, the plantation era, the estate period, and to the present

day. These pieces of the past provide a compelling backdrop to the island that draws visitors into the stories of this remote place



Figure 1: Cumberland Island National Seashore and Vicinity

1.2.2 Management Environment

1.2.2.1 Land ownership, significant resources, mission, and management direction

The Seashore is a complex mix of management areas and ownership that includes Wilderness, National Register historic districts, private property, reserved estate property, and land owned by other federal entities or the State of Georgia. Most of the Seashore's upland acreage is owned and administered by the NPS.

The Cumberland Island Wilderness is on the northern half of the island and encompasses approximately 9,886 acres that are legislatively designated as wilderness and an additional 10,500 acres authorized as potential wilderness. In total, approximately 20,386 acres at the Seashore are managed to protect wilderness character, which represents approximately 56% of the upland and marsh within the Seashore's boundary. The Cumberland Island wilderness legislation mandates that the Seashore's designated wilderness will be permanently preserved in its wilderness condition. The wilderness area includes most of the Seashore north of Stafford Plantation, except for the central and eastern portions of the High Point-Half Moon Bluff Historic District and the uplands on Little Cumberland Island (figure 1). In 2004, legislation excluded three 25-foot-wide road corridors from the wilderness along the Main Road, Plum Orchard Spur, and North Cut Road. Congress directed that these corridors be maintained for continued vehicle use.

In addition to Wilderness lands the Seashore also includes seven properties listed on the National Register of Historic Places (NRHP): Dungeness Historic District, Stafford Plantation Historic District, Plum Orchard Historic District, Table Point Archeological District, Rayfield Archeological District, High Point – Half Moon Bluff Historic District, and Main Road (figure 4). Greyfield, a privately-owned tract, is also on the NRHP. The historic districts are dispersed throughout the island and include features such as archeological sites, cultural landscapes, historic structures, and structural ruins. All Historic Districts are within the wildland-urban interface.

Land ownership on Cumberland Island includes fee-simple, private properties held by nine different entities with individual tracts ranging from 10 acres to 210 acres. These parcels are generally concentrated in the area between Sea Camp and Greyfield as well as the Stafford area. One of the parcels is a 210-acre tract owned by The Nature Conservancy. In addition to the Cumberland Island tracts, all the property on Little Cumberland Island is privately held and is not managed by the NPS. All the activities and operations on the smaller island are under the direction of the Little Cumberland Island Homeowners Association. The Georgia Forestry Commission and Camden County Fire and Rescue share fire protection responsibilities on Little Cumberland and CUIS serves as a cooperating agency as needed in the event of fire. The private tracts on both islands contain residences and other structures and are within the wildland-urban interface.

Cumberland Island also contains areas that constitute what are often referred to as reserved estates or reserved properties. The park's enabling legislation contained a provision that in the process of NPS acquisition of improved properties, as a condition of the acquisition, the previous owner(s) were permitted to retain a right of use and occupancy for residential purposes. Cumberland Island has ten retained rights agreements remaining in place and they are all life estates. These properties are scattered throughout the island and range in size from one-third of an acre to 186 acres. All the tracts include residences and other structures and are within the wildland-urban interface.

Other property interests on the island include the State of Georgia, which owns extensive marsh land on the west side of the island, all saltwater creeks, and all land below the mean high-tide line (which would include the beach). In addition, the U.S. Navy owns Drum Point Island which is west of the Sea Camp area. And the U.S. Army Corps of Engineers owns the marsh area west of Beach Creek and includes Raccoon Keys.

With respect to significant resources, mission, and management direction, the Seashore's 2013 Foundation Document sets the benchmarks through the defined Park Purpose, Park Significance, and Fundamental Resources and Values:

Park Purpose: Cumberland Island National Seashore maintains the primitive, undeveloped character of one of the largest and most ecologically diverse barrier islands on the Atlantic coast, while preserving scenic, scientific, and historic values and providing outstanding opportunities for outdoor recreation and solitude.

Park Significance:

- Cumberland Island National Seashore is one of the Atlantic Coast's most ecologically diverse barrier islands, where local variations in environmental conditions create extensive and unique communities across the island; from the beach and dune system on the east, through the interdune, freshwater wetland, and upland forest habitats in the interior, to the salt marsh on the west.
- Cumberland Island National Seashore contains a rich concentration of cultural resources that recount 4,000 years of human habitation and include a remarkable diversity of ethnic and social backgrounds. These pieces of the past – archeological features, landscapes, architecture, artifact collections, people - cast a compelling backdrop to the island that draws visitors into the stories of this remote place.
- With almost 18 miles of pristine beach and one of the largest oak maritime forests remaining in the United States, Cumberland Island provides an unparalleled visitor experience.
- Cumberland Island National Seashore protects the largest designated wilderness area on an East Coast barrier island.
- Cumberland Island National Seashore's physical isolation provides visitors opportunities to experience outdoor recreation in an uncrowded, undeveloped setting. Moreover, this isolation helps to preserve and protect the island's fragile natural and cultural resources.

Fundamental Resources and Values:

- National register archeological districts and other significant archeological resources
- National register historic districts and their contributing features
- Intact barrier island system driven by coastal geological and biological processes
- Live oak maritime forests
- Pristine beach
- Wilderness
- Primitive and undeveloped character
- An uncrowded setting that provides opportunities for both passive and active outdoor recreation

1.2.2.2 Overview of Physical and Biotic Characteristics of the Park

1.2.2.2.1 Soils

Fine sand soils dominate Cumberland Island, except for the silty clay soils of the salt marsh. Upland/interior soils can be broken into three major drainage classes: xeric (dry), mesic (moist), and hydric (wetland) (Figure 2). The driest, most xeric sites are underlain by Cainhoys fine sand soils totaling approximately 2,104 acres. These sites are found on the flat to slightly rolling topography of the bluffs overlooking the Intracoastal Waterway, and on elevated north-south ridges in the center of the island. Mesic sites encompass about 7,536 acres on the island and are composed of Mandarin fine sand and Pottsburg sand soils. These soils occur on broad flats and depressions up and down the island interior. Rutlege fine sand (1,321 acres) is found in depressions and drainages that form wetland areas. The ridge and swale system that spans the length of the island's east side is composed of the Fripp-Duckston soil complex (4,401 acres). The xeric dune ridge component of the complex is made up of Fripp fine sands and Duckston sands are found in the poorly drained swale features.

1.2.2.2.2 Air Quality

The Seashore is designated as a class II air shed under the 1977 amendments to the Clean Air Act. Under class II, modest increases in air pollution are allowed beyond baseline levels for particulate matter, sulfur dioxide, nitrogen and nitrogen dioxide, provided that the national ambient air quality standards, established by the Environmental Protection Agency (EPA), are not exceeded.

Cumberland Island does not have an air quality (AQ) monitoring station in any capacity and no site-specific data is available. However, there are monitoring sites with varying capabilities in Brunswick and Okefenokee National Wildlife Refuge in Georgia, as well as Jacksonville, Florida. NPS air quality reporting for Cumberland Island is based on and interpolated from these and other regional sites. The most recent NPS condition assessments for four key air quality indicators are based on data collected from 2005-09, and the trend assessments are based on 2000-09 data:

| Air Quality Parameter | Condition | Trend |
|--------------------------------|---------------------|----------------------|
| Visibility | Significant concern | Improving |
| Ozone | Moderate concern | No discernible trend |
| Sulfur wet deposition | Significant concern | Not available |
| Nitrogen wet deposition | Moderate concern | Not available |

Potential sources of air pollutants in the vicinity of the park include wood pulp and paper industries in Fernandina Beach, Florida and Brunswick, Georgia, as well as the major metropolitan center of Jacksonville, Florida. Areas that could be affected by smoke from wildland fires in the park include the Intracoastal Waterway, Kings Bay Naval Submarine Base, adjacent population centers of various sizes, and nearby Interstate 95, a major route for north-south traffic.

CUIS has three monitoring stations that collect weather data to some extent. These include the Remote Automatic Weather Station (RAWS) near High Point on the island's north end, the NOAA Climate Reference Network station located mid-island at Stafford Field, and the USGS Real-Time Water Quality station located at the Sea Camp Dock on the south end. Monitoring parameters vary from site to site and may/may not include air temperature, precipitation, wind speed and direction, solar radiation, humidity, and more (RAWS fire weather).

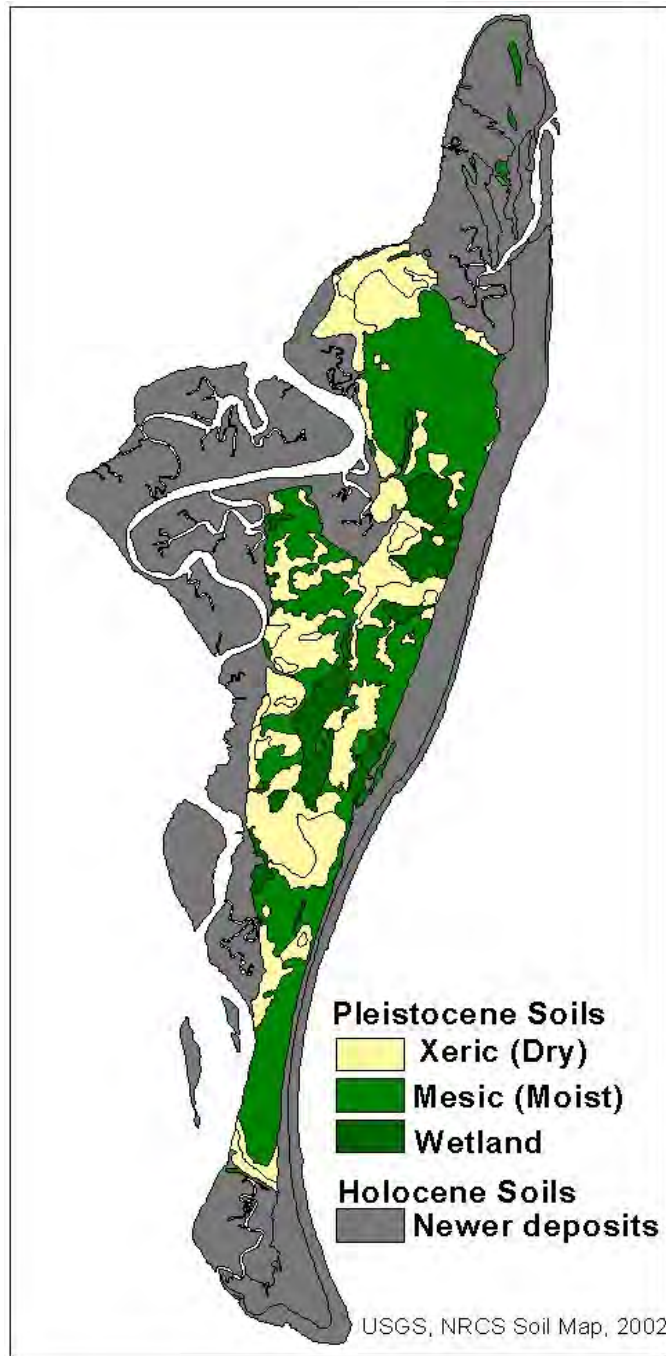


Figure 2: Soils of Cumberland Island

1.2.2.2.3 Water Resources

Cumberland Island has the largest and most diverse system of wetlands on any of Georgia's barrier islands (Hillestad and others, 1975). In addition to more than 16,500 acres of salt marshes, mud flats, and tidal creeks, there are more than 2,500 acres of freshwater wetlands that range from permanent and semi-permanent ponds to seasonal wetland areas including emergent, scrub/shrub, and forested palustrine areas. Many of the wetlands on Cumberland Island, as well as those on other large barrier islands of the

southeastern and Gulf coasts of the U.S., are associated geomorphically with dune and swale topography (Odum and Harvey, 1988). These interdunal wetlands are present where (1) dune and swale topography has persisted since at least the middle to late Holocene (2,000 to 5,000 years before present), (2) a lens of fresh ground water intersects the bottoms of the swales, and (3) extensive flooding by seawater is infrequent (Odum and Harvey, 1988). Many of these freshwater wetlands are in swales between dunes and result from trapping rainwater in the narrow areas between dunes (Hillestad and others, 1975) or from ground-water discharge into closed or nearly closed surface depressions (Hillestad and others, 1975). Other major freshwater wetlands on Cumberland Island include those associated with low-lying areas in interior portions of the island and areas adjacent to estuaries on the northern and southern portions of the island (figure. 2). Intertidal emergent wetlands on the western side of the island are the most extensive wetlands on Cumberland Island.

Freshwater wetlands increase biodiversity on barrier islands by providing habitat for animals such as frogs, salamanders, water snakes, turtles, and aquatic mammals—all of which are largely absent from barrier islands lacking freshwater habitats (Bellis, 1995). Barrier-island freshwater wetlands commonly provide the only dependable source of water for upland fauna such as whitetail deer and feral horses and hogs. In addition, wetlands provide habitat for aquatic plants, aquatic invertebrates, and fishes, as well as nesting, feeding, and roosting areas for wading and shore birds. Several Federally listed animals, including Brown Pelicans (endangered), Wood Storks (endangered) and the American Alligator (delisted in 1987), are known to use freshwater aquatic habitats on Cumberland Island for portions of their life cycle (Hillestad and others, 1975).

Freshwater wetlands on Cumberland Island occur in a range of physical settings, with varying degrees of permanence and connectivity to seawater. Odum and Harvey (1988) indicated that freshwater interdunal wetlands are rare and fragile resources, occur on several barrier islands in the southeastern U.S., and are sufficiently varied and limited in total area to warrant preservation and management. The integrity and viability of interdunal wetlands and ponds are dependent on protection of the dune and swale systems from erosion and direct alteration and protection of the barrier island's surficial aquifer. Plant communities, wildlife, and aquatic animals are closely linked to the island's wetlands, which provide habitats to some protected species.

Surface-water features and wetlands on Cumberland Island represent a broad range of hydrologic and biologic conditions that may be related to different successional stages. Water-level fluctuations, fire, and changes in salinity due to seawater inundation and to evaporation are perturbations that affect wetland extent, characteristics, and biologic conditions (Hillestad and others, 1975). These somewhat regular perturbations help prevent or slow successional processes that lead to wetlands infilling and disappearing (Hillestad and others, 1975).

Much of the variation in water-quality constituents among studied water bodies on Cumberland Island may be attributed to (1) proximity to the ocean and the relative degree of tidal influence; (2) the amount and type of ground-water and surface-water interactions; and (3) recent and long-term rainfall patterns. Large variations in many constituents including dissolved oxygen, specific conductance, magnesium, potassium, sodium, bromides, chlorides, and sulfates have been observed at Whitney outflow, Lake Retta outflow, and South End Ponds. Variations in water quality at the two outflows were most likely the result of intermittent inflow or inundation by saline water from the Atlantic Ocean. Similarly, variations in water quality of South End Ponds were probably from temporary inundation by saline to brackish water from Cumberland Sound. Maximum concentrations for many ions were measured in water samples collected from the outflows just after Hurricane Floyd (September, 1999) had produced storm surges and coastal

flooding along the eastern U.S.—including Cumberland Island. In contrast to the low-lying, tidal- and storm-surge-affected sites, water from North Cut Ponds, an interior wetland, was markedly more dilute than water from the two outflows and South End Pond 3, and yet quite like rainwater.

Water bodies that are more frequently inundated by saline or brackish water from the Atlantic Ocean or Cumberland Sound—such as the beach outflows and South End Ponds—tend to have water compositions more similar to seawater (with high concentrations of total dissolved solids, sodium, chloride, and sulfate) than water bodies where the primary oceanic influence is from salt aerosols. The relative abundance of major ions and total-dissolved-solids concentrations in surface-water samples collected from water bodies on Cumberland Island provide some insight into potential sources of water and influences on water quality. Major-ion chemistries of water samples from Whitney Lake, Willow Pond, and South End Pond 3 were sodium-chloride dominated, probably indicating influence from direct inundation of marine waters or input from salt aerosol. The remaining wetlands sampled had relatively low total-dissolved-solids concentrations and mixed major-ion chemistries—North Cut Ponds was magnesium–sodium–chloride–sulfate dominated and Lake Retta and the two beach outflows were sodium–calcium–bicarbonate–chloride dominated. The higher percentage of calcium and bicarbonate in surface waters and relatively low total-dissolved-solids concentrations suggest a greater proportion of the water originates from ground-water discharge. In contrast, the major-ion chemistries of wetlands with a higher percentage of sodium and chloride are probably more directly influenced by the ocean via inundation, input from salt aerosol, or rainwater.

1.2.2.2.4 Vegetation

Approximately 500 plant species have been identified on the island, encompassing 22 distinct plant communities and 34 vegetation classifications. Vegetation within seashore boundaries is closely related to soil type, past land use, and fire history. Dry soils on Cumberland Island support vegetation in various stages of succession from open pine stands to mixed oak and pine, to xeric oak hammock. Large hardwoods, particularly live oak (*Quercus virginiana*) and laurel oak (*Q. laurifolia*), occur on many of these sites. Remnant slash pine (*Pinus elliottii*) and longleaf pine (*P. palustris*) still occur in their historic natural densities in numerous areas. Loblolly pine (*P. taeda*) grows in higher densities where it was planted and on old field sites. Where soil has not been disturbed by agricultural tilling, understory species including piney woods dropseed (*Sporobolus junceus*), *Aristida* spp., Wavy-leaf Noseburn (*Tragia urens*), *Asclepias longifolia*, and *Stipa* spp. are scattered.

Mesic upland sites are dominated by either oak scrub or live oak hammock, depending on fire history. Oak scrub grows on an expansive area of Mandarin fine sand on the north end of the island, which burned in high intensity fires in 1934, 1954, 1981, 2008, 2019 and which partially burned in 1993. A smaller area of scrub grows on Table Point, where severe fires burned most of the point in 1924, 1963, and 1977, with portions of the area burned in 1980. Similar soils on the narrow south end of the island, where there have not been large wildland fires, are vegetated by mesic hammock. Both scrub and hammock vegetation types contain live oak (*Q. virginiana*), sand live oak (*Q. geminata*), slash pine (*P. elliottii*), pond pine (*P. serotina*), lyonia (*Lyonia* spp.) saw palmetto (*Serenoa repens*), red bay (*Persea borbonia*), tarflower (*Befaria racemosa*), and blueberry (*Vaccinium* spp.). Where hammock vegetation is well developed, epiphytic Spanish moss (*Tillandsia usneoides*) and resurrection fern (*Pleopeltis polypodioides*) grow on the branches of oaks reaching three and four feet in diameter. Cumberland Island's scrub is very similar to the scrub and scrubby flatwoods vegetation found on Florida's central ridges and panhandle (Davison 1984).

Diverse wetlands, surrounded by saw palmetto (*Serenoa repens*) and inkberry (*Ilex glabra*), support various vegetation types including sawgrass (*Cladium jamaicense*), cordgrass (*Spartina* spp.), and red bay (*Persea borbonia*). Saltwater marshes of saltmarsh cordgrass (*Spartina alterniflora*) flank the western edge of the island.

Expansive dunes dominated by wax myrtle (*Myrica cerifera*), cordgrass, sedges, sea oats (*Uniola paniculata*), and cabbage palm (*Sabal palmetto*) run the length of the east side of the island.

1.2.2.2.5 Wildlife

The seashore encompasses both marine and terrestrial communities. Examples of seashore fauna, some of which are federally- and/or state-listed species, follow.

Thirty-five (35) species of mammals are found on CUIS, including white-tailed deer, bobcat, opossum, raccoon, otter, mink, armadillo, bat, mole, shrew, squirrel, and several species of rats and mice. Feral animals include horses and swine. Coyotes appeared on the island circa 2003. Dolphins, manatees, and several species of whales occur in offshore waters.

Over 60 species of reptiles (44 species) and amphibians (19 species) inhabit the park, including the central newt, southern cricket frog, southern toad, eastern narrowmouth toad, green treefrog, pine woods treefrog, squirrel treefrog, spring peeper, little grass frog, pig frog, southern leopard frog, eastern spadefoot toad, Florida softshell turtle, common snapping turtle, mud turtle, Florida red-bellied turtle, yellow-bellied slider, alligator, green anole, six-lined racerunner, broadhead skink, eastern glass lizard, ground skink, eastern diamondback rattlesnake, cottonmouth, coachwhip, black racer, rat snake, banded water snake, ribbon snake, and garter snake. Five (5) of the world's six sea turtle species either migrate past or nest on Cumberland's beaches annually. The loggerhead sea turtle is the primary nesting species on Georgia's coast. Leatherback and green sea turtles' nest on CUIS and the Georgia coast annually, but in minimal numbers. The gopher tortoise occurs in several locations on the island and in varying colony sizes. This species is known to inhabit two Georgia barrier islands, Cumberland being one, and was likely introduced by man in both cases.

More than 300 bird species have been documented on CUIS, including full time residents, nesters, and winter migrants. Cumberland's 18+ miles of undeveloped beach offer important habitat to winter migratory shore- and wading birds. The 2012 mid-winter shorebird survey tallied 30,958 birds and 37 species. The beach and associated dunes provide attractive nesting habitat in the spring/summer months to American Oystercatchers, Least Terns, Wilson's Plovers, and Willets.

Cumberland's uplands provide beneficial habitat to a variety of songbirds and neotropical migrants year-round. The island's extensive marshes offer nesting habitat for birds including Clapper Rails and Marsh Wrens. The marsh is also used by shore and wading birds for foraging throughout the year. Raptors, including the Bald Eagle and Peregrine Falcon, use the marsh to hunt for food.

Cumberland Island is in the Atlantic Flyway for waterfowl. The island can support a variety of duck species, depending on annual rainfall and habitat availability. Major species of this flyway include the scaup, mallard, gadwall, baldpate, canvasback, pintail, green- and blue-winged teal, and shoveler. Migratory goose populations are minimal in the Atlantic Flyway, especially in the southeastern U.S.

Eighty-nine (89) species of fish have been identified in the fresh, brackish, and saltwater habitats of Cumberland.

1.2.2.2.6 Threatened and Endangered Species

Table 1: Federal and State Listed Species Known to Occur in Camden County, GA.

| Species | Federal Status | State Status | Habitat | Threats |
|--|-------------------|--------------|---|--|
| Mammal | | | | |
| Humpback whale <i>Megaptera novaeangliae</i> | E | E | Coastal waters during migration | Entanglement in commercial fishing gear and collisions/disturbance associated with boats and barges |
| Right whale <i>Eubalaena glacialis</i> | E | E | Mate and calve in shallow coastal waters; critical habitat designated from the mouth of Altamaha River south to Sebastian Inlet, FL (from shoreline east 5-15 nautical miles) | Initial decreases probably due to overharvesting. Slow population growth after exploitation halted may be due to collisions/disturbance associated with boats and barges, inbreeding, inherently low reproductive rates, or a reduction in population below a critical size for successful reproduction. |
| Round-tailed muskrat <i>Neofiber alleni</i> | No Federal Status | T | Bogs and ponds; creates pyramid-shaped nest in vegetation | Habitat loss from human activities and natural succession. Loss of bog/floating mat vegetation-type habitat due to man's suppression of wildfires. |
| West Indian manatee <i>Trichechus manatus</i> | E | E | Coastal waters, estuaries, and warm water outfalls | Initial decreases probably due to overharvesting for meat, oil and leather. Current mortality due to collisions with boats and barges and from canal lock operations. Declines also related to coastal development and loss of suitable habitat, particularly destruction of sea grass beds. |
| Bird | | | | |
| Bachman's warbler <i>Vermivora bachmanii</i> | E | E | Probably extinct; last seen in Georgia in 1976 | |
| Kirtland's warbler <i>Dendroica kirtlandii</i> | E | E | Varying habitats during late spring and fall as the bird migrates between Michigan and wintering grounds in the Bahamas. | Habitat degradation as a result of wildfire suppression, and incubation and hatchling competition from brown-headed cowbirds are major threats for this species. |

| | | | | |
|--|--|---|--|---|
| Bald eagle <i>Haliaeetus leucocephalus</i> | No Federal Status | T | Inland waterways and estuarine areas in Georgia. Two active eagle nests were documented on Cumberland in 2008. | Major factor in initial decline was lowered reproductive success following use of DDT. Current threats include habitat destruction, disturbance at the nest, illegal shooting, electrocution, impact injuries, and lead poisoning. |
| Peregrine Falcon <i>Falco peregrinus</i> | No Federal Status | R | Extreme north Georgia is the southern limit of the historic nesting range. Peregrines are commonly seen along the Georgia coast during winter migration. | Major factor in initial decline was lowered reproductive success from DDT concentrations. While DDT use in South America is still a concern, expansion of human population and subsequent loss of undisturbed nesting habitat and foraging areas is a factor currently. |
| Gull-billed tern <i>Sterna nilotica</i> | No Federal Status | T | Nests in colonies on sandy sites; forages over salt marsh, dunes and other grassy areas for insects, spiders, and other invertebrates | Nest disturbance and loss of habitat to beach-front development are the major threats to this species. |
| Piping plover <i>Charadrius melodus</i> | T | T | Winter on Georgia's coast; prefer areas with expansive sand or mudflats (foraging) in close proximity to a sand beach (roosting) | Habitat alteration and destruction and human disturbance in nesting colonies. Recreational and commercial development has contributed greatly to loss of breeding habitat. |
| Wilson's Plover <i>Charadrius wilsonia</i> | No Federal Status | T | Atlantic Coast breeding populations range from New Jersey to northern South America. Nesting habitat includes beaches, sand flats and spits. | Loss of nesting habitat from human development; predation from wild, feral, and domestic animals; and human disturbance in the form of pedestrians and vehicles are primary threats to this species. |
| Least Tern <i>Sterna antillarum</i> | Not listed in GA; interior U.S. populations Endangered | R | Atlantic Coast breeding populations range from Massachusetts to Florida. Nesting colonies have been documented in all Georgia coastal counties. | Human disturbance of nesting colonies is the primary threat to this species' success. Predation also is a concern. |
| American Oystercatcher <i>Haematopus palliatus</i> | Not Listed | R | Nests on marsh islands, upland dunes, beaches, and dredge spoils. Atlantic Coast population nests from Massachusetts to southern Florida. | Human disturbance, loss of nesting habitat to development, and predation are known threats to this species' success. |
| Black Skimmer <i>Rynchops niger</i> | Not Listed | R | Atlantic Coast population nests on barrier island beaches and man-made dredge | Main threats include loss of nesting habitat due to beachfront development and human disturbance at nesting colony sites. |

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|---|--|---|---|--|
| | | | spoil islands primarily in the mid-Atlantic states. Winters in southern U.S. and Caribbean. | |
| Red Knot <i>Calidris canutus</i> | Not Listed | R | Nests in the Arctic and winters on southern tip of South America. Georgia coast serves as a stopover for winter/early spring migrants. | Reduction in population is thought to be related to lack of preferred food sources during migration and subsequent decline in body condition. |
| Red-cockaded woodpecker <i>Picoides borealis</i> | E | E | Nest in mature pine with low understory vegetation (<1.5m); forage in pine and pine hardwood stands > 30 years of age, preferably > 10" dbh | Reduction of older age pine stands and encroachment of hardwood mid-story in older age pine stands due to fire suppression |
| Wood stork <i>Mycteria americana</i> | E | E | Primarily feed in fresh and brackish wetlands and nest in cypress or other wooded swamps. Active rookeries were in Camden County 1991-2002. | Decline due primarily to loss of suitable feeding habitat, particularly in south Florida. Other factors include loss of nesting habitat, prolonged drought/flooding, raccoon predation on nests, and human disturbance of rookeries. |
| Reptile | | | | |
| Eastern indigo snake <i>Drymarchon corais couperi</i> | T | T | During winter, den in xeric sand ridge habitat preferred by gopher tortoises; during warm months, forage in creek bottoms, upland forests, and agricultural fields | Habitat loss due to uses such as farming, construction, forestry, and pasture and to over collecting for the pet trade |
| Gopher tortoise <i>Gopherus polyphemus</i> | Not listed in GA; federally threatened in portions of its range in AL, MS, and LA. | T | Well-drained, sandy soils in forest and grassy areas; associated with pine over story, open understory with grass and forb groundcover, and sunny areas for nesting | Habitat loss and conversion to closed canopy forests. Other threats include mortality on highways and the collection of tortoises for pets. |
| Green sea turtle <i>Chelonia mydas</i> | T | T | Rarely nests in Georgia; migrates through Georgia's coastal waters | Exploitation for food, high levels of predation, loss of nesting habitat due to human encroachment, hatchling disorientation due to artificial lights on beaches, and drowning when trapped in fishing and shrimping nets |
| Hawksbill sea turtle | E | E | Migrates through Georgia's coastal waters | Primary causes of population decline are development and modification of nesting beaches and exploitation for the shell. |

| | | | | |
|--|-------------------|---|--|---|
| <i>Eretmochelys imbricata</i> | | | | Secondary causes include egg consumption, use of the skin for leather, and heavy predation of eggs and hatchlings. |
| Kemp's ridley sea turtle <i>Lepidochelys kemp</i> | E | E | Migrates through Georgia's coastal waters | Overharvesting of eggs and adults for food and skins and drowning when caught in shrimp nets |
| Leatherback sea turtle <i>Dermochelys coriacea</i> | E | E | Rarely nests in Georgia; migrates through Georgia's coastal waters | Human exploitation, beach development, high predation on hatchlings, and drowning when caught in nets of commercial shrimp and fish trawls and long line and driftnet fisheries |
| Loggerhead sea turtle <i>Caretta</i> | T | E | Nests on Georgia's barrier island beaches; forages in warm ocean waters and river mouth channels | Loss of nesting beaches due to human encroachment, high natural predation, drownings when turtles trapped in fishing and shrimping trawls, and marine pollution |
| Fish | | | | |
| Shortnose sturgeon¹ <i>Acipenser brevirostrum</i> | E | E | Atlantic seaboard rivers | Construction of dams and pollution, habitat alterations from discharges, dredging or disposal of material into rivers, and related development activities. |
| Plant | | | | |
| Climbing buckthorn <i>Sageretia minutiflora</i> | No Federal Status | T | Calcareous rocky bluffs, forested shell middens on barrier islands, and evergreen hammocks along stream banks and coastal marshes. Recorded from 5 counties in Georgia. | |
| Hartwrightia <i>floridana</i> | No Federal Status | T | Peaty muck of pine flatwoods, sedge meadows, and wettest parts of poorly drained ditches/sloughs; often with water-spider orchid (<i>Habenaria repens</i>). Recorded from 3 counties in Georgia. | |
| Pondspice <i>Litsea aestivalis</i> | No Federal Status | R | Margins of swamps, cypress ponds, and sandhill depression ponds and in hardwood swamps. Recorded from 13 counties in Georgia. | |

| | | | | |
|--|-------------------|---|---|--|
| Wagner spleenwort <i>Asplenium heteroresiliens</i> | No Federal Status | T | Marl outcrops, damp limestone ledges, and tabby masonry. Recorded from 3 counties in Georgia. | |
|--|-------------------|---|---|--|

Key: E = Endangered; T = Threatened; SC = Species of Concern; R = Rare
 Source: U.S. Fish and Wildlife Service Georgia Ecological Service Field Office
 Georgia Dept. Natural Resources, Protected Species List

1.2.2.2.7 Cultural Resources

Cumberland Island National Seashore contains a rich concentration of cultural resources that recount 4,000 years of human habitation and include a remarkable diversity of ethnic and social backgrounds. These pieces of the past – archeological features, landscapes, architecture, artifact collections, people – reflect periods of American Indian life, Spanish missions, colonial fortifications, agricultural plantations, military occupation, enslaved Africans, vacation retreats, African American communities, remote lifestyles, maritime endeavors, and grand estates. Cultural features and remnants may be found throughout the island, with the most pronounced being within the island’s five historic districts and two archeological districts that are listed on the National Register of Historic Places (NRHP).

Dungeness Historic District: Located near the southern end of the island, the district contains more than 29 structures (ranging from foundations to ruins to occupied), cultural landscape features, three cemeteries, and two archeological zones. The district encompasses approximately 260 acres. Most of the features are associated with the Carnegie Estate period, with remnants of the Greene-Miller era also present as well as archeological sites from Native American habitation and the Spanish mission period. The district is a primary visitor and interpretive setting for the island and supports numerous operational and residential functions for the Park Service. The district is generally characterized by large, open lawns and field with scattered, mature trees. However, some structures and features are adjacent to or located within heavily forested areas.

Stafford Plantation Historic District: Located in the center of the island, the district encompasses three sub-areas. (1) Stafford Place, which includes nine structures, cultural landscape features, and a cemetery. (2) Ruins of slave quarters known as The Chimneys. (3) Stafford (or House) Field, which contains an archeological site. The district encompasses approximately 250 acres and includes features dating to Native American habitation, the Plantation Era, and the Carnegie Estate period. There is a mixture of land ownership across the district to include reserved estate property, fee simple private ownership, and NPS land. The occupied structures within the district, which includes three non-historic structures, are used for private residential purposes under a reserved property agreement. The district is generally characterized by open lawns and large fields with scattered, mature trees. However, some structures and features are adjacent to or located within heavily forested areas.

Plum Orchard Historic District: Located at approximately the island’s mid-point along the western shoreline, the district contains 16 structures (ranging from foundations to ruins to occupied), cultural landscape features, a cemetery, and a large archeological site. The district encompasses approximately 60 acres. Most of the features are associated with the Carnegie Estate period, with remnants of the antebellum period also present as well as archeological remains from Native American habitation. The southern half of the district is under full NPS management and

is a primary visitor and interpretive setting, centered on the restored Plum Orchard Mansion. The northern half of the district, which encompasses the former estate's support area, is broken into two reserved property agreements and is used for private residential purposes. The district is generally characterized by open lawn areas. However, some isolated structures located within heavily forested areas and the entire district is surrounded by forest.

High Point-Half Moon Bluff Historic District: Located on the island's northern end the district encompasses approximately 700 acres. It contains two structural complexes, a cemetery, three archeological sites, and an archeological zone on Terrapin Point. These sites reflect Native American habitation, colonial occupation, an African American community, and hotel/retreat periods on Cumberland Island. The High Point complex encompasses approximately 45 acres and contains at least 14 structures (some non-historic). The tract is under a reserved property agreement and is used for private residential purposes. The Half Moon Bluff complex, more commonly referred to as The Settlement, contains 14 structures (some non-historic) ranging from ruins to occupied. The Settlement is a visitor and interpretive destination on the island. It also contains a reserved estate tract used for residential purposes. To the east of The Settlement are three other private residential tracts which are held under reserved property agreements as well. The High Point complex is characterized by a large, open lawn. However, numerous structures are located within close to the surrounding dense forest, some within 50 feet. The Settlement is somewhat open but, its proximity to dense forest and encroaching vegetation make it vulnerable to wildfire. The tracts in and to the east of The Settlement area have historically had dense vegetation encroachment directly adjacent to the structures. This encroachment has largely been mitigated by a combination of mechanical and prescribed burn treatments. Annual mechanical treatments are recommended to maintain defensible space.

Greyfield Historic District (private): A privately held fee simple property owned by Greyfield, Ltd., and includes the Greyfield Inn as well as residences. Located on the island's southern end, the district encompasses approximately 200 acres. The district dates to the Carnegie Estate period and includes ten contributing (historic) features as well as nine noncontributing features. The district is generally characterized by open lawns and large fields with scattered, mature trees. However, some structures and features are adjacent to or located within heavily forested areas.

Table Point Archeological District: The district includes approximately 40 acres and contains one of the largest areas of prehistoric cultural accumulations remaining on Cumberland Island. Location data is restricted for protection. The district is in a heavily forested area with dense underbrush.

Rayfield Archeological District: The district includes approximately 6 acres and includes 16 slave cabins dating from the early Rayfield plantation era. Location data is restricted for protection. The district is in a heavily forested area with dense underbrush.

Additional Cumberland Island listings on the NRHP include the Main Road and the Duck House. The Main Road is the major transportation artery on the island that extends approximately 13 miles from the Dungeness Mansion on the south end to the Cumberland Wharf on the north end. The Duck House dates to the Carnegie Estate period and is located near the east end of Duck House Trail, which runs west from Plum Orchard. It was destroyed by fire and all that remains is ruins. There are additional cultural features on the island that are not located within the boundaries of any historic district including: Dungeness Beach House, Stafford Beach House, Plum Orchard Beach House, and the Stafford Silos.

Cumberland Island contains at least 60 known archeological sites, which are primarily located along the western shoreline or proximity. These sites provide evidence of the island's past extending from Native American inhabitation through Spanish Missions, colonial fortifications, extensive plantation development, shipwrecks, resorts/retreats, and estate periods. A 1975 cultural resource inventory of the island was conducted but, it was not exhaustive. While the island was not densely populated at any one time, use and development did occur prehistorically and historically island-wide, particularly during the agricultural activities of the Plantation period. New discoveries are made from time to time and unknown, undocumented cultural features are likely present, most notably obscured landscape features and archeological sites.

The National Seashore's curatorial collection is primarily stored in the Museum Building on the mainland in downtown St. Marys. However, some of the collection is stored or on exhibit in the Dungeness Historic District or the Plum Orchard Mansion.

With respect to fire management all the island's historic districts are considered WUI (Wildland Urban Interface). These areas will receive high priority when managing fire in the park and identifying fuels treatments. Most structures in these districts have shake shingle roofs, wood siding, and open eaves, all of which can propagate fire from a fire brand. Structures and ruins differ in their states of defensibility. Structure assessments have been completed for NPS Structures to identify fuels treatment needs and to ensure they are defensible in the event of a wildfire. Private structure assessments still need to be conducted

There are three large mansions (Plum Orchard, Stafford, and Greyfield) within the districts along with the ruins of a fourth (Dungeness). There are also numerous frames and/or stucco buildings. Portions of the grounds surrounding these structures are mowed to maintain their historic or aesthetic character. Additional areas are being cleared of encroaching vegetation to restore the historic landscape. Elsewhere, palmetto and other vegetation is encroaching on structures in some areas. Treatments have been implemented or are planned to provide additional protection from wildfire. The Stafford District contains a remnant field and that is maintained through prescribed fire and mechanical treatments. Several other important historical features such as cemeteries, gardens, support buildings, and plantings are located throughout the island and vegetation around them will be managed to protect them from wildfire. All historic districts and structures within the park's boundary require protection from wildland fire. Fuels reduction treatments have occurred in the past and will need to future maintenance treatments to provide adequate protection.



Historic Districts



Figure 3: Historic Districts

1.2.2.2.8 Real Property

For the purposes of this fire management plan real property is structures and activities related to infrastructure such as primary transportation assets, utilities, residences, park operations, recreation, and visitor activities. Many of these assets are in the Wildland Urban Interface. Descriptions of real property below will be delineated running north to south on the island (except for transportation and utility assets).

Transportation:

The Main Road is the primary artery on the island running from Dungeness on the south end to Cumberland Wharf on the north. North Cut Road and High Point Road are the main east-west arteries on the north end of the island, running from Cumberland Wharf over to the beach. Both routes run through forest their entire length with underbrush varying from sparse to very dense. There are four wooden bridges on the Main Road, all located between Plum Orchard and Cumberland Wharf. These routes are maintained to provide escape routes to residents during wildfires.

The beach can be used for vehicle access but, the level of use should be coordinated with a Resource Advisor to mitigate impacts on wildlife and other natural resources. Beach driving closures are in place from sundown to sunup (May 1 – October 31) during the sea turtle nesting season.

There are five primary docks on Cumberland Island, all located on the western shoreline. There are additional docks directly associated with residential areas.

- Hawkins Creek Dock (Reserved Property) north of Brickhill is used by private residents only. The upland parking area for the dock is in a pine forest and regularly occupied with numerous vehicles.
- Plum Orchard (NPS) is on the south end of the historic district and is used by residents and NPS operations. Vehicles, including a fuel tank, may be in the nearby wooded parking lot.
- Old House Creek Dock (NPS) is located approximately one mile south of Stafford. The dock is not open to the public and is currently unusable due to hurricane damage.
- Sea Camp Dock (NPS) is one of two primary stops for the concessioner ferry and is adjacent to the Sea Camp Ranger Station. The dock is also used by NPS and private boats.
- Dungeness Dock (NPS) is in the historic district and is the other primary stop for the ferry. The dock is also used by NPS and private boats and an adjacent ramp is used for transshipment of vehicles and equipment.

Utilities:

Electrical power comes onto the island above ground between Table Point and Plum Orchard. The previously above ground lines ran approximately ¼-mile to the Table Point Road but were buried in 2019. From the area that the powerline arrives to the west side of Cumberland they are sent underground and distributed throughout the island as well as north to Little Cumberland Island. The right-of-way is maintained by CUIS Fire Management at the request of Okekefenokee Rural Electric. Above ground junction boxes are located at various points along the underground network and may be obscured by vegetation.

Water is supplied largely through wells within Plum Orchard developed areas. There is a primary NPS well located at Nightingale, immediately north of Dungeness, which serves NPS facilities from Sea Camp to Dungeness via underground lines. All wastewater on the island is treated through individual septic systems.

Real Property:

High Point (Reserved Property) - See description in section 1.2.2.2.7 above for High Point-Half Moon Bluff Historic District.

Stafford RAWS (Remote Automated Weather Station) - Located on the High Point Road, 0.5 miles WNW of High Point, in pine-oak scrub forest.

The Settlement & Half-Moon Bluff (NPS & Reserved Property) - See description in section 1.2.2.2.7 above for High Point-Half Moon Bluff Historic District.

Brickhill Bluff Campground – Backcountry campground located between the large bend of the Brickhill River and the Main Road. No facilities or designated sites other than a water well pump. Situated in mixed oak-pine forest.

Morris Tract (Reserved Property) - Eight-acre tract within the Wilderness area containing a large residential structure and outbuildings. Property is located due west of the South Cut trailhead at the Main Road, in mixed pine-oak forest. Occupant has done work to maintain defensible space by clearing underbrush.

Table Point Co. (Perkins) Tract (Reserved Property) - 186-acre tract encompasses a small peninsula west of the Main Road situated between branches of Malkintooth Creek. Located within the Wilderness in an area of pine-oak forest. Property contains at least two residential structures and a dock on the northwest side (creek/marsh front).

Toonahowie (NPS) – This property was removed in 2018

Bullard Tract (Reserved Property) - Ten-acre tract located in the Wilderness area on the west side (creek/marsh front) of Table Point, 0.8 miles north of Plum Orchard. Consists of a single residential structure situated within mixed oak-pine forest.

Plum Orchard (NPS & Reserved Property) - See description in section 1.2.2.2.7 above for Plum Orchard Historic District.

Yankee Paradise Campground - Backcountry campground located near the intersection of Duck House and Yankee Paradise Trails, approximately 1 mile east of Plum Orchard. No facilities or designated sites. Situated in mixed oak-pine forest. Artesian well hydrant located on Yankee Paradise Trail between Yankee Paradise and Hickory Hill Campgrounds.

Richards Tract (Reserved Property) - 3.3-acre tract north of Duck House Trail, 2.25 miles east of Plum Orchard. Located within the Wilderness in a mixed oak-pine wooded area of the interdune. Consists of a single residential structure.

Hickory Hill Campground – Backcountry campground located near the intersection of Willow Pond, Yankee Paradise, and Parallel Trails. No facilities or designated sites. Situated in oak-mixed hardwood forest. Artesian well hydrant located on Yankee Paradise Trail between Yankee Paradise and Hickory Hill Campgrounds.

Serendipity (Private Fee Simple) – North of Stafford Mansion area. Consists of multiple residential structures (cottages to multiple unit), a barn, and outbuildings. Located in mixed oak-pine forest with a generally open, maintained understory.

Stafford (Reserved Property, Private Fee Simple, NPS) - See description in section 1.2.2.2.7 above for Stafford Plantation Historic District.

Stafford Beach House (NPS) - Located 1.2 miles east of Stafford Mansion on the dune ridge. Consists of two small cottage type structures with a large deck. On the interface between oak forest and interdune shrub thicket.

Stafford Climate Reference Network Station - Located in Stafford Field, consists of scientific monitoring equipment.

Stafford Campground - Backcountry type campground located 0.4 miles east of the southeast corner of Stafford Field, off Long Field Road. Facilities include a bathhouse, well house, and ten designated sites. Situated in oak-palmetto forest immediately adjacent to an abandoned pine plantation.

Schwartz/Jenkins Tract (NPS) – This property was removed in 2018

Nancy’s Fancy (NPS) – The property was removed in 2018

Davisville (NPS) - Group of six residential structures plus outbuildings located to the west of the Main Road in the Little Greyfield area. Northern drive serves two residences and southern drive the other four. Residences are used for NPS required occupants. Situated in mixed oak-pine forest.

Greyfield (Private Fee Simple) - See description in section 1.2.2.2.7 above for Greyfield Historic District.

Rockefeller Tracts (Private Fee Simple) - Four parcels totaling approximately 255 acres immediately north of Sea Camp. Approximately five residential structures, two docks, and additional outbuildings. Varying understory conditions.

Sea Camp Ranger Station - A primary visitor contact site, ferry debarkation point, office space, and an apartment. Situated on the west side of the island in oak-palmetto forest.

Sea Camp Campground - Front country type campground located in oak-palmetto forest just west of the primary dune line. The campground consists of 16 individual camp sites, two group sites, and a bathhouse.

Nightingale Well House - Located immediately north of the Dungeness Historic District in mixed oak-palmetto forest that has been treated for defensible space. Includes well/water treatment/shop/office building and equipment shed for wildfire trucks/apparatus.

Dungeness Historic District - See description in section 1.2.2.2.7 above for Dungeness Historic District. A variety of functions occur within the buildings and grounds: housing for temporary and permanent personnel, visitor activities, a museum, offices, maintenance shops, material and equipment storage, fire cache, etc.

1.2.2.3 Role of Fire in the Park

1.2.2.3.1 Current and Desired Role of Fire in the Park

The Seashore vegetation is fire adapted and needs fire to rejuvenate and maintain a healthy ecosystem. Research has been conducted on the fire history of Cumberland Island. Reports by Frost (2011) and Turner (1985) provide good information on the fire history of the island. Frost's report describes in depth historical fire regimes and fire supported vegetation communities found on Cumberland Island.

Under the 2004 CUIS FMP, all fire was suppressed, and no prescribed burning was allowed. Mechanical fuels treatments were used to provide protection to structures within the park. This FMP allows the park to restore fire to its natural fire regime through managed wildland fire, prescribed fire, and mechanical treatments. Fuels treatments to include mechanical vegetation removal, prescribed fire, and chemical treatments will be utilized to protect structures and private property within the park boundaries. Prescribed fire is also used to reduce heavy vegetative fuel loading, improve freshwater habitat, and to help maintain cultural landscapes.

1.2.2.3.2 Past Role of Fire

Fire has played a role on Cumberland Island throughout its existence. Lightning fires have maintained the landscape for centuries while man has used fire to alter the landscape dating back to pre-1500's (Pyne 1983). Native Americans used fire to clear land for agriculture and other uses on Cumberland. Other eras saw fire being used to clear land for cultivation purposes and for protection. During the plantation era, fire was used to clear land to create cotton fields. During the estate era of Cumberland Island, fire was used to clear the sloughs that were found throughout the island (Turner 1983). This opened travel corridors between the lake complexes on the island. Island residences also used fire to burn off swamps and ponds to create wetland habitat for hunting grounds. Swamp field near the center of the park, was often burned to improve forage for livestock and wildlife.

Natural fire has always played a role in the park. This can be noted by the presence of fire adapted vegetation. Fire history has been studied in the park (see figure 5). Frost conducted a study on pre settlement vegetation and natural fire regimes. Information from his report provided valuable data to piece together historical fires and fire adapted ecosystems in the park. Turner produced a report on the fire history of Cumberland Island between 1900 and 1983. This report also touches on history of fire as far back as aboriginal occupation of the island. There are also NPS fire records as far back as 1984.



Fire History 1977-2013



Figure 4: Fire History Map

The north end of the island has seen numerous large fires throughout history. This is likely due to the vegetation type in conjunction with soil types. Fire occurrence is also tied to drought and rainfall amounts for the coastal island. Storms in the summer produce lightning which can ignite fires in dry vegetation. Some vegetation is more susceptible to sustaining fire than others. For instance, pine stands with grass and needle understory are more likely to carry fire than a live oak hammock with leaf litter.

Fire on Cumberland Island has proven difficult to suppress, especially on the north end of the island. Access to large parts of the park is limited for equipment and personnel. Vegetation is very thick and fuel loadings in most fuel types are very high. This plus the lack of good safety zones and available suppression resources, increase the difficulty of suppressing fires on the island.

The seashore plans to use fire to maintain several cultural landscapes, to include periodic burning of fields within the park boundaries. There are several fields at risk of encroachment throughout the park where fire may be used to maintain the aesthetics and historic character of the landscape.

The Swamp Fields located in the mid-section of the park are large wetland areas that had been drained by a canal and secondary ditches during the Plantation and Carnegie periods. This area needs fire to maintain the ecological characteristics that provide valuable habitat for wildlife, particularly for waterfowl.

There is an old canal system that connects Lake Whitney to the Willow Pond. This slough was historically burned in the spring or fall to keep the canal open for canoe travel (Turner 1983). This is an area that may be maintained by fire to enhance the cultural resource component of the area.

1.3 Environmental Compliance

In accordance with the requirements of National Environmental Policy Act, the Environmental Assessment (EA) for the Cumberland Island National Seashore Fire Management Plan was prepared and released in October, 2013. Requirements of Section 7 of the Endangered Species Act (ESA) and the Wilderness Act have also been addressed. During the planning process and EA development public input was sought through the external scoping process, which extended from October 16 – November 30, 2012 and included a public meeting in St. Marys and another on Cumberland Island. The EA was open for public review and comment from October 25 through November 29, 2013. A Finding of No Significant Impact for the EA was signed by NPS Southeast Regional Director. With respect to Section 7 of the ESA, a letter from the U.S. Fish and Wildlife Service indicated their review and concurrence with the NPS determination that the selected FMP EA alternative would have long term, minor to moderate beneficial effects for the identified federally listed species or their habitats. The letter further stated that FWS considered Section 7 requirements satisfied save any significant changes.

In accordance with Section 106 of the National Historic Preservation Act, an Assessment of Actions Having an Effect on Historic Properties was prepared for the FMP. The assessment was submitted for consultation to the Georgia State Historic Preservation Office (SHPO), with an NPS determination of No Adverse Effect to cultural resources. A SHPO letter indicated concurrence with the no adverse determination. Compliance documentation for this FMP, including mitigation measures, can be found in Appendix D.

2 Policy, Land Management, Planning & Partnerships

Authorities for Implementing Fire Management Plan

Authority for fire management at the Seashore originates with the Organic Act of 1916. The Organic Act established the National Park Service “to promote and regulate the use of the Federal areas known as national parks,...which purpose is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will

leave them unimpaired for the enjoyment of future generations.” The 1978 “Redwood amendment” to the General Authorities Act of 1970 expands upon the provisions of the Organic Act, stating that, “...the protection, management, and administration of these [NPS] areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established...”. As an NPS program that by design is tiered to the respective park unit’s general and resource management objectives, fire management is an effective way of accomplishing the mandates of the above legislation, policies and procedural guidance.

The organizational structure of this FMP follows the June 2010 template that is an update to chapter 4 of *Wildland Fire Management Reference Manual-18* (January 1, 2008), hereinafter referred to as [RM-18](#). A new template has subsequently been made available and will be used to update the FMP in a future annual update. This FMP will guide the Seashore in implementing federal fire management policy, as well as resource and fire management goals as defined in the *2001 Federal Fire Policy; Managing Impacts of Wildfires on Communities and the Environment, and Protecting People and Sustaining Resources in Fire-Adapted Ecosystems—A Cohesive Strategy*; and *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Comprehensive Strategy Implementation Plan*.

2.1 Federal Fire Policy

The National Park Service Management Policies 2006, states “Environmental and cultural resource compliance documentation developed in support of the plan will consider the effects of fire on air quality, water quality, and human health and safety. It will also discuss the influence of fire, fire management, and the potential consequences and effects of fire exclusion on the ability of the park to meet its natural and cultural resource management objectives.” It further states that “All wildland fires will be effectively managed through application of the appropriate strategic and tactical management options as guided by the park’s fire management plan. These options will be selected after comprehensive consideration of the resource values to be protected, firefighter and public safety, costs, availability of firefighting resources, weather, and fuel conditions.”

Additional guidance stems from the *2001 Federal Fire Policy* and the *2009 Guidance for Implementation of Federal Wildland Fire Management Policy*, which are products of a collaborative effort involving the Department of the Interior, the Department of Agriculture, the Department of Energy, the Department of Defense, the Department of Commerce, the Environmental Protection Agency, the Federal Emergency Management Agency, and the National Association of State Foresters. The directives recognize the role that fire plays as a critical natural process, as well as the detrimental effects of its absence in fire-adapted ecosystems. Furthermore, *2001 Federal Fire Policy* states that “...successful implementation of [the policy] depends on the development and implementation of high-quality Fire Management Plans by all land managing agencies.” The National Cohesive Wildland Fire Management Strategy defines three national goals:

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

Other sources of authority and policy are found in the following:

1. United States Department of the Interior, Departmental Manual
2. The National Park Service Management Policies 2006
3. Director's Order #18: Wildland Fire Management
4. Director's Order #28: Cultural Resource Management
5. Director's Order #41: Wilderness Management
6. Director's Order #77: Natural Resource Management
7. Review and Update of the 1995 Federal Wildland Fire Policy, January 2001
8. Guidance for Implementation of Federal Wildland Fire Management Policy, 2009
9. Interagency Standards for Fire and Fire Aviation Operations
10. National Interagency Mobilization Guide
11. National Park Service Wildland Fire Management Compendium
12. Interagency Incident Business Management Handbook
13. Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide 2017
14. Wildland Fire Incident Management Field Guide
15. Interagency Fire Program Management Qualifications Standards and Guide
16. National Cohesive Wildland Fire Management Strategy, 2014
17. Incident Response Pocket Guide, 2018

2.1.1 Managing Impacts of Wildfires on Communities and the Environment, and Protecting People and Sustaining Resources in Fire Adapted Ecosystems—A Cohesive Strategy

In the Federal Land Assistance, Management, and Enhancement Act of 2009 (FLAME Act), Congress mandated the development of a national cohesive wildland fire management strategy to comprehensively address wildland fire management across all lands in the United States. Shortly after enactment of the FLAME Act, a three-phased, intergovernmental planning and analysis process involving stakeholders and the public was initiated and is commonly referred to as the Cohesive Strategy effort. The culmination of three-phases of planning and analysis is this National Strategy and a companion National Action Plan. The National Strategy is the result of a collaborative effort by Federal, state, local, and tribal governments and non-governmental partners and public stakeholders, in conjunction with scientific data analysis.

The National Strategy sets broad, strategic, and national-level direction as a foundation for implementing actions and activities across the Nation. Three components, intended to be conducted concurrently, are necessary for implementing the National Strategy:

- strategic alignment, where all parties agree to the same goals, principles, and strategic course of action;
- collaborative engagement, which includes governance, shared information and resources, communications, and monitoring and accountability; and
- programmatic alignment, where individual agency or organization objectives are explicitly supportive of the national cohesive strategy goals.

The Wildland Fire Leadership Council (WFLC) adopted the following vision for the next century:

To safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and as a Nation, live with wildland fire.

The primary, national goals identified as necessary to achieving the vision are:

- Restore and maintain landscapes: Landscapes across all jurisdictions are resilient to fire related disturbances in accordance with management objectives.
- Fire-adapted communities: Human populations and infrastructure can withstand a wildfire without loss of life and property.
- Wildfire response: All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.

2.2 Park/Resource Management Planning

2.2.1 General Management Plan Objectives

The park's 1984 General Management Plan (GMP) was developed to provide overall management direction for Cumberland Island for the foreseeable future (stated at that time as approximately 5-10 years). The 1984 document is still the GMP of record for the park. However, the GMP states that the National Park Service is committed to routinely evaluating the effectiveness of its operations at Cumberland Island and to modifying its plans as necessary, with any significant changes requiring public involvement. This fire management plan expounds on the objective and directives of the GMP and is compatible with that plan. In circumstances where modifications may have occurred, they were evaluated through the FMP's NEPA process, to include public involvement.

The GMP primarily addresses "Fire Control" in the Natural Resource Management section. The guidelines are outlined below, some of which specify requirements for a fire management plan:

- Wildfires that endanger life, unusual habitats, or improvements will be contained and extinguished.
- Other natural wildfires that appear to be restricted in their effects to small areas will be permitted to burn until the fuel is consumed—if the fires are similar to those that have given the island part of its character by their periodic interruption of succession in selected habitats.
- No larger wildfires will be allowed to burn unchecked unless a fire management plan has been prepared that substantiates the desirability of the burn in a given area.
- No prescribed burning will take place unless it is substantiated by related studies and a fire management plan.

Other objectives and management guidelines directly or indirectly related to fire management within the GMP are:

- Protect and enhance the natural and recreational values of the park by encouraging environmentally compatible park activities.
- Manage the seashore, to the extent possible, in ways that enhance the natural geological processes of the barrier island system and mitigate human impacts on these processes.

- Perpetuate the marsh and freshwater pond environments and forested areas in ways that promotes natural ecological succession and minimizes the adverse impacts of man's activities.
- Upland forests, freshwater and saltwater marsh vegetation, and dune vegetation will be maintained in a natural condition, with a special emphasis on maintaining habitat of endangered species.
- Wildlife management will be directed toward the maintenance of natural populations.
- Endangered and threatened species will be preserved by implementation of management and development programs sensitive to the habitat needs of these species.
- Preserve and make available as appropriate significant cultural resources.
- Protect, preserve, and utilize significant above ground structures (historic/cultural resources) in sound condition.
- Significant archeological resources will be protected and preserved.
- Provide visitor's safe and reasonable access and promote visitor safety in their use of the island resources.

2.2.2 Foundation Document

Each unit of the national park system is to have a foundation document that will provide basic guidance for planning and management decisions. The Cumberland Island National Seashore Foundation Document was completed in February, 2014, and it includes core components that direct and support this fire management plan. Among the fundamental resources and values defined in the document are several that have direct or indirect necessity for a fire management plan to ensure their preservation and/or protection:

- Intact barrier island system driven by coastal geological and biological processes
- Live oak maritime forests
- Wilderness
- National register archeological districts and other significant archeological resources
- National register historic districts and their contributing features

2.2.3 Resource Management Plan Objectives

Cumberland Island's 1994 Resource Management Plan (RMP) includes the following natural and cultural resource management objectives that are directly or indirectly pertinent to fire management:

- Protect and restore natural processes in the wilderness, potential wilderness, and environmental protection areas with minimal deviations allowed for fire (as defined in approved Fire Management Plan) and endangered species management.
- Discourage uses incompatible with wilderness values in the potential wilderness area and natural processes in the environmental protection areas.
- Preserve the historic buildings, landscape features, and ruins on Cumberland Island.
- Protect all archeological sites, including those in retained right holdings, from human damage and erosion.

The RMP states that the National Park Service and the Georgia Forestry Commission agreed to divide the responsibility for fire control on Cumberland Island. The Georgia Forestry Commission was given the

responsibility of protecting privately owned lands on both islands, whereas protection of United States Government lands on Cumberland Island was placed under the jurisdiction of the National Park Service on Cumberland Island.

2.3 Partnerships

CUIS collaborates on fire management activities with its interagency partners, state and local cooperators, and members of the public. Interagency partners include Okefenokee National Wildlife Refuge, Timucuan Ecological & Historic Preserve (TIMU), and Osceola National Forest. Collaboration also occurs with Camden County Fire and Rescue, Saint Mary's Fire Department, and Georgia Forestry Commission (GFC). Outreach and coordination with the public including reserved estate holders, private landowners, island residents, and other interested public figures occurs through public meetings, mailings, and informal contact.

CUIS is a partner in the Tri-Agency Agreement which includes the National Park Service (CUIS and TIMU), the U.S. Fish and Wildlife Service (Okefenokee NWR), and the U.S. Forest Service (Osceola NF). The Tri-Agency Agreement provides mutual assistance to each agency for all fire management needs. CUIS is also a member of the Southeast Georgia - Northeast Florida Fire Planning Unit (FPU) under the interagency fire program analysis (FPA). Other members of the FPU include Okefenokee NWR, Banks Lakes NWR, TIMU, Fort Frederica National Monument (FOFR), Fort Caroline National Monument (FOCA), and Osceola National Forest.

CUIS is part of the NPS Atlantic Zone Management Area. Each Fire Management Zone consists of all NPS units within a defined geographic area within the bounds of the Southeast Region that have burnable vegetation or that can be affected by wildland fire and are staffed with an Interagency Fire Program Management Qualified Zone Fire Management Officer (ZFMO) and other qualified staff. In the case of the Atlantic Zone the ZFMO is based out of CUIS, is directly supervised, and falls under CUIS supervision and management discretion. The Atlantic Zone FMO provides leadership to his/her staff and ensures that a sound fire management program, within the capacity of his staff, is in place at all parks within the Zone.

The Atlantic Zone includes:

- Andersonville National Historic Site (ANDE)
- Canaveral National Seashore (CANA)
- Castillo de San Marcos National Monument (CASA)
- Cumberland Island National Seashore (CUIS)
- Fort Frederica National Monument (FOFR)
- Fort Pulaski National Monument (FOPU)
- Fort Matanzas National Monument (FOMA)
- Jimmy Carter Historic Site (JICA)
- Ocmulgee National Monument (OCMU)
- Timucuan Ecologic and Historic Preserve (TIMU)

Interior Region 2 Zone Contact List

Atlanta, GA

National Park Service
U.S. Department of the Interior

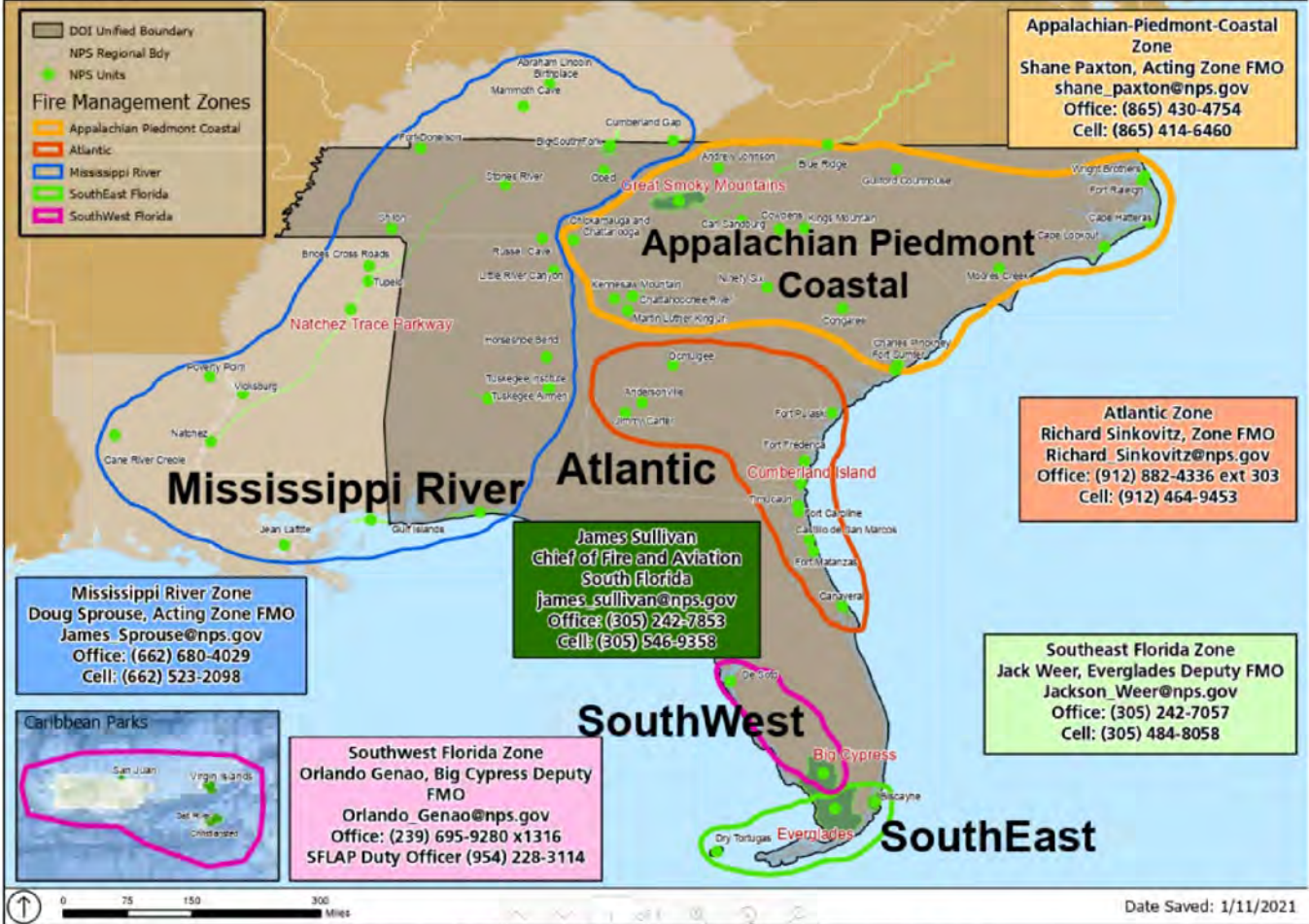


Figure 5: Southeast Region Fire Management Zones

3 PARK-WIDE & FIRE MANAGEMENT UNIT CHARACTERISTICS

A Fire Management Unit (FMU) is any land management area definable by objectives, management constraints, topographic features, access, values-to-be-protected, political boundaries, fuel types, or major fire regime groups, etc., that sets it apart from management characteristics of an adjacent unit. The primary purpose of developing FMUs in fire management planning is to assist in organizing and evaluating information in complex landscapes. The process of creating FMUs divides the landscape into smaller geographic areas to more easily describe physical/biological/social characteristics and depict associated planning guidance based on these characteristics. The information contained in the following sections may also be used for incident decision support (e.g. WFDSS), and incident management. The organization and presentation of information should be concise and easily locatable for those purposes.

The seashore's fire management goals will follow and incorporate CUIS's strategic direction and overall management objectives as well as previously discussed federal fire management policy principles and goals, including firefighter and public safety, collaboration, and accountability.

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

3.1 Park-wide Fire Management Considerations

3.1.1 CUIS Park-wide Fire Management Goals:

- Consider firefighter and public safety first (always the highest priority)
- All actions defined in the Fire Management Plan will conform to safety policies defined in agency and departmental policy, including, but not limited to:
 - A) *Interagency Standards for Fire and Fire Aviation Operations* (NFES 2724).
 - B) *NPS Director's Order 18*.
 - C) *NPS Reference Manual 18*, Standards for Operations and Safety chapter.
 - D) *Interagency Response Pocket Guide (IRPG)* (NFES 1077)
- Protect private property, structures, and cultural resources.
- Manage all wildland fire in a cost-effective manner, consistent with resource objectives, and values to be protected.
- Consider use of all response tactics that FMUs allow. (i.e. managing fire for resource benefits, modified suppression tactics, straight suppression, monitoring, etc.)
- Recognize the historical role that fire has played within the park and the ecological benefits it provides.

- Incorporate minimal impact suppression tactics (MIST) into all suppression operations providing for safety first.
- Adhere to Wilderness Fire Management Policies when responding to fire in the Cumberland Island Wilderness.
- Use prescribed fire and non-fire applications to create and/or maintain defensible space around seashore buildings, and to reduce hazardous fuels in and around Wildland Urban Interface (WUI) areas.
- Use prescribed fire to restore fire back into fire adapted ecosystems and to reduce hazardous fuels where FMU characteristics permit.
- Create and maintain defensible space along private property boundaries and park structures.
- Identify, create, and maintain fire breaks throughout the park.
- Manage all wildland fire incidents in accordance with accepted interagency standards, using appropriate management strategies and tactics, and maximizing efficiency via interagency coordination and cooperation.
- Coordinate with federal, state, and local fire management agencies to facilitate close working relationships and mutual cooperation regarding fire management activities.
- Provide NPS employees, federal, state, and local cooperators with quality fire operations training and experience to develop and maintain fully qualified personnel commensurate with the normal fire year workload.
- Develop and conduct a monitoring program with recommended standard monitoring levels commensurate with the scope of the fire management program, and use the information gained to continually evaluate and improve the fire management program.
- Integrate knowledge gained through natural resource research into future fire management decisions and actions.
- Maintain the highest standards of professional and technical expertise in planning and safely implementing an effective fire management program.
- Plan and conduct all fire management activities in accordance with all applicable laws, policies and regulations.
- Foster a greater public awareness of fire ecology and sound fire management practices.

CUIS fire management objectives at CUIS include:

- Firefighter and public safety will have the highest priority
- Protection of private and NPS structures, buildings, and infrastructure.
- Manage wildland fire for resource benefit where applicable and FMU's characteristics permit.
- Identify, create, and maintain defensible space around private property and park structures.
- Identify, create, and maintain fire breaks to enable the management of fire in FMUs
- Utilize prescribed fire to reduce the heavy fuel loads and maintain fire adapted ecosystems in FMUs that allow the use of prescribed fire.
- Utilize mechanical fuels treatments in areas where prescribed fire is not applicable or where the FMU does not allow.

Program objectives include:

- A minimum of 20% and a maximum of 75% of fire adapted communities in the park will be maintained within their known fire return interval by 2025.
- Fire breaks will be maintained on a 1-3 year rotation.
- 90% of unplanned and unwanted ignitions will be aggressively contained in the first burning period each year.
- 60% of unplanned ignitions each year that have the potential for achieving resource benefits will be managed under a strategy that maximizes benefits consistent with firefighter, public safety, and values at risk.
- CUIS Fire Management Program should continue to seek opportunities to grow as a program including actively seeking to obtain a permanent full time GS-8/9 Fuel Specialist or Technician.
- Work closely with park residents, reserved estate owners, visitors, and adjacent communities to better understand fire management actions in the park.
- Work with Georgia Forestry Commission and island residents to maintain Firewise status for Cumberland Island.
- Create a functional communication system within the park that is compatible with all radios that are commonly used in the federal fire arena.

- Continue to work with Federal, State, and local cooperators and foster professional relations, training, and cooperation throughout the life of the CUIS Fire Management Program.
- Enhance education of internal and external customers on Firewise concepts, prevention of unwanted fire, and benefits of fire in fire adapted ecosystems.

Resource Management objectives include:

- Protect cultural resources to include structures, infrastructure, features, and sites of significant historical value.
- Restore fire back into fire dependent ecosystems where FMU characteristics permit.
- Restore 20% of park back to the historical fire regime over 15 years.
- Assist maintenance of cultural landscape sites with the use of fire and non-fire applications.
- Restore wetlands within the park that are being encroached upon with fire and non-fire applications.

3.1.2 Wildland Fire Management Actions

CUIS will implement a combination of fire management tools. These tools include aggressive suppression, management of fire for resource benefit, management of fire for multiple objectives, prescribed fire, non-fire applications, and prevention methods. Prescribed fire will be used in FMU where the unit's characteristics allow for that treatment, with units being pre-identified at minimum the year before treatment. Non-fire treatments (mechanical) will be used in and around the WUI within the park boundaries and to pretreat units before a prescribed fire. Mechanical treatments can be directly next to structures, around private property, within historic districts, and be used to create and maintain fire breaks in pre-identified areas. Chemical application of herbicides may follow mechanical treatments to ensure objectives are met, ensure longevity of project, and to maintain treatment.

3.1.2.1 Preparedness Activities

NPS policy requires that every unit with a fire management program incorporate preparedness considerations into its fire management plan (*RM-18*, chapter 5 provides guidelines). Preparedness involves planning and implementing activities prior to wildland fire ignitions to keep the unit in a state of fire-readiness. It includes routine actions completed prior to fire season as well as incremental actions conducted during fire season in response to increasing fire danger. The CUIS fire management officer or fire management coordinator (hereinafter referred to as the "park FMO") is responsible for coordinating and completing preparedness tasks and ensuring that the park has access to additional fire resources as needed. CUIS preparedness will include:

- Maintaining a cache of supplies, materials, and equipment sufficient to meet normal fire year requirements. The park FMO will maintain the fire cache, which is in the Dungeness Historic District, to the minimum standard of a 10-person cache. Fire management-related supplies will be inventoried and restocked as necessary prior to the advent of fire season. Firefighter-

qualified employees will be issued initial attack gear and personal protective equipment from the cache.

- CUIS maintains a Type 3 Support water tender and two four-wheel-drive Type-6 engines. The water tender and one Type-6 Engine are housed at Nightingale Well, just north of the Dungeness area. Another Type-6 engine is kept on the mainland for mutual aid support and brought to the island at times of higher fire danger. The engines will be maintained in a state of fire-readiness throughout the year. During periods of high fire danger, an additional fire cache may be put into service at the north end of the island at The Settlement. Location of Type-6 engine can change due to fire danger location on the island.
- CUIS maintains a Bobcat 770T tracked skid steer with masticating, brush cutting, and grapple attachments. CUIS also maintains a 100 horsepower John Deer tractor with Brown's Tree Cutter attachment. The Skid Steer is staged in the equipment barn east of the Carriage House. The tractor is housed in the Carriage House.
- Offering training to park and cooperator employees in yearly refresher training and advanced wildland fire classes.
- Maintaining fully qualified staff commensurate with the normal fire year workload.
- Preparing a step-up plan based upon staffing classes derived from the National Fire Danger Rating System (see section 4.2.2.4).
- Maintaining fire records, weather data, maps and other associated information. The park FMO will submit CUIS data annually, including daily situation reports during fire events, to the Georgia Interagency Coordination Center (GICC). FMO will enter fire reports into the appropriate reporting system including Wildland Fire Decision Support System (WFDSS) and Interagency Fire Occurrence Reporting Modules (InFORM). The park FMO will utilize other system options as appropriate to maintain data on employee qualifications, hazard fuels, NFPORS, etc.
- Preparing a pre-season risk analysis.
- Maintaining detection capabilities including communications systems and cooperative agreements.
- Maintaining communication with park personnel, Camden County 911 dispatch, Georgia Forestry Commission dispatch, concessionaires, and neighboring landowners to ensure fires are reported to Park Rangers via the Park's radio repeater frequency.
- Ensuring that Park staff, concessionaires, visitors, adjoining landowners, and cooperating agencies are educated about the 911 emergency fire dispatching process to ensure that detected fires are reported to park staff.
- Maintaining cooperative agreement with Georgia Forestry Commission to enable the request of GFC fixed-wing detection planes for Park fires.

- Maintaining Tri-Agency Agreement with Timucuan Ecological & Historic Preserve (TIMU), Okefenokee National Wildlife Refuge, and Osceola National Forest to enable the direct ordering of their exclusive use contract helicopters and other resources.
- Maintaining communications with Southern Area Coordination Center (SACC) to enable resource ordering of local Call When Needed contract fixed-wing, rotor-wing aircraft, and other resources.
- Providing a dispatch system for mobilizing park fire management resources to local and out-of-area incidents, in order to facilitate rapid and efficient mobilization:
- The park FMO will maintain a list of available firefighter-qualified staff in the Interagency Resource Ordering Capability System (IROC).
- All firefighter-qualified staff will be provided approved personal protective equipment and assigned park radios.
- Response to fire will take priority over routine, scheduled work projects. Meeting park fire suppression needs will take priority over off unit fire assignments.
- Staff will receive specific travel, transportation and incident information at the time of mobilization. Dispatch and mobilization guidelines and procedures are provided in the *National Interagency Mobilization Guide* and the *Southern Interagency Mobilization Guide*.
- The park FMO will conduct an annual preseason fire readiness inspection, as outlined in the *Interagency Fire Readiness Review Guide*. The inspection will address detection, communication, dispatch, and response capabilities. It will also serve to determine whether CUIS's current training levels, equipment, and organizational structure meet NPS and National standards.
- Maintaining Stafford RAWS

3.1.2.2 Safety Program

Firefighter and public safety is the first priority in every fire management activity. Agency administrators at all levels must stress that firefighter and public safety *always* take precedence over property and resource loss. This policy will be emphasized throughout all fire management operations at CUIS. The CUIS fire program will meet all requirements set by national policy to include the current year version of *Interagency Standards for Fire and Fire Aviation Operations* (Red Book), *RM-18* Chapter 3, and will utilize the *Incident Response Pocket Guide* (IRPG) for reference. An ICS-206 Medical Plan form will be used for any wildland fire operation including projects within the park boundary.

3.1.2.3 Management of Unplanned Ignitions

This plan identifies Fire Management Units (FMUs) within the park boundary. Each FMU has specific information on how unplanned fire will be handled. Any FMU that specifies fire as undesired will require

suppression actions commensurate to the values at risk and location of the fire. Any unplanned ignition that is determined to be a human start will require a suppression action. FMUs that allow for a full range of suppression options for unplanned ignitions will receive a broad consideration of those options at time of size up. FMO will consider seasonal timing, values at risk, weather conditions, available resources, ecological benefits, and fuel conditions. Once a management direction is proposed, FMO will discuss with Agency Administrator and decide on allowing a fire to provide resource benefits or take full suppression actions.

FMU descriptions can be found in Section 3.2.

3.1.2.4 Management of Planned Fuels Treatments

Prescribed fire and non-fire applications can be used as part of the CUIS fire management program. FMUs describe what type of fuels treatments can be implemented within that unit. Non-fire fuels treatments (mechanical) can be used in the WUI, around structures, to create and maintain fuel breaks, and to pretreat prescribed fire units. Chemical treatments can be used to prolong the life of mechanical treatments within the park. The focus of these treatments will be in the WUI and along fuel breaks.

FMU descriptions can be found in Section 3.2 and Appendix E has a 5-year fuels treatment plan.

3.1.2.5 Communications, Education, Prevention, Mitigation

Communications will be stressed, with the local park frequency used for initial attack and a formal communications plan established for extended fire. The park fire program will continue to try to identify a way to create a dispatch center with a dispatcher for wildfire and prescribed fire incidents. The fire management program has purchased a satellite phone that has good coverage in normal cellular dead zones. The phone number is included in the park phone list and emergency contact list in the Duty Officer Manual.

Education of internal and external partners includes press releases, signs, posters, bulletin boards, and face-to-face contacts with visitors, all of which facilitate public awareness, understanding, and support.

Mitigation includes closing the seashore to campfires and open flames during high fire danger; restricting location, type, and size of fires; creating and maintaining defensible space around seashore buildings; creating and maintaining fuel breaks; and reducing hazardous fuel in and around wildland-urban interface areas.

3.2 Fire Management Units – Specific Considerations

3.2.1 FMU Snapshot

CUIS has been divided into three fire management units (FMUs) to facilitate the achievement of fire management objectives (see figure 5). A description of each individual FMU follows.



Fire Management Units

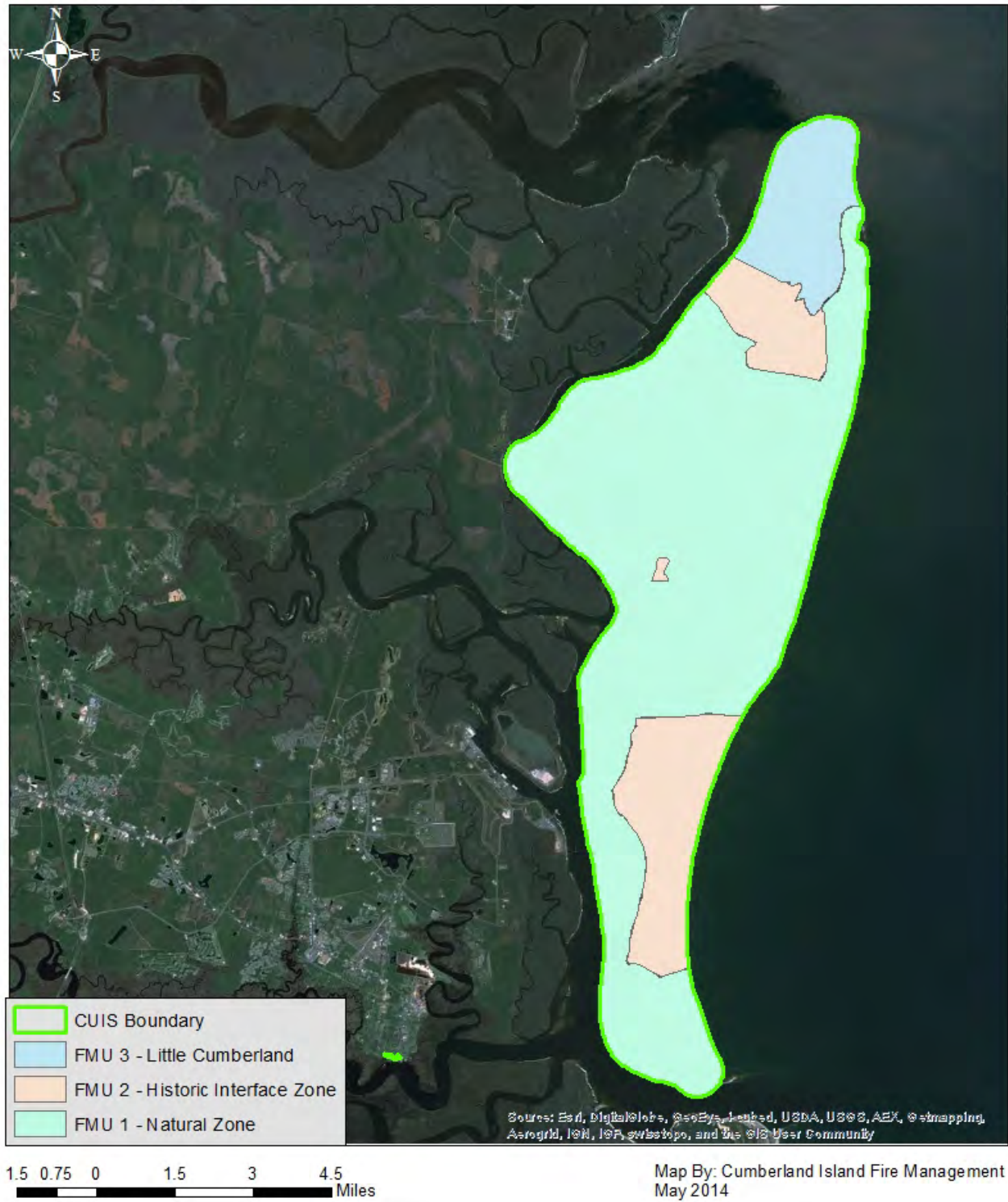


Figure 6: Cumberland Island National Seashore Fire Management Units (FMUs)

3.2.2 FMU Specific Information

3.2.2.1 Fire Management Unit #1: Natural Zone (Figure 6)

The Natural Zone FMU takes up most of the island and covers 27,160 acres (see figure 6). It encompasses marshland, dune, hammock, and uplands. The zone captures all the designated wilderness and most of the potential wilderness. It also contains areas of real property and significant cultural resources. The FMU is accessible by boat, vehicle, foot, limited ATV, and limited 4x4 vehicles.



Figure 7: FMU-1 Natural Zone

Table 2: FMU-1 Snapshot

| | |
|---------------------------------------|---|
| FMU Name | 1-Natural Zone |
| FMU Identifier | FMU-CIP-1 |
| Defining Characteristics | FMU is generally undeveloped areas of the island to include the wilderness area, marsh, and undisturbed uplands |
| Acres | 27,160 |
| Approved Fire Mgmt. Strategies | <ul style="list-style-type: none"> • Wildland fires will be a low priority for suppression action. • Natural fire starts should be considered for use as fire for resource benefit, commensurate with human safety and property in all instances. • Emphasis on prevention, detection, rapid response, size up, and use of appropriate suppression techniques and tools. • Fixed wing air tankers can be used. • Retardant can be used only with park superintendent permission. • Helicopters with brackish water buckets can be used. • Use Minimum Impact Suppression Tactics (MIST) to reduce negative effects of suppression. • Prescribed fire can be used. • Non-fire fuel treatments can be used including chemical control of vegetation. • Fuel breaks can be created and maintained using road and trail systems as outlined in the 5-Year Treatment Plan. |
| Constraints | <ul style="list-style-type: none"> • Safety zones are limited in this FMU • Access is limited to the interior of this FMU • Use of heavy equipment and/or retardant requires specific permission from the superintendent for each event • Avoid unnecessary use of brackish water for bucket drops. |
| Associated Wx Station(s) | NOAA-Brunswick 29S , Stafford RAWS #099902 |
| Dominant Vegetation or Fuels | Marsh grass, mixed oak hammock, pine stands, southern rough, coastal scrub. |
| Lat/Long of Centroid (NAD 83) | LAT: N30 51' 29.53" / LONG: W81 26' 16.30" |

3.2.2.1.1 Safety Considerations

Safety concerns for FMU #1 include:

- Fuel loading is considered high throughout the FMU with an abundance of light flashy fuels.
- Fuel breaks in the interior of this unit are limited.
- Snags are present.
- Reptiles such as alligators and venomous snakes are present.
- Emergency evacuation can be time consuming due to access.
- Lack of good safety zones throughout the FMU.
- Communication can be challenging in the FMU. Consider the use of human repeater.
- 4X4 vehicle required for dune crossings and beach access.
- Access for emergency vehicles can be limited and challenging.
- Shoreline landing via boat may be necessary and can be challenging.
- Tidal fluctuations.
- Smoke on the Intracoastal Waterway during wildfire and prescribed fire events.

3.2.2.1.2 Desired Conditions/Goals/Objectives

- Considering firefighter and public safety (always the highest priority).
- Return 40% of uplands in FMU#1 to its historical fire regime by 2030.
- Manage natural fire for resource benefits.
- Use prescribed fire as a tool to restore fire to its historical regime.

- Create and maintain fuel breaks using road and trail systems as outlined in the 5-Year Treatment Plan.
- Restore wetlands in the FMU with the use of fire to control encroachment.
- Burn debris pile on Raccoon Key annually.

3.2.2.1.3 Approved Management Tools/Strategies

CUIS will implement a combination of fire management tools to include wildland fire suppression, management of wildland fire for resource benefit, prescribed fire, limited non-fire mechanical fuels treatments, and limited chemical control of vegetation. The use of helicopters can be used. Use of fixed wing air tanker can be used. Use of retardant should only be used in proximity of structures and for the protection of life and property and can only be used with the permission of the Superintendent. Heavy equipment may be used for the protection of life and property with the permission of the Superintendent. Use enhanced education of public on benefits of fire in fire adapted ecosystems.

3.2.2.1.4 Fire Environment

GIS data shows that this FMU is diverse in fuel types. Fuel types include a large amount of mixed hardwoods and oak hammocks. Marsh grass is very abundant in this FMU and includes freshwater wetland areas in the interior of the unit. Pine stands are present as well as vast amounts of southern rough and pocosin. The east edge of the unit consists of coastal scrub associated with dune lines that run south to north. Grass is also present in the FMU.

This FMU has the highest fire frequency of the park. Research has shown that pre-settlement fire regimes were between 7 and 15 years in the pine and mixed pine stands. Pre-settlement fire regimes in the partially sheltered oak hammocks were 15 years (Frost 2011). Fire history maps show most recorded fires in the northern third of the FMU.

Access to the interior of this FMU is limited and roads and trails are not adequate to serve as fire breaks. It is possible for a fire to smolder and gather heat for a few burn periods before detection occurs. Once fire is established it has proven difficult to attack and control. Fire behavior can be extreme as pine stands, southern rough, and grass come in alignment with dominant afternoon sea breezes or thunderstorm down drafts. Containment of wildfires to this FMU on the north boundary will be difficult until fire breaks are created and maintained.

There are reserved estate and park service structures and infrastructure located within the boundaries and adjacent to this FMU. Any fire management action should consider the effects on these structures and properties.

Water sources are extremely limited for engine fill and bucket work in this FMU. One good freshwater source is located at the Old River Trail south of Plum Orchard.

3.2.2.1.5 Resource Values/Management Constraints

Significant cultural and natural resources are present in FMU-1 and a resource adviser should be notified when planning any fire management action in the FMU. Development/infrastructure within and/or adjacent to this FMU includes the High Point – Half Moon Bluff Historic District, Table Point Archeological District, Rayfield Archeological District, Plum Orchard Historic District, Stafford Historic

District, and Dungeness Historic District, and other reserved estate structures. Archeological sites and other cultural resources are found scattered throughout the FMU. Real property within the unit includes the Hawkins Creek dock, four bridges on the Main Road, electrical utility infrastructure, the Morris tract, the Table Point Co. (Perkins) tract, the Bullard Tract, the Richards tract, and three backcountry campgrounds. All these features, assets, and properties have the potential to be affected by fire management actions in this FMU.

The Cumberland Island Wilderness is situated within FMU-1 and wilderness character and values must be considered when planning any fire management action in that area. This includes the use of mechanical equipment. The main road has a right of way on both sides that can be considered outside of the wilderness. Most trails are foot travel only unless a Minimum Tool Requirement authorizes the use of other means. Minimum Tool Requirement worksheets will be created on a project specific basis. Beyond the wilderness, the remainder of the FMU is generally undeveloped and preserved in its primitive state. All fire management actions should respect those conditions and minimize disturbance.

Use of aircraft in the FMU is allowed but, wilderness characteristics need to be considered. Water supplies are very limited, and it may be necessary to use brackish water drawn from Cumberland Sound/River for helicopter bucket drops. Fixed-wing aircraft are authorized for use, but retardant drops should be limited to the protection of life and property. If fixed-wing air tanker drops are necessary, consider the use of water or a mixture of water and foam.

The Intracoastal Waterway is immediately west and south of this FMU and Interstate 95 is located approximately ten miles to the west. Kings Bay Naval Submarine Base; St. Marys, Georgia; Fernandina Beach, Florida; and Jekyll Island, Georgia, are all less than six miles from the FMU. Smoke management needs to be coordinated with the Camden County, St. Marys, Ga, Georgia Forestry Commission, Kings Bay Naval Base, U.S. Coast Guard, Fort Clinch State Park, Fernandina Beach, FL, and Nassau County FL Fire and Rescue.

3.2.2.2 Fire Management Unit #2: Historic Interface Zone

The Historic Interface FMU is divided into three separate areas of the island and takes in approximately 6,286 acres (see figure 7). A northern segment of the unit encompasses the High Point, Half Moon Bluff, Settlement, and Cumberland Wharf areas of the High Point – Half Moon Bluff Historic District. A central segment covers the Plum Orchard Historic District. A southern segment covers the Stafford Plantation Historic District, the Greyfield Historic District (private), the Rockefeller Tracts (private), Sea Camp, and the Dungeness Historic District. There are multiple operational docks within FMU-2, with the main ones located at Dungeness, Sea Camp, Plum Orchard, and Greyfield (private and used by permission only). The FMU has numerous roads and trails throughout it.

The southern component of this FMU has the most visitor occurrence on the island. Visitor destinations include the Dungeness Historic District, Sea Camp ranger station and campground, Greyfield Inn, and Stafford Campground. Additional visitor activity can also be expected at Plum Orchard and The Settlement. Overall, the FMU also supports the vast majority of operational, storage, and residential activity (NPS and private) on the island, particularly the southern component.



FMU 2 - Historic Interface Zone



Figure 8: Historic Interface Zone FMU 2

Significant areas within FMU-2 (north to south) include:

High Point – Half Moon Bluff Historic District includes The Settlement and Half Moon Bluff areas, which contain the First African Baptist Church and four residential tracts. Daily guided tours bring visitors to the site. The High Point area of the district is a reserved estate tract containing nine residential structures and occupancy can be high at times. Other cultural resources found within the district include the High Point Cemetery and the Cumberland Wharf ruins.

Plum Orchard Historic District includes a historic mansion, boat dock, and the park’s hunt camp. There are additional residential and support buildings (both NPS and reserved estate properties). Visitors tour the mansion and grounds throughout the day.

Stafford Historic District includes a historic mansion, numerous other buildings, a cemetery and The Chimneys, a significant archeological site. Primary activity is residential use associated with reserved estate property. Private residential area of Serendipity is just north of the district and Stafford Campground is on the southeast edge.

Greyfield Historic District is privately owned and includes a full-service inn, support buildings, a dock, and several residences. Occupancy can be high at times.

The Rockefeller tract is a privately-owned area with approximately five residential structures, two docks, and additional outbuildings. Occupancy can be high at times.

The Sea Camp area includes the Ranger Station and ferry dock on the west side and the front country campground on the east side, which includes 16 sites (maximum capacity 60 people) and two group sites (15-20 people).

Dungeness Historic District contains numerous historic structures many of which have been adapted for park operational, logistical, or residential use. District also supports concentrated visitor services and activities. District includes the ruins of the Dungeness Mansion and the nationally significant Tabby House.

Table 3: FMU-2 Snapshot

| | |
|---------------------------------------|---|
| FMU Name | 2-Historic Interface |
| FMU Identifier | FMU-CIP-2 |
| Defining Characteristics | FMU encompasses the developed areas and Historic Districts of the Seashore |
| Acres | 6,286 |
| Approved Fire Mgmt. Strategies | <ul style="list-style-type: none"> • Wildland fires will be a high priority for suppression action. Natural Fire starts should be suppressed commensurate with human safety and property in all instances. • Natural fire starts should be suppressed in a cost-effective way using existing fuel breaks, roads and trails where possible. • Prescribed fire can be used • Non fire treatments can be used including limited chemical treatment of vegetation. • Fuel breaks can be created and maintained using road and trail systems. • Emphasis on prevention, detection, rapid response, and size up. • Fixed wing air tankers can be used. • Retardant can be used only with park superintendent permission. • Helicopter can be used for bucket work • Equipment such as tractor plow, bulldozer, or similar may be used for the protection of life and property with the permission of the park superintendent • Use Minimum Impact Suppression Tactics to reduce negative effects of suppression. |
| Constraints | <ul style="list-style-type: none"> • Use of heavy equipment and/or retardant requires specific permission from the superintendent for each event. |

| | |
|--------------------------------------|---|
| | <ul style="list-style-type: none"> • Avoid unnecessary use of brackish water for bucket drops. • Multiple cultural resources in the FMU. Consult with resource advisor. |
| Associated Wx Station(s) | NOAA-Brunswick 29S, Stafford RAWS # 099902 |
| Dominant Vegetation or Fuels | Mixed oak hammock, southern rough, pine stands, coastal brush, marsh grass |
| Lat/Long of Centroid (NAD 83) | LAT: N30 47' 42.57" / LONG: W81 27' 42.46" |

3.2.2.2.1 Safety Considerations

Safety concerns for FMU #2 include:

- Lack of safety zones once you depart main road
- Communications can be limited in this FMU. Consider using a human repeater for radio traffic.
- 4x4 vehicles required for dune crossing and beach access
- Docking boats
- Tidal fluctuations
- WUI
- Potential hazardous material associated with buildings
- Snags are present
- High fuel loadings
- Light flashy fuels
- Limited water supply until a portable tank gets established
- Reptiles such as alligators and venomous snakes are present
- Smoke on the Intracoastal Waterway during wildfire and prescribed fire events.

3.2.2.2.2 Desired Conditions/Goals/Objectives

- Return 35% of upland in FMU 2 to historical fire regime by 2030.
- Consider firefighter and public safety (always the highest priority).
- Suppress all wildland fire in a cost-effective manner, consistent with resource objectives, and values to be protected.
- Create and/or maintain defensible space around private and seashore buildings.
- Reduce hazardous fuels within the FMU using prescribed fire and non-fire treatments according to the 5-year fuels treatment plan.
- Create an interpretative site/exhibit to better educate visitors and the public about the benefits of fire.
- Work with park, private, and reserved estate owners to adopt Firewise practices for this FMU.

3.2.2.2.3 Fire Environment

FMU #2 has a mix of fuel types. These include hardwood closed canopy forest, coastal scrub, palmetto, pine stands, and grass. Fire behavior can be expected to change drastically and unexpectedly with any change in fuel type.

WUI makes this FMU complex in management. Successful prescribed burn treatments were completed in the entire area in Figure 8 labeled The Settlement from 2019-2020. These initial treatments along with annual mechanical treatments have significantly reduced the wildfire risk to structures in The Settlement and High Point areas. Prescribed fire and mechanical treatments must be maintained at regular intervals described in the Multi-Year Fuels Treatment Plan (Appendix E) to preserve this reduced threat.

3.2.2.2.4 Approved Management Tools/Strategies

CUIS will implement a combination of fire management tools to include wildland fire suppression, prescribed fire, and non-fire mechanical fuels treatments including limited chemical control of vegetation. The use of heavy equipment, specifically bulldozers but can include other types, can be considered but should only be used in the event of protection of life and property. Heavy equipment should only be used in nearby proximity to structures and private properties. Use of heavy equipment must have permission from park superintendent. Use of fixed wing air tanker can be used. Use of retardant should only be used in proximity of structures and in the protection of life and property. Helicopters with buckets may be used in this FMU

3.2.2.2.5 Resource Values/Management Constraints

FMU# 2 has considerable constraints to fire management. This FMU is the most developed within the park. It hosts five historic districts with associated cultural resources such as historic structures, cultural landscapes, archeological sites, cemeteries, and other features. Residential locations range in occupancy from a single full-time resident to a full-service inn to seasonal occupancy that can be relatively high. The areas within the FMU constitute the most active visitor sites on the island. Dungeness and Sea Camp docks are within the FMU and are the gateway for park visitors.

3.2.2.3 Fire Management Unit #3 Little Cumberland

Little Cumberland Island is located north of the larger Cumberland Island, with Christmas Creek separating the two. While Little Cumberland is within the Seashore boundaries, it is privately owned throughout and is managed by its own homeowner's association. In consideration of its ownership, management, and jurisdiction Little Cumberland has been designated as a distinct FMU, encompassing approximately 3,437 acres (figure 8). The boundaries of the FMU are Christmas Creek to the south, Cumberland River on the west, St. Andrews Sound on the north, and the Atlantic Ocean on the east. The NPS is considered a cooperator to Camden County and Georgia Forestry commission for fire management of this FMU. Access to Little Cumberland Island is extremely difficult with limited locations for boat landings. Once on the island there are no agency vehicles, so travel is by foot or private landowner.

3.2.2.3.1 FMU Operational Guidance

Camden County Fire and Rescue and the Georgia Forestry Commission are the lead agencies for fire management on Little Cumberland Island. CUIS will assist Camden County and the Georgia Forestry Commission according to annual operating plans and requests from the lead agencies. A unified command structure is suggested for incidents within this FMU.



FMU 3 - Little Cumberland

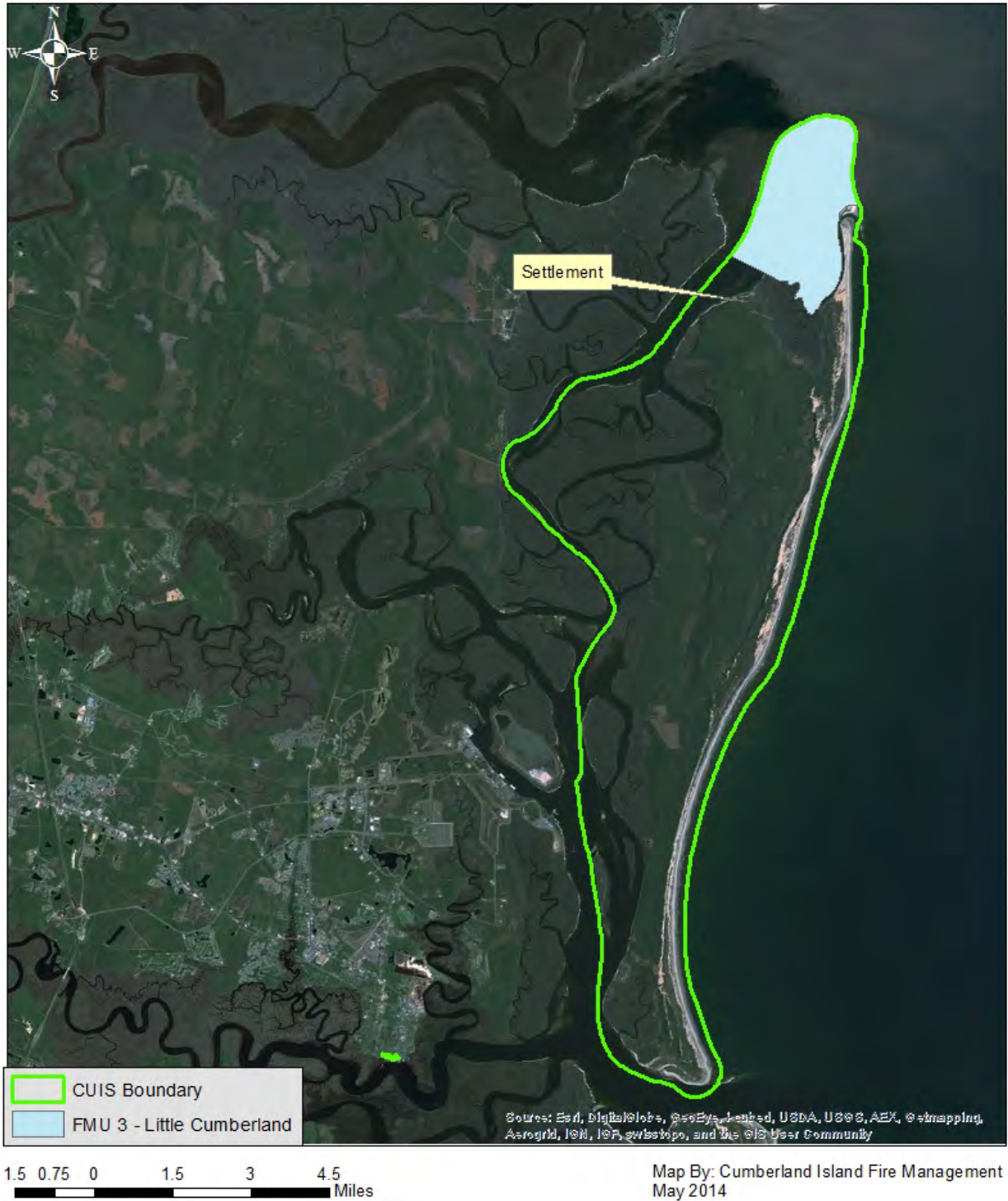


Figure 9: Little Cumberland FMU 3

4 WILDLAND FIRE OPERATIONAL GUIDANCE

4.1 Safety

The safety of firefighters and the public is Cumberland Island National Seashore's first priority. This FMP and the activities defined within reflect CUIS's commitment to safety. Moreover, safety is the responsibility of all firefighters, managers, and administrators. Individuals are responsible for their own performance and accountability. Every supervisor, employee, and volunteer is responsible for following safe work practices and procedures, as well as identifying and reporting unsafe conditions. All firefighters, fireline supervisors, fire managers, and agency administrators have the responsibility to ensure compliance with established safe firefighting practices.

All actions defined in this FMP will conform to safety guidelines defined by current agency and departmental policy, including, but not limited to, the current versions of the documents listed below:

- National Interagency Fire Center Interagency Standards for Fire and Aviation Operations, or Red Book, current version (NIFC 2020)
- NPS DO-18 Wildland Fire (NPS 2008b)
- NPS RM-18 Chapter 3, Standards for Operations and Safety (NPS 2019)

4.1.1 Firefighter Safety

Firefighter and public safety is the first priority in every fire management activity. Agency administrators at all levels must stress that firefighter and public safety *always* takes precedence over property and resource loss. This policy will be emphasized throughout all fire management operations at CUIS.

Human health and safety: Firefighter and public safety is the highest priority in every fire management activity:

- Only fully qualified employees will be assigned fire management duties, i.e. meeting NPS and NWCG qualifications as well as accepted interagency knowledge, skills and abilities for the assigned fire job (unless assigned as trainees, in which case they will be closely supervised by an individual fully qualified for the given position).
- No fire management operation will be initiated until all personnel involved have received a safety briefing describing known hazards and mitigating actions (LCES), current fire season conditions, and current and predicted fire weather and behavior. Hazards specific to the seashore include:
 - Lack of safety zones throughout all FMUs.
 - Dead spots in radio communication systems.
 - Compatibility of Motorola and Bendix King radios.
 - Time consuming emergency evacuation.
 - Lack of access points.
 - Unnatural fuel loadings that can be considered high to extreme.
 - Volatile fuels that preclude direct attack.
 - Snags and dead trees with weak root systems.
 - Stinging/biting insects, ticks, alligators, and venomous snakes
 - Dehydration, heat exhaustion and heat stroke.

- Boat transport.
- Wildland fire incident commanders will minimize firefighter exposure to heavy smoke by incorporating the recommendations outlined in the publication *Health Hazards of Smoke* (Sharkey 1997), available from the Missoula Technology and Development Center.
- Seashore neighbors, visitors and residents will be notified of all fire management events that have the potential to impact them.
- The CUIS Superintendent or designee may, as a safety precaution, temporarily close parts of the seashore to the visiting public.

The NPS wildland fire training, qualification, and certification system meets or exceeds all National Wildfire Coordinating Group (NWCG) standards. Only fully qualified employees will be assigned fire management duties, i.e. meeting NPS and NWCG qualifications as well as accepted interagency knowledge, skills and abilities for the assigned fire job (unless assigned as trainees, in which case they will be closely supervised by an individual fully qualified for the given position). All personnel (including emergency hire firefighters) engaged in fireline operations must have completed the S-130/190 class including the modules on basic firefighting, basic fire behavior, and standards for survival. The seashore Fire Management Officer will coordinate annual safety refresher training for all firefighter qualified CUIS staff.

Refresher training will concentrate on local conditions and factors, NWCG Refresher Training topics of the year, the 10 Standard Fire Orders, 18 Watch Out Situations, LCES (Lookouts, Communication, Escape Routes, Safety Zones), and common denominators of tragedies and near-miss situations. NWCG courses such as Standards for Survival, Lessons Learned, and Look Up, Look Down, Look Around, meet the firefighter safety refresher training requirement. Hands-on fire shelter inspection and deployment practice *will* be included as part of the annual refresher. Efforts should be made to vary the training from one year to the next. The seashore FMO will ensure all pertinent employee data is entered into IQCS (or the appropriate reporting system).

All seashore fire management personnel will be equipped with approved personal protection equipment (PPE), and trained in its proper use. Operational personnel on the fireline are required to use the PPE. Mandatory PPE includes:

- 8" high, laced, leather boots with lug soles
- Fire shelter
- Hard hat with chin strap
- Goggles/safety glasses
- Ear plugs
- Nomex shirt and trousers
- Leather gloves

The NPS *Wildland Fire Qualification System Guide* contains a supplemental list of PPE. Special PPE and hazard analysis are required for operations involving fuel gelling agents, fireline explosives, aircraft, and chainsaws.

Prior to and throughout all fire management field operations at the seashore, fireline supervisors will cover safety factors with incident personnel via operational briefings beforehand, and safety briefings that occur during the incident. No NPS employee, contractor, or cooperator will ever be intentionally exposed to life-threatening conditions (see *RM-18*, chapter 3, for further safety-related planning and operational guidelines).

NPS policy requires that all personnel (including emergency firefighters) engaged in suppression and prescribed fire duties meet the physical fitness standards set by the NWCG. Physical fitness/work capacity levels will be determined by the Work Capacity Test (WCT). Descriptions of the three work capacity levels (light, moderate and arduous), as well as medical and physical fitness requirements and procedures are outlined in the Interagency Standards for Fire and Aviation Operations (current year version). The seashore FMO will annually administer (or coordinate the administration of) the pack test to CUIS firefighter-qualified staff and maintain up-to-date records of employee qualifications.

The seashore will annually update job hazard analysis (JHA) and keep a data base for reference. Known jobs that fire management activities may conduct will require a JHA.

Most fire management activities including suppression, prescribed fire, and fuels treatments will receive an after-action review (AAR). AAR's should allow participants to offer honest evaluation of events of an incident without intent to point fingers or to place blame on an individual. The purpose of the AAR should be to learn things that went well and identify areas where proficiencies can be improved. A format for an AAR to follow can be found in the front of the Incident Response Pocket Guide (IRPG).

CUIS will follow work/rest, incident review, critical stress debriefing, and serious accident guidelines that are found in the Interagency Standards for Fire and Fire Aviation Operations (current year version).

Any incident employee has the right to a safe work environment. Any safety issue will be taken seriously by fire management personnel and by the agency administrator. All efforts will be taken to identify and mitigate safety concerns. If a person assigned to an incident at CUIS decides that a safety concern cannot be mitigated, they have the right to refuse the assignment. A guideline on how to properly refuse risk can be found in the IRPG (yellow section) and the Red Book. Incident managers will take refusal seriously and actively attempt to mitigate the safety hazard or change tactics.

4.1.2 Public Safety Issues/Concerns, and Mitigation Procedures

Under no circumstances will an individual be permitted near a wildland fire at CUIS without the required personal protective equipment (PPE). Members of the press or non-firefighters may be allowed in the vicinity of a fire only if they are determined to meet the standards established in the Interagency Standard for Fire and Fire Aviation Operation for escorted visits.

In the case of a wildland fire or during times of extraordinary fire danger the CUIS superintendent or designee may, as a safety precaution, temporarily close parts of the seashore to the visiting public. Every effort will be made to inform the general public of the situation and evacuate the area if necessary. If a fire threatens to escape seashore boundaries, adjacent authorities and landowners will be given as much advance warning as possible so that they may take appropriate action.

Evacuation of park staff, island residents, and members of the public will be made by incident personnel. Island staff not assigned to the incident, Georgia Forestry Commission, or county officials may assist in

evacuation notifications. Notifications of island residents will be made by a visit to their residence or a phone call. All possible means to notify residents absent from the island will be attempted. Evacuation locations will vary with conditions of the emerging incident, with the first priority to get people to a safe location and the second priority getting them off the island.

While smoke on roads within the seashore boundary is a concern, smoke impacts to the Intracoastal Waterway are a major concern. Fire managers will work with the U.S. Coast Guard station in Brunswick, Georgia to inform them of potential impacts to the waterway. Consideration of impacts on the waterway will be identified in fire management actions.

Public hazards post incident includes snags and falling trees from compromised roots. Attempts will be made to mitigate snag hazards that may affect roadways and trails before closing out an incident. It is still possible that hazards will exist well after the incident and seashore staff will monitor road and trail systems to identify and mitigate hazards.

4.2 Preparedness

Preparedness activities provide detailed procedures and standards of wildland fire operations, including pre-season and ongoing activities throughout the fire season. It also includes pre-planned procedures for initial response and incident management. NPS policy requires that every unit with a fire management program incorporate preparedness considerations into its fire management plan (*RM-18*, chapter 5, provides guidelines). Preparedness involves planning and implementing activities prior to wildland fire ignitions to keep the unit in a state of fire-readiness. It includes routine actions completed prior to fire season as well as incremental actions conducted during fire season in response to increasing fire danger. The CUIS fire management officer is responsible for coordinating and completing preparedness tasks and ensuring that the seashore has access to additional fire resources as needed.

Specific preparedness activities for CUIS include:

- Maintain a 10-person cache of supplies, materials, and equipment sufficient to meet normal fire year requirements.
- Maintain Type-3 Support water tender.
- Maintain 2 Type-6 engines.
- Maintain qualified staff of collateral duty fire fighters commensurate with the normal fire year workload.
- Prepare a step-up plan based upon staffing classes derived from the National Fire Danger Rating System (see section 4.2.2.5).
- Maintain fire records, weather data, maps and other associated information.
- Assure training for park fire fighters and FMO are completed and qualifications are documented.
- Prepare a pre-season risk analysis.
- Maintain cooperative agreements with Camden County, Georgia Forestry Commission, Tri-Agency partners, and the National Weather Service in Jacksonville, Florida.
- Provide a dispatch system for mobilizing park fire management resources to local and out-of-area incidents, which will facilitate rapid and efficient mobilization.

The park FMO or Regional FMO will organize an annual preseason fire readiness inspection of the fire management program at CUIS. The interagency template for readiness reviews can be found at,

http://www.nifc.gov/policies/pol_ref_NPS_prgrmRvw.html. The inspection will address general readiness for the upcoming fire season. It will also serve to determine whether CUIS's current training levels, equipment, and organizational structure meet the standards described in this FMP.

4.2.1 Coordination and Dispatching

CUIS is dependent on other federal agencies and local cooperating agencies for fire management activities due to the lack of staffing of qualified personnel at the park. CUIS has Memorandums of Understanding (MOU), Annual Operating Plans (AOP), and/or other agreements with multiple agencies to enhance the capabilities of the park to manage fire. The NPS has a Master Agreement with the Georgia Forestry Commission (GFC) at the regional level and an AOP at the local level. This agreement provides for the sharing of resources and equipment during an emerging incident. CUIS is a partner in the Tri-Agency Agreement with Okefenokee National Wildlife Refuge, Osceola National Forest, and Timucuan Ecological & Historic Preserve that streamlines the sharing of resources and equipment between local federal agencies. This agreement requires annual updates and signatures of agency administrator.

Dispatching and ordering of CUIS resources is currently completed by the Georgia Interagency Coordination Center (GICC) in Gainesville, Georgia. Coordination with the Southern Area Coordination Center (SACC) is necessary for off-unit and NPS specific orders. In the event of an incident on the park, a dispatch center will be established either on the mainland or at the Captain's House on the island and it will be staffed with an initial attack dispatcher. The initial attack dispatcher will coordinate FMO/incident commander's needs with local agencies and the GICC as well as keeping a communication log. If a wildfire is reported on Little Cumberland Island FMU #3 Camden County and GFC must be notified as they are the lead agency for response to this FMU.

Mandatory notifications of a wildfire at CUIS include:

- Camden County 911 (courtesy call and ask to notify duty officer)
- GFC Camden Unit (912) 576-6970
- GICC (770) 297-3036

4.2.2 Preparedness Activities

Wildland fire preparedness activities include a wide range of readiness activities and program elements that are essential to dealing with unplanned ignitions and fuels treatments. CUIS preparedness activities will include:

- Obtain and update Annual Delegation of Authority from Park Superintendent. (Red Book, Chapter 3)
- Maintain a 10-person cache of supplies, materials, and equipment sufficient to meet normal fire year requirements. Cache is in the Dungeness Historic District but may be moved at any time. Cache items will be inventoried and restocked as necessary prior to the advent of the fire season. Firefighter-qualified employees will be issued initial attack gear and personal protective equipment from the cache.
- Maintain and keep in a state of readiness Type-3 Support water tender currently located at the Nightingale well house.
- Maintain and keep in a state of readiness 2 Type-6 engine currently located at the Nightingale well house and mainland at park headquarters.

- Maintain all mechanized fire equipment (pumps, chainsaws, leaf blowers) in a state of readiness throughout the fire year.
- Maintain qualified staff of collateral duty fire fighters commensurate with the normal fire year workload.
- Prepare a step-up plan based upon staffing classes derived from the National Fire Danger Rating System (see section 4.2.2.4).
- Maintain fire records, weather data, maps and other associated information.
- Assure training for park fire fighters and FMO are completed and qualifications are documented.
- Prepare a pre-season risk analysis.
- Maintain various agreements with Georgia Forestry Commission, Tri-Agency partners, and the National Weather Service in Jacksonville, Florida.
- Review dispatch procedures.
- Update JHA's and maintain JHA file in FMO office.
- Agency administrator will ensure Agency Administrator Guide to Critical Incident Management (NFES 1356) is available and in a known location.
- Update incoming resource briefing packet
- Review CUIS size up card and update if necessary.
- Prepare a list of available firefighter-qualified personnel at the beginning of the fire season.
- Facilitate readiness review of CUIS fire program

4.2.2.1 Annual Training Needs of Fire Staff

NPS fire management training meets the criteria specified within the training curriculum approved by the National Wildland Coordination Group (NWCG), which is tiered to positions described in the NWCG *Wildland Fire Qualifications*, *Prescribed Fire Job Qualifications*, and *Incident Command System Wildland Fire Job Performance* guides. The seashore FMO will conduct an annual training need analyses, and coordinate training courses as appropriate. Courses identified will be based upon employee needs (as reflected in individual employee development plans), seashore fire management needs, and regional priorities. Training will be conducted on an interagency basis and be made available to local cooperators to the greatest extent possible. Any firefighter-qualified seashore staff will receive at least one annual safety refresher training. The FMO will coordinate a minimum of one Annual Firefighter Refresher class and one Work Capacity Test per year. All CUIS Cooperators will be provided the opportunity to attend these trainings, as will other NPS personnel in the region.

The FMO will document and file all training records for any employee that is red carded at CUIS. FMO will enter training and yearly experience into IQCS or arrange for SACC to complete inputs into IQCS. FMO will ensure that all individuals that have received annual training and are qualified in an ICS capacity will receive red cards. Firefighter records will be kept on file in the FMO office.

4.2.2.2 Annual Equipment and Supply Readiness Procedures

CUIS maintains a cache of supplies and equipment sufficient to meet normal fire year requirements for up to ten people. The fire cache is in the Dungeness Historic District, inside the Carpenters Shed. Table 2 lists activities that will be performed to ensure the fire readiness of seashore personnel, supplies, and equipment, as well as the month(s) that each should be accomplished.

Table 4: Annual Fire Readiness Activities

| Activity | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Maintain state of fire readiness as per step-up plan. | x | x | x | x | x | x | x | x | x | x | x | x |
| Review/update Cooperator MOU's and AOP's | x | x | | | | | | | | | | x |
| Review/update interagency agreements. | x | x | | | | | | | | | | |
| Review FMP and fire program. | x | x | | | | | | | | | | |
| Inventory fire cache; restock as necessary. | x | | | | | | x | | | | x | |
| Equip firefighter-qualified staff with PPE as needed. | x | x | | | | | | | | | x | x |
| Update CUIS firefighter qualifications. | x | | | x | | | | | | x | | |
| Fitness test CUIS staff. | x | x | | | | | | | | | | x |
| Complete CUIS training analysis. | | | | | | | | | | x | x | |
| Coordinate fire training. | x | | | | | | | | | x | x | |
| Provide annual refresher training and Work Capacity Test. | x | x | | | | | | | | | | x |
| Issue updated qualification cards. | x | x | | x | | | | | | | | |
| Review/update Service and Supply Plan | x | | | | | | | | | | | |
| Review/update Park red carded list | x | | | | | | | | | | | |
| Review/update JHA's | | | | | | | | | x | x | x | |
| Host preseason informative meeting (risk, hazard rating, outlooks, etc.) | | | x | | | | | | | | | |

4.2.2.3 Fire Weather and Fire Danger

4.2.2.3.1 Weather Station

CUIS hosts a RAWS (Remote Automated Weather Station) fire weather station located on the north end of the island near the High Point complex. The station name is Stafford and the station number is 099902. The station was installed in 2005. The seashore has recently got the station on the BLM National Maintenance Contract and as of June 2013 most attributes have been repaired or replaced. This station needs to be maintained annually and the contract states that April 1st is the date to start annual maintenance. Real-time data can be found at <https://wrcc.dri.edu/cgi-bin/rawMAIN.pl?laGSTA>

The National Oceanic and Atmospheric Administration has established and maintains a Climate Reference Network (CRN) station in Stafford Field. The station has been in operation since December of 2004 and is identified as GA Brunswick 23S. While it is not devoted specifically to fire weather data, the station provides usable data for the middle of the island including surface air temperature, precipitation, solar radiation, and wind speed. Real-time data from the station can be obtained via the web at <http://www.ncdc.noaa.gov/crn/station.htm?stationId=1120>.

4.2.2.3.2 National Fire Danger Rating System (NFDRS)

The National Fire Danger Rating System (NFDRS) enables a land management unit to determine fire danger based upon an evaluation of the upper limit of predicted fire behavior. Calculations of fire behavior

are based on fuels, topography, and weather. NFDRS outputs give relative ratings of potential wildland fire growth and behavior, thereby allowing a unit to systematically correlate its readiness level to the predicted fire problems of the day. CUIS uses the burning index (the NPS standard) as its primary day-to-day indicator of the potential amount of effort needed to suppress a single fire in a fuel type within a given area. The Keetch-Byram Drought Index is used as the primary drought indicator. The Energy Release Component (ERC) is the index that CUIS uses as its step-up plan indicator. All these indices influence decisions regarding prevention activities, initial attack, and extended attack. CUIS interacts with the Georgia Interagency Coordination Center (GICC) and GFC for daily NFDRS ratings and forecasts.

Burning Index

The burning index (BI) is a number on an open-ended scale (although typically between 0 and 100), expressing the potential amount of effort needed to suppress a single fire in a particular fuel type within a given area. BI is based upon fuel model, fuel moisture, and current and forecasted weather parameters. As the BI increases, expected fire intensity increases. The higher the expected fire intensity, the more effort that will be necessary for fire suppression.

Keetch-Byram Drought Index (KBDI)

The KBDI is a mathematically calculated drought indicator relating to the amount of moisture in the top seven inches of soil or duff. It ranges from 0-800, with 0 being saturated and 800 indicating maximum drought. Drought directly influences the flammability of all fuel/vegetation complexes (as drought progresses the upper soil layers dry, increasing the amount of dead and cured live fuels available for consumption), which in turn influences fire behavior and control efforts.

Energy Release Component (ERC)

The Energy Release Component (ERC) is a NFDRS (National Fire Danger Rating System) index related to how hot a fire could burn. It is directly related to the 24-hour, potential worst case, total available energy (BTUs) per unit area (in square feet) within the flaming front at the head of a fire. The ERC can serve as a good characterization of fire season as it tracks seasonal fire danger trends well. The ERC is a function of the fuel model and live and dead fuel moistures. Fuel loading, woody fuel moistures, and larger fuel moistures all have an influence on the ERC, while the lighter fuels have less influence and wind speed has none. ERC has low variability and is the best fire danger component for indicating the effects of intermediate to long-term drying on fire behavior (if it is a significant factor) although it is not intended for use as a drought index.

4.2.2.4 Step-Up Staffing Plan

As previously stated, CUIS uses the Energy Release Component (ERC) to indicate the potential amount of effort needed to suppress a single fire in a fuel type within a given area. This, in turn, determines the staffing class. Staffing classes range from 1 to 5 (lowest to highest). As ERC increases, the staffing class level increases, with corresponding actions intended to mitigate the predicted difficulty of containing a wildland fire.

Table 5 below illustrates the correlation between ERC and step-up staffing class levels and actions. Break points were established via a Fire Family Plus analysis, with weather inputs from the park's Stafford Weather Station (ID number 099902). Staffing classes 4 and 5 were calculated at the 90th and the 97th percentiles, respectively from January 1st 2011 through December 31st 2020. (Conditions meeting the staffing class 4 parameters should occur only 10% of the time and staffing class 5 parameters should occur only 3% of the time.) 2016 NFDRS fuel model Y was utilized for step-up staffing purposes.

The energy release component/staffing class correlation should be validated based upon day-to-day observation and experience. An annual analysis should be conducted as part of the FMP update. Staffing levels should reflect the past 10 years of data. The 90th and 97th percentile thresholds will be updated in the Weather Information Management System (WIMS) for the Stafford RAWS based on the annual analysis.

Table 5: Staffing Class Levels and Step-Up Actions

| Staffing Level | ERC | Activity |
|----------------|---------------|--|
| 1 | 0-6 | Maintain fire-readiness of Type-6 engine, Type-3 water tender, weather station, and island communications system. FMO or duty officer is scheduled to complete daily weather analysis to determine current and predicted staffing level and obtain daily weather briefing. Available initial attack IC is not pre-identified, but a list of qualified local ICs is maintained. |
| 2 | 7-13 | Same as SL 1, additional duty hours may be assigned to ensure availability of suppression staff and for specialized personnel to make emergency equipment repairs and provide logistical boat support for fire preparedness activities. |
| 3 | 14-26 | Same as SL 2, but IC must be Type 4 qualified. Suppression resources may be pre-positioned to enable more rapid initial attack response times. Aerial reconnaissance detection flights may be requested from cooperators. |
| 4 | 27-30 | Same as SL 3, plus duty officer will notify superintendent of high fire danger and maintain contact with cooperators to determine helicopter and other initial attack suppression resource availability. Additional suppression resources may be brought in or staged at the Park. Additional prevention activities including landowner contacts and briefings to visitors will be conducted. Additional duty hours may be assigned for fire detection patrols and prevention activities. If aircraft are not available from cooperators, a fixed wing aircraft may be hired for a detection flight. Duty officer should start analyzing need for severity package to be prepared for Regional FMO |
| 5 | 30 or greater | Same as SL 4, plus additional duty hours may be assigned for personnel to staff an additional Type 6 engine. Severity resources may be requested. |

If KBDI is 600 or above or lightning is predicted increase staffing level by one

Emergency preparedness step-up or severity funds are available from the Southeast Regional Office (SERO) to accomplish approved activities at levels 4 and 5. Park level funding may be made available for staffing class levels 2 and 3. If severity funding is necessary, the seashore FMO will submit a written assessment of the current and potential situation, including a description of mitigating actions and costs to the SERO.

4.3 Management of Unplanned Ignitions

RM-18 defines wildland fire suppression as “an appropriate management response to wildland fire that results in curtailment of fire spread and eliminates all identified threats from the particular fire. This may include confinement within natural or pre-existing boundaries. All wildland fire suppression activities provide for firefighter and public safety as the highest consideration, but minimize loss of resource values, economic expenditures, and/or the use of critical firefighting resources.”

Wildland fire resulting from unplanned ignitions will be managed by FMU specific strategies. Consideration will be given to weather, fuel conditions, seasonal timing, and available resources in all management decisions. Human-caused fires will require an investigation and report by law enforcement or a wildland fire investigator.

A. Preparing for Unplanned Ignitions

1. Objectives

- Provide for fire fighter and public safety.
- Create and maintain a fire management program suitable to meet the needs of this FMP. Continue to recruit, train, and retain red carded employees to assist with fire management responsibilities within the park.
- Bring the CUIS fire management program from two employee to a minimum of three employees to cover staffing needs and to conduct fuels treatments.
- Ensure MOU's and AOP's are current and meet the needs of all cooperators of CUIS.
- Maintain firefighting equipment to a state of readiness and keep fire cache in a state to outfit the needs of a 10-person crew.
- Conduct all fire operations in designated wilderness in accordance with the Minimum Tool Analysis and Minimum Impact Suppression Tactics (MIST).
- Manage fires using the full range of management strategies to protect, restore or maintain resources within the Park.
- Prepare a pre fire season risk assessment and examine the current condition and fire danger.
- Conduct morning briefings with fire personnel on current weather, drought conditions, local and national situation report, and safety topics.

2. Risk Assessment

A pre fire season risk assessment for CUIS will be compiled to describe the state of fire behavior and potential. When an unplanned ignition occurs, a size-up will be obtained by the first person on the scene of the incident. The CUIS FMO will analyze the size-up information, complete an incident complexity analysis, plot the incident into the correct FMU, enter the incident into WFDSS if necessary, per policy, and make an informed decision on the fire management action for the incident. After analyzing the information, the FMO will discuss the applicable information with the Park Agency Administrator and determine a course of action.

When determining the level of risk for an unplanned ignition, FMO or Duty Officer will consider long term drought conditions, seasonal timing, current and expected weather conditions, current fuel conditions, current ERC/BI indices, location of ignition, resources and property at risk, and availability of resources both locally and nationally.

3. Implementation Procedures

In expectation of unplanned ignitions, the FMO and Park Agency Administrator will complete the preparedness pre fire season checklist to ensure the Park is ready for fire management activities (see Table 4 Annual Preparedness Activities). The FMO and Agency Administrator should conduct preseason WFDSS training to ensure all parties involved in unplanned ignitions can navigate WFDSS, which is the system CUIS uses to assist with decision making and reporting of fires. The FMO or Duty Officer will initiate the WFDSS record for each incident that requires a WFDSS decision and the

Park Agency Administrator will review and approve decisions as needed. An incident will also need to be created in InFORM for record keeping purposes.

Every unplanned ignition will have an incident size-up conducted by the first person on scene. The FMO or IC will conduct an incident complexity analysis to determine level of incident command necessary. The FMO will coordinate getting a dispatch system set up for incidents that exceed a Type 5 incident. If possible and if a qualified dispatcher is available, an initial attack dispatch will be set up locally within the park. Preferred locations are the Captain's House on the island or the Bachlott House on the mainland. It is important the initial attack dispatcher has access to a base station radio, computer, and land line telephone. The FMO will coordinate all resource orders through the GICC and SACC and keep the geographic dispatch centers up to date on the situation.

CUIS has weather monitoring capabilities throughout the island. The Park maintains a RAWS (Remote Automated Weather Station) station located on the north end of the island just off the Candler Road, west of the High Point complex. The station is named Stafford, its WIMS ID is 099902, and station data can be accessed on the internet at <https://wrcc.dri.edu/cgi-bin/rawMAIN.pl?laGSTA>.

NOAA maintains a CRN station on the southern end of Stafford Field, identified as GA Brunswick 23S. While not devoted specifically to fire weather data, the station provides usable data for the middle of the island including surface air temperature, precipitation, solar radiation, and wind speed. Real-time data from the station can be obtained on the internet at <http://www.ncdc.noaa.gov/crn/station.htm?stationId=1120>.

GFC maintains a RAWS station located just to the west of Brunswick, Georgia, and is approximately 20 miles northwest of Cumberland Island. This RAWS station has representative weather data for the north end of the island including FMU 3. Station data can be found at <https://wrcc.dri.edu/cgi-bin/rawMAIN.pl?laGSTE>

CUIS uses the NFDRS fuel model Y as the primary fuel model for decision making and analysis. Standard fuel models that are used at CUIS include FM 7, FM 4, FM9, and FM2.

4. Staffing

The park has a full time FMO and Fire Operations Technician that work under the Visitor and Resource Protection Division. The FMO is the point person for all fire management activities at CUIS. CUIS also currently has six red-carded individuals that have qualifications as FFT2. The Maintenance Division has employees that can assist with fire management activities such as boat operations, drivers, camp set-up, logistics, etc. The park needs to continue to develop, recruit, and train employees to assist with fire management activities. During normal fire seasons, a minimum of one ICT4, ENGB, should be on staff and available for fire assignment.

If an incident in the park exceeds a Type-4 command system, draw down on park employees will occur and all divisions within the park will need to assist fire operations until incoming resources are obtained and briefed. The use of the step-up plan based

on current fire danger can assist with obtaining severity funding for additional resources during times of elevated fire danger.

It is important that the park continue to explore ways to expand the staffing of the CUIS fire management program. Additional positions will be required within the park to successfully implement the objectives and duties described in this FMP. A future fire management organization should have the following positions to implement this FMP:

- FMO
- AFMO Fuels/Prescribed Fire Technician
- Administration Assistant/GIS Specialist
- Fire Fighter

5. Information

All CUIS information/education will follow the guidance in RM-18 Chapter 21 Communication and Education. Through press releases issued by the park's Public Information Officer, CUIS will try to fully inform the public of the risks associated with wildfires and the roles and cooperative efforts of the Park in fighting wildfires and protecting life and property as well as the role/benefits of wildland fire. The park PIO will gather information for all fire management activities and put together a press release that will include local media, stakeholders, island residents, property owners, and cooperators. The park PIO maintains an up to date list of contacts that press releases are to be sent to.

6. Record Keeping

All wildland fires at CUIS will be fully documented and entered in InFORM. Wildland fires that are not contained during initial attack or managed for resource benefits will require a published WFDDS decision. Fire records are to be kept in the FMO office in a file cabinet, or if file is large, it should be kept with archival records in the curatorial facility on the mainland. All records will be archived on a five-year basis.

At minimum the documentation should include;

- Size up report
- Delegation of Authority
- Approved planning document that guided management actions (e.g. WFDDS report). Include all amendments and revisions.
- Monitoring reports and summaries of findings, along with a summary of all monitoring activities including a monitoring schedule (level 1 and 2 monitoring).
- Revalidation and certification documents.
- All documentation including ICS 214
- Funding codes and cost accounting.
- Project maps. Permanently map and archive all fires greater than 10 acres, using GIS whenever possible. Park units without local access to GIS should draw upon regional resources. See RM 18 Information and Technology Management chapter for more information about GIS and data standards.
- Other information as appropriate for the situation, such as photo points.

- Explain the funding/fiscal tracking of costs associated with the incident.
- AAR report.
- IMT transition documentation.
- Daily IAP's

B. Expected Fire Behavior

Fire behavior experienced at CUIS can run the entire range of attributes depending on fuel types, topography, and environmental conditions. Fire behavior can range from short duration with high rates of spread in light, flashy fuels up to long duration with extreme fire behavior characteristics in the mixed palmetto-brush and savannah of the northern wilderness area. Fire season at CUIS can run year-round but, a typical season tends to run from April to September. Environmental conditions can drastically alter fire behavior from year to year. Extended drought years and low water levels can significantly affect fire potential and behavior. Active tropical seasons can also have a significant effect on fire potential and behavior. Critical thresholds for CUIS are updated annually within the NFDRS Operating Plan, and on the pocket cards that are a product of that plan. More information on general fire behavior characteristics can be found within specific FMU descriptions in Chapter 3.

C. Initial Response Procedures

Initial attack forces comprise the first suppression personnel to arrive at a fire, as well as any reinforcements (which may include firefighters from the GFC, Camden County Fire and Rescue, U. S. Forest Service, and the U.S. Fish and Wildlife Service) that arrive during the first burning period. The incident commander (IC) will develop an appropriate initial attack response to the incident, brief all resources, organize and direct the fire resources on hand toward safe and efficient implementation of that response, monitor the effectiveness of the suppression tactics, and adjust strategy and tactics accordingly. If the IC is not qualified for the existing or predicted level of complexity, she/he will be replaced by a qualified IC at the first opportunity. The IC will be responsible for the fire until it is out or until she/he is relieved of that duty via a formal command change.

Initial response to a wildfire incident can consist of multiple options. These options include monitoring, aggressive suppression, confine and contain using existing fuel breaks, or allowing fire to be used for resource benefits. FMU descriptions in chapter three describe in outline the suppression options that are available for fire managers in a specific FMU.

Firefighter and public safety is the highest priority for all responses. Responses will be dictated by current and expected weather conditions, location of report, time of season, resource availability, values at risk, and other considerations. Each response to a reported fire will receive one or more management strategies approved by the FMO, Duty Officer and/or Park Superintendent. Strategies are based on safety, weather, fuels, location, capability to accomplish objectives, and biological, cultural, or political constraints.

Every fire start will get an initial size up and the FMO or Duty Officer will plot the incident into the proper FMU. Once the incident is plotted FMO or Duty Officer will analyze the situation, discuss with the Agency Administrator, and determine a course of action. This information will be relayed to the IC.

Every incident that:

- Escapes initial attack; or
- Exceeds initial response; or
- Includes objectives with both protection and resource benefit elements consistent with land management planning documents.

will be initiated in WFDSS. This program will assist in the determination and documentation of the course of action to take for the incident.

If initial attack is not successful, or different strategies are applied, then a new course of action may be required. If a smoke report is to be monitored by ground resources or aerial resources, or an incident moves to a monitor status, the second of the two choices, “monitor the incident”, may be utilized.

All fires that undergo extended attack or are managed for multiple objectives, including resource benefit, are required to be taken through each tab within WFDSS, creating a document that requires Superintendent approval and a periodic assessment.

1. Information needed to Set Initial Attack Priorities

Incident Commanders will give incident size-up information to the FMO or the Duty Officer using the CUIS Incident Organizer. The information gathered using this organizer is the initial step in compiling data needed for setting initial response priorities. If more information is needed by either the FMO or Duty Officer, that information will be requested and utilized to support prioritization.

Information needed for analysis and determination of initial response includes:

- Location of incident
- Latitude and Longitude
- FMU
- Size of incident
- Current fire behavior
- Current and expected weather
- Proximity to the Wildland Urban Interface
- Fuel Type
- Proximity to wilderness
- Cultural resources
- Wildlife concerns
- Natural resource concerns

CUIS has the following preplanned dispatch strategies:

- Size up Incident
- Aggressive suppression
- Confine/Contain tactics
- Monitor

2. Incident Documentation and Reporting

Every confirmed wildfire that meets the requirements listed on the previous page will be entered into the WFDSS database. This system is intended to assist fire managers, analysts, and Agency Administrators in making and documenting strategic and tactical decisions for fire incidents. Prior to each fire season, the designated data managers should determine if any edits or updates to the FMP need to be incorporated into the WFDSS database.

CUIS fire staff is required to complete a fire report for all natural and human-caused fires that occur in the park and for any incidents to which park personnel provide support. A fire report, completed within ten days after the fire is declared out, is entered into the Fire Occurrence Reporting Module of the Wildland Fire Management Information System (WFMI) by FMO, Duty Officer, or delegated individual. Data is used to assist national and local funding priorities and staffing levels, and to maintain a national and local historical fire occurrence database.

Hazardous fuel reduction projects including prescribed fire, wildfires managed for multiple objectives, and manual/mechanical fuel reduction projects are also reported in the National Fire Plan Operations and Reporting System (NFPORS). This reporting system assists regional and national offices in tracking accomplishments and costs associated with regionally or nationally funded projects. Elements of this reporting system also include restoration, rehabilitation, and community assistance projects.

A file of every incident will be kept in the FMO office or if file is large it will be kept with the archival records in the mainland curatorial facility. All records will be archived on a five-year basis.

This file will include printed copies of the WFDSS documentation, WFMI fire report, CUIS incident organizer for incident, location of GIS files, finance records, unit logs, AAR documentation, and transition documentation.

3. Criteria for Appropriate Initial Attack Response

The appropriate initial attack response will be determined from an analysis of the given situation, and must be consistent with the seashore's FMP, GMP, and resource management objectives. Factors dictating the appropriate management response include firefighter and public safety, fire location, current and predicted fire weather/fire behavior, seashore values at risk, FMU location, cost-effectiveness, and potential adverse effects of both the fire and suppression efforts. The appropriate initial attack response will vary from fire to fire, and sometimes even along the perimeter of the same fire. Options range from monitoring with minimal on-the-ground disturbance, using fire for resource benefit, confine and contain using existing fuel breaks, or aggressive suppression actions along the entire fire perimeter.

4. Response Times

Response times vary for each incident at CUIS. The Park has limited personnel that are fire fighter qualified and a variety of logistical issues can delay response. Typical first response will be by the FMO, red-carded park employees, or park law enforcement employees. The GFC or Camden County Fire and Rescue may respond to or assist seashore firefighters in the suppression of wildland fires at CUIS.

Fire response time at the seashore can vary greatly, primarily due to the location of the Park and access from the mainland. If additional resources from the mainland are needed it can take in excess of two hours to get individuals and equipment to the island. The Park has one landing craft that is suitable to move limited equipment from the mainland to the island but, is restricted to offloading on the island at mid to high tide. Boat transportation for personnel and equipment will almost always be necessary for any incident.

If seashore firefighters are not immediately available, the GFC, Camden County Fire and Rescue, U.S.F.S., or U.S.F.W.S. can respond under authority of MOU's and AOP's but response time is between two and four hours according to their location, tide tables, and availability of boat operators. Okefenokee National Wildlife Refuge may have a Type-3 helicopter stationed at the refuge during fire season. Typical response time for the helicopter when available is 45 minutes.

5. Management Requirements and Restrictions

In general, mechanical equipment will only be used in the wilderness area under the authority of a Minimum Tool Requirement or with the Superintendent's authorization. Aircraft have been approved for use in all FMUs however, wilderness characteristics must be considered when using aircraft in that area. The use of brackish water from helicopter buckets should be limited to the WUI and the holding of priority firelines. Fireline explosives are not authorized for use at the Park. Retardant from fixed-wing aircraft requires the Superintendent's authorization and cannot be used within 300 feet of water resources.

Management requirements and restrictions are outlined in detail in Chapter 3.

6. Other Special Issues or Concerns

Logistics in fire management activities can be challenging at CUIS. If an incident requires multi-day management, Park staff and equipment can get stretched thin. Tides can fluctuate up to nine feet daily, which makes it challenging to get equipment to the island via the park landing craft. All logistical actions need to be thoroughly thought out before implementing. It is suggested for a Logistics Section Chief of any IMT to confer with a Park employee on the best course of action for obtaining logistical resources. There are local vendors available that can be contracted to transport equipment and personnel via barge and ferry.

It is suggested to house and feed incident personnel on the mainland if possible. This takes a big logistic challenge off the IMT. The local area has a large variety of hotels and restaurants for employees to consider. A ferry can be contracted to transport personnel to and from the mainland and have radar capability to operate at night so

shift production is not affected. This will require a small fleet of rental vans to transport personnel from the mainland dock to hotels and restaurants.

D. Transition to Extended Response and Large Fire

1. Criteria for Transition

The NWCG Complexity Analysis and Organizational Needs Assessment should be completed by appropriate interdisciplinary staff. This will aid in determining risk assessment and the possible need to move to an extended response and/or order an Incident Management Team (IMT). There are many factors that may influence the need for an IMT including:

- Firefighter and public safety impacted by fire or fire management activities
- Current and expected fire behavior projected to increase
- Current and expected environmental conditions contribute towards problematic fire behavior
- Social/political concerns are high priority
- Course of action requires a large or complex organization
- Multiple incidents on the same unit
- Expecting a long duration incident
- Complex or extended logistical support expected

All wildfires where initial actions prove unsuccessful will have an updated decision support document completed guiding extended attack strategies and objectives.

2. Implementation Plan Requirements and Responsibilities

Incidents with long duration expectations require constant time and attention in order to execute the required periodic assessments and maintain accurate documentation to support decisions. The CUIS FMO or Duty Officer should remain an integral part of the decision support process and keep resource specialists, park rangers, the unit public information officer, and the Superintendent involved throughout the planning process. The FMO will also help determine how stakeholders, partners, and cooperators will be kept updated and informed on strategies that may impact those individuals. The CUIS Agency Administrator will remain engaged in an ongoing incident and be available to assist with decisions and validation of courses of action.

3. Delegation of Authority

When an incident management team (IMT) is mobilized to a CUIS incident, the Park FMO will coordinate the transition of authority for suppression actions during the team's time on the incident. The seashore Superintendent will execute a written limited delegation of authority to the incoming incident commander, which will be included in the briefing package provided to the incoming IMT team. The Superintendent will also conduct the eventual close-out and evaluation of the team.

4.4 Burned Area Emergency Response

Chapter 19 of RM-18 provides policy and direction for all activities associated with the management of Burned Area Emergency Response (BAER) in the NPS. The BAER program encompasses the immediate actions taken to minimize post-wildfire threats to life and property and to prevent unacceptable resource degradation resulting from a wildfire. BAER consists of two funding activities, Emergency Stabilization (ES) and Burned Area Rehabilitation (BAR). When required, ES and BAR plans will be completed at CUIS and sent to the Southeast Regional Office for guidance and support. Funds for post-wildfire treatments and activities will only be allocated for actions identified in approved ES or BAR plans. ES plans can be approved up to \$500,000 at the regional level while ES plans over \$500,000 require approval from the NPS Fire Director. All BAR plans require approval from the NPS Fire Director.

BAER management activities are prescribed as a result of a wildfire when (1) the actions are essential to the protection of human life, personal property, and critical natural and cultural resources, and (2) when they further the accomplishment of the NPS mission. Critical resources are those defined in law, for example, the Endangered Species Act or National Historic Preservation Act. The BAER program consists of the collective actions of ES and BAR as defined below.

The NPS Fire Management BAER Program is dedicated to protecting lives, property, and resources while promoting the restoration and maintenance of healthy ecosystems. The BAER program determines the need to prescribe and implement emergency treatments to meet the following objectives:

- Minimize threats to life or property
- Stabilize and prevent further unacceptable degradation to natural and cultural resources resulting from the effects of a fire
- Repair or improve lands damaged directly by a wildfire
- Rehabilitate or establish healthy, 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. The repair of damage due to fire suppression activity is not the responsibility of the BAER program. Such actions 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 IMT demobilization. For fires where the local agency administrator delegates the authority for fire suppression repair to an IMT, the IMT must document fire suppression activity repair actions, including those still needed, to ensure all planned actions are completed during transition back to the local unit.

CUIS will continue to utilize the least intrusive and least resource damaging methods to manage wildfire, and the least intrusive and least resource damaging BAER actions required to mitigate actual or potential damages caused by wildfire. It is not the intent of the BAER program to stop all erosion or eradicate all non-native species that may appear following wildfire. Erosion following wildfire is an element of natural landscape change and should not necessarily be viewed as a deleterious effect, especially in natural areas. For example, erosion should be reduced only when it threatens values to be protected, such as the domestic water supply or cultural and natural resources, or where it is unnaturally severe due to unnatural changes in fire regimes.

4.4.1 Minimum Impact Suppression Tactics (MIST)

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

- Limiting the use of heavy equipment.
- No use of fireline explosives.
- Using existing natural fuel breaks and human-made barriers, wet line, or cold trailing the fire edge in lieu of handline construction whenever possible.
- Keeping fireline width as narrow as possible while still meeting objectives.
- Avoiding ground disturbance within known natural (e.g. T&E species habitat) and archeological/cultural/historic resource locations.
- Using water or type A (biodegradable) foam in lieu of fire retardant whenever possible. If retardant must be used, bodies of water are to be avoided.
- Using sprinklers or foggers in mop-up; avoiding boring and hydraulic action when possible.
- Minimizing cutting of trees while still meeting objectives.

Minimum impact suppression tactics guidelines are provided in RM-18, chapter 2. The park FMO and the park chief of resource management will provide input in the selection and implementation of minimum impact suppression tactics for any wildland fires that go into extended attack.

4.4.2 Burned Area Emergency Response

Burned area emergency stabilization and rehabilitation actions are intended to protect public safety, stabilize and minimize unacceptable change to biotic communities and imminently threatened cultural resources, and repair or replace minor facilities damaged or destroyed by a wildland fire. The Interagency Burned Area Emergency Stabilization and Rehabilitation Handbook provides treatment guidance and standards.

Fire rehabilitation involves short-term actions (generally 0-6 months) to stabilize a burned area and mitigate the effects of fire suppression activities. Immediate rehabilitation actions to prevent further land degradation or resource loss, or to ensure safety, may be undertaken as part of the incident. The incident commander is responsible for immediate rehabilitation action, which typically includes mitigating damage from all incident locations and along the fireline. In wooded areas it may also involve flush-cutting stumps created by suppression activities on the incident, redistribute brush and litter back over constructed firelines, and breaking up slash piles. The Seashore's Chief of Resource Management will plan major rehabilitation efforts, which cannot be undertaken during or immediately after an incident, for implementation as soon as feasible.

4.4.3 Emergency Stabilization

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

include stabilization, 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. As necessary, a site-specific ES plan will be written by incident assigned Resource Advisors or the unit Chief of Resource Management.

ES treatments are projects requiring immediate action. They are therefore funded for only one year from the containment date of the wildfire. However, ES funding may be used to repair or replace ES structures or treatments for up to three years following containment of a wildfire where failure to do so would imperil resource functionality or result in serious loss of resource values. Monitoring ES treatments for up to three years is also allowable. ES funding cannot be used to continue seeding, plantings, or for invasive plant treatments beyond one year.

4.4.4 Burned Area Rehabilitation

BAR consists 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. The objectives of BAR are to:

- 1) 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
- 2) 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
- 3) Repair or replace minor facilities damaged by wildfire.

As necessary, a site-specific BAR plan will be written by incident assigned Resource Advisors or the unit Chief of Resource Management.

Funding for BAR treatments and activities is provided for no more than three years following containment of a wildfire. All BAR plans are approved at the national office because the funding is interagency and competitive. Parks will submit the plans to the regional director, and the regional office will make a recommendation of approval. BAR plans will be written as separate plans, independent of ES plans. The BAR plan will specify the non-emergency treatments and activities that are to be carried out within three years following containment of a wildfire. BAR plans must be consistent with approved land management plans.

4.5 Management of Planned Fuels Treatment

CUIS will use both fire and non-fire fuels treatments to meet the goals and objectives of this FMP. The Park FMO will coordinate planning, design, and implementation of all fuels treatments within the Park. Fuels treatments will be used as tools to meet goals and objectives of both reducing hazardous fuels, restoring fire back to its historical range, and providing fire adapted ecosystems the ecological benefits of fire.

4.5.1 Fuels Planning and Documentation

The CUIS fuels management program will adhere to fire management policies as defined in Section 2 to achieve resource management and fire management goals. CUIS has developed and annually updates a 5-year fuels treatment plan (Appendix E). This fuels treatment plan helps managers plan for future needs such as funding requests, resource survey requirements, pre-implementation work, developing implementation plans, etc. Although the 5-year plan lays out a treatment plan, situations such as funding availability, environmental conditions, and changing priorities determined by the local, regional, and national fire management offices may require treatments to shift. Therefore, the fuels treatment schedule will remain dynamic.

Each fuels project will have a treatment plan whether prescribed fire or mechanical to assist with guiding all project staff for successful implementation of the project. The format of these specific plans will follow current policy. All plans will include maps of the project area.

A. Identify Participants

Fuels treatment plans are reviewed by an established interdisciplinary team consisting of the following positions:

- FMO
- Superintendent
- Deputy Superintendent
- Chief Ranger
- Chief of Resource Management
- Wildlife Biologist
- Cultural Resources Specialist

Other agencies and stakeholders that may be consulted in fuels treatments plans include:

- Georgia Forestry Commission
- Camden County Fire and Rescue
- Private property owners
- Reserved estate shareholders

All plans will be submitted to the CUIS Chief Ranger and Superintendent for a review and comment. The Resource Management staff, and Superintendent will submit comments back to the plan designer for clarification/resolution. The plans will then require signatures by the plan designer, FMO, Superintendent, and by a technical reviewer if it is a prescribed fire plan.

B. Identify Candidate Projects

FMO or fire staff will analyze and identify potential projects with input from the Chief of Resource Management and Wildlife Biologist. Fire staff will use information obtained for individual structure assessments, fuel loading analysis, GIS information, ignition potential, and proximity to historical starts to identify prescribed fire and non-fire projects in the WUI. This information will also assist with the need to create and maintain fuel break fuels projects within the Park.

Research on historical fire regimes, condition class, fuel loadings, cultural landscape locations, and GIS data will assist with identifying larger prescribed fire projects that will assist with restoring fire back into the ecosystem of the Park and maintain cultural landscapes.

Projects in the WUI and any fuel breaks that are created will need to be maintained on a schedule that will be included in the 5-year fuels treatment plan.

C. Project Prioritization Criteria

CUIS FMO or fire staff will submit annual funding requests for the upcoming fiscal year into the NFPORS database for regional approval. Once projects have been submitted in NFPORS, fire managers must then submit a prioritized list of treatment and activities to the regional fuels specialists. Elements that may weigh into the fuels request prioritization process conducted by CUIS fire staff may include the following:

- Proximity to values at risk, (i.e., WUI versus Non-WUI)
- Type and amount of compliance activities completed or required to be completed
- Fire regime
- Extent of departure from natural fire processes
- Extent of departure from defined desired conditions
- Fire versus non-fire treatments
- Fuel loading
- Project sequence
- Maintenance cycle
- Cost of project
- Availability of funding
- Coordination with adjacent land managers
- Chances of success for completion

D. Updating the Fuels Treatment Plan

The FMO will update, edit, and extend the 5-year fuels treatment schedule annually or as needed when treatments are adjusted. Revisions and updates are submitted for approval to the Chief Ranger and Superintendent. Fire regimes, fuel loading, and defined desired conditions will be considered for planning future fuels treatment projects.

Identification of future non-fire treatments will be based on protection of critical infrastructure within the Park (such as public safety zones, communications sites, water/utilities sites) and for creating fuels breaks.

4.5.2 General Fuels Management Implementation Procedures

A. Guidance

Prescribed fire planning and implementation will be in accordance with RM-18, Chapter 7, Fuels Management.

Each fuels treatment project will require an implementation plan (e.g., burn plans and mechanical treatment plans). These plans will be developed by FMO or fire staff and all prescribed fire plans will have a technical review. If the plan being developed is a burn plan, all policies and regulations will be adhered to as stated in the Interagency Prescribed Fire Implementation Guide, 2017.

B. Annual Actions

CUIS will review annually the 5-year treatment plan and determine the feasibility of treating identified areas analyzing compliance, fuel conditions, unit prep work needed, weather patterns, availability of resources, and budgetary restraints. It will also determine if planned goals can still be met in current conditions. If conditions are in alignment and all constraints are met, then the treatment plan will be implemented. The seashore FMO or fire staff will coordinate all prescribed fire actions with either regional NPS assets or a cooperating agency to assist with prep work and implement needed actions.

C. Implementation Standards

Activities proposed in the FMP will be planned and implemented in accordance with RM-18, Chapter 7, Fuels Management, and the Interagency Standards for Fire and Fire Aviation Operations.

The responsibility for implementing the prescribed fire program and meeting all required implementation standards lies with the FMO or delegated burn boss. All prescribed fires at CUIS will be implemented under the supervision of a Prescribed Fire Burn Boss who is qualified under requirements of the NWCG Wildland and Prescribed Fire Qualifications System Guide. All prescribed fires will be staffed by certified personnel in positions for which they are qualified. The burn boss will determine the number and types of positions for prescribed fire operations based on an approved burn plan in conjunction with local fire staff.

Prior to implementation of a prescribed fire project (other than pile burns), the FMO will ensure that a press release is sent out at least 48 hours before possible implementation. This press release is intended to provide information to internal and external cooperators and stakeholders of goals and objectives, potential impacts, or concerns created by the forthcoming project. Information provided will cover goals and objectives, anticipated date and/or duration, project location, and mitigation measures, if any, identified to reduce impacts or concerns to cooperators. In addition to the press release, the Prescribed Fire Burn Boss or FMO will host a pre-burn meeting with members of the prescribe fire project's organization to discuss needs and site-specific tactics. A daily site-specific briefing will also be conducted for all project participants. This briefing will follow the briefing checklist found with the project plan or the checklist found on the Incident Response Pocket Guide.

D. Planning & Reporting Requirements

Details outlining planning and reporting requirements, timelines for declarations, and notification list for escaped fires will be detailed within each prescribed fire burn plan and will follow guidance stated in RM-18, Chapter 4, Wildland Fire Operational Guidance; Interagency Standards for Fire and Aviation Operations; and Interagency Prescribed Fire Implementation Guide.

All documentation from fire and non-fire treatments, including implementation plans, unit logs, weather forecasts, maps, finance information, monitoring data, photo records, and incident action plans, will be collected and filed in a project folder and located in the office of the FMO. All documentation requirements listed in the Interagency Prescribed Fire Planning and Implementation Guide will be followed.

NFPORS is the official fuels treatment and activity recording database and is used to both request funding and report accomplishments. Funding is requested on a fiscal year basis. Requests are entered into NFPORS for submission to the Southeast Regional Fuels Specialist. Efforts will be made to submit and prioritize requests by collaborating with the Chief of Resource Management. Natural and

cultural resource survey activities will also be requested and recorded in NFPORS. Approval of these requests is on a case-by-case basis and is subject to approval by the Interior Region 2 Deputy FMO.

At the completion of each planned project, NFPORS will be updated to reflect acreage treated and costs. The close-out of each project is the responsibility of the FMO, Duty Officer, or delegated Burn Boss. Fire management officers will also identify and report all non-FIREPRO funded projects within the park that can help meet CUIS and Southeast Region fuel reduction targets. All accomplished projects will also be entered into the Wildland Fire Management Information System.

E. Monitoring

Refer to the Wildland and Prescribed Fire Monitoring Plan (Appendix F) and section 5.2 of this FMP for information on the monitoring program at CUIS.

F. Historical Treatment Map

CUIS does not currently have a dedicated GIS specialist. The FMO or fire staff will attempt to create a historical treatment map. IR2 employees a fire GIS specialist that will receive any treatment shape files and therefore have a record to re-create a historical treatment map.

4.5.3 Prescribed Fire Treatments

A. Guidance

Prescribed fire planning and implementation will be in accordance with Chapter 7 of RM-18, Interagency Standards for Fire and Fire Aviation Operations, and the Interagency Prescribed Fire Implementation Procedures Reference Guide. DO-18 states the basic principles and strategic guidelines governing the management of wildland fire by the NPS.

Individual project plans will be prepared following the guidelines contained in RM-18 and the Interagency Prescribed Fire Planning and Implementation Procedures Guide. Prescribed fires are defined as all fires on park lands that are management ignited and have specific objectives. Prescribed fire is planned, scheduled, organized, and implemented according to a rigorous protocol based on policy, the purpose of which is the safe and efficient accomplishment.

The overall scope of the prescribed fire program at CUIS includes:

- The reduction of hazardous fuels accumulations
- The utilization of fire as a tool to accomplish ecological and protection objectives
- The utilization of fire as a tool to maintain cultural landscapes

The structure and composition of native plant communities have been severely altered over the past century in many upland areas of the park. Restoration of these systems through the reintroduction of natural fire regimes, while also protecting life and park resources, will require a significant investment in time to achieve.

The goals of the prescribed fire program are to: decrease risks to life, safety, property, and resources from future wildfires; hazard fuel reduction; restore fire in fire adapted ecosystems; reintroduce fire as an ecological process; mimic natural fire events; maintain cultural landscapes; and reduce negative wildfire impacts to historic structures, archeological sites and sensitive natural resources.

DO-18, Section 6.2, Interagency Coordination states:

- A. The Superintendent of each park will comply with the current version of the Interagency Standards for Fire and Fire Aviation Operations (Red Book).
- B. The Superintendent of each park will comply with the National Interagency Mobilization Guide in all applicable aspects for wildland fire management.
- C. The Superintendent of each park will pursue mutual assistance agreements with nearby fire management units of Federal, state, local, and tribal agencies.

NPS Wildland Fire Management Policy RM-18 directs the park to ensure that provisions for interagency and intra-agency pre-burn coordination are implemented, including, when applicable, public involvement and burn day notification to appropriate individuals, agencies, and the public. Specific coordination actions are addressed within each prescribed fire burn plan and in accordance with Elements 11 and 12 of the Interagency Prescribed Fire Planning and Implementation Procedures Guide (NPS 2017). When planning for prescribed fire and fuels management projects, coordination efforts may begin years before project implementation.

The following coordination activities should be considered when planning prescribed fire projects:

- Coordinate planning and mitigation actions with specialists from the CUIS Resource Management Division according to location, treatment objectives, and protection objectives for each project
- Coordinate planned public safety activities with CUIS law enforcement personnel
- Coordinate with affected private property owners, reserved estate owners, and cooperators
- Coordinate with external park regulators as the project dictates

B. Treatment Review

Prescribed fire treatments involve accomplishing resource and protection objectives while providing for safety first. The best means by which objective success can be measured is through a disciplined and rigorous program of monitoring. Monitoring is used to measure treatment success for vegetation and fuel objectives, promote program improvements and adaptive management, and identify any issues before they become troublesome. Therefore, each project plan involving the use of prescribed fire will contain monitoring guidance that details the immediate, short-term, and long-term information necessary to adequately quantify if goals and objectives are being met. Evaluating monitoring data is a joint responsibility shared by CUIS Fire Staff, CUIS Resource Management Staff, and Mississippi River Zone Fire Ecology Staff. More guidance can be found in section 5.2 of this FMP.

Every prescribed fire treatment will have a documented AAR that consists of all staff that assisted with implementation of the project. AAR's are a proven way of discussing what went right, wrong, or what can be done better in the future. Guidance for AAR's can be found in the IRPG.

4.5.4 Non-Fire Fuel Treatments

Non-fire fuels treatment will use the following methods to achieve the desired fuel load reductions, fuel breaks, and defensible space:

- mowing
- bush hogging

- hand tools
- chainsaw work
- mulching/grinding machines (mastication)
- mechanized shears
- chemical use post-treatment

Note: The above list is not all inclusive, and other methods may be used depending on the need or as they are tested and become available.

A. Guidance

The planning and implementation of non-fire fuels management projects will be in accordance with RM-18, Chapter 7, Fuels Management. Thinning standards (accomplished by manual or mechanical means) for WUI are found in National Fire Protection Association (NFPA) Codes, Chapter 4, Assessing Wildland Fire Hazards in the Structure Ignition Zone (www.nfpa.org). Additional guidelines can be found in the 2006 International Wildland-Urban Interface Code available at www.nwcg.gov/pms/docs/PMS310-1-january-2006.pdf

- Thin up to a 12-foot canopy clearance, removing trees up to ten inches dbh
- Limb trees four-to-six feet above the ground to reduce ladder fuels
- Remove up to 60% of dead-and-down woody debris 3–12 inches dbh
- Remove up to 50% of dead-and-down woody debris larger than 12 inches dbh
- Flush-cut all stumps as low to the ground as possible
- Slash from thinning operations may be removed, lopped, and scattered for a future broadcast burn; piled and burned in place; or chipped on or offsite
- Modifications to degree of thinning may occur in the Historic Landmark District or adjacent to individually listed National Register of Historic Places

All treatments will follow criteria determined in the goals and objectives of each project specific treatment plan.

B. Planning

All non-fire fuel treatment plans require Superintendent's approval and will meet all required elements as stated in RM-18, Chapter 7. The CUIS fire staff has adapted and utilizes the interagency prescribed fire template for preparing non-fire fuels treatment plans. This is not a requirement as any plan template that addresses the required elements will suffice.

Non-fire treatment plans at minimum should include:

- Signature page
- Executive summary
- Description of fuels treatment area
- Goals and objectives
- Cost estimate
- Scheduling
- Statement of work
- Protection of sensitive features
- Public and personnel safety
- Interagency coordination and public information
- Monitoring
- Post project rehabilitation

- Post project reports
- Maps

C. Treatment Review

Prior to implementing any non-fire treatments, reviews of any past projects should be considered when preparing and implementing new projects. This use of adaptive management helps incorporate lessons learned from past projects, new knowledge, modernization, and the best available science into each future project.

4.6 Prevention, Mitigation, & Education

Prevention efforts are directed toward reducing human caused ignitions and the understanding of fires natural role in the ecosystem. Past CUIS prevention efforts have been limited and the responsibility has historically been with the interpreters. CUIS has had a limited amount of human starts historically with no campfires currently allowed in backcountry campgrounds. Park law enforcement rangers also provide consistent patrols that aid in wildfire prevention.

Park responsibilities for wildland fire prevention include the following:

- Wildland fire prevention and education will be integrated into all management functions, including interpretation, visitor protection, maintenance, and administration
- The need for wildland fire prevention and education training will be assessed, coordinated, and facilitated
- Wildfire prevention and education programs and/or literature will be provided to the public
- CUIS fire staff will attempt to offer fire prevention programs at local schools and events

Public education about the natural role of fire on the landscape and the prevention of unwanted wildfires has become increasingly important as communities continue to encroach into wildland areas. While it is important to raise awareness of the risks associated with wildland fire, it is also important to:

- Promote the overall mission of the NPS Fire Management Program
- Increase public understanding of fire as a natural part of the ecosystem and a forest restoration tool
- Reduce hazardous fuels as a tool to minimize damages and personal exposure to unsafe conditions and situations.

4.6.1 Prevention

Per RM-18 and Interagency Standards for Fire and Aviation Operations, NPS units that do not experience more than 26 human-caused fires per 10-year period and do not experience problems with human-caused fires are not required to conduct a wildland fire prevention analysis or have a prevention plan. Based on historical data derived from Wildland Fire Management Information System (WFMI), from January 1st, 2009 through December 31st, 2019, CUIS recorded 5 human-caused wildfires with the majority being unattended or illegal campfires. Based on the current data, CUIS will not develop a dedicated wildfire prevention plan.

Prevention at CUIS generally consists of an orientation of visitors by an interpretive ranger before boarding the ferry to travel to the island. The briefing includes campfire policies on the island and a brief word on the daily weather and fire danger. There is fire danger material located at the Sea Camp Ranger

Station to advise visitors. Seashore rangers routinely patrol and interact with the public and answer questions about fire policy at the park.

CUIS hopes to begin installing a limited number of wayside exhibits to provide visitors with a better understanding of the natural role of fire and the benefits of fuels treatments that occur in the park.

4.6.2 Communication/Education

Public information and education are the cornerstones of a successful fire management program. Policy direction provided in DO-18 states that “. . .the NPS will administer its wildland fire program in a manner that will. . .educate employees and the public about the scope and effect of wildland fire management, including fuels management, resource protection, prevention, hazard/risk assessment, mitigation and rehabilitation, and fire’s role in ecosystem management.”

CUIS is developing a Fire Information Plan to assist information officers during incidents and non-fire fuel reduction projects. In addition, NWCG’s Best Practices in Communication Planning can be a good source of information (www.nwcg.gov/teams/wfewt/bp/commplanning.pdf).

a. Program Capabilities

The FMO is responsible for implementing the overall information program as described in this section. CUIS has a park Public Information Officer that assists with public information needs for the fire management program daily when available. The park fire managers should anticipate the need to request an Information Officer from local cooperators or order it through the GICC as wildfires or periods of extreme fire danger warrants.

The park Public Information Officer will develop and annually update a Fire Communications Plan that delineates situations, objectives, audience, messages, strategies, tactics, and timelines.

Activities designed to increase support and understanding of the fire program should include the following:

- Incorporate the principles of fire’s role in the CUIS ecosystem into interpretive programs, exhibits, videos, and park periodicals
- Educate interagency and intra-agency partners, cooperators, and other stakeholders about the CUIS fire management program
- Coordinate fire-related press releases with the park Public Information Officer
- During prescribed and wildfires provide public briefings before visitors board the ferry, position roadside signs, and post kiosk briefing sheets for announcements
- During fire incidents assign public information personnel to key visitor contact points, and coordinate with CUIS interpreters and rangers to setup public information stations along the high visitor use areas and mainland visitor’s center
- Participate in the daily situation reporting through GICC
- Participate in local school and public events to further educate the public

1. Contact List

CUIS has an extensive contact list due to interest in Park operations and past wildfire activity. This list is located with the Public Information Officer for the Park as he/she ensures all park

information is released to the appropriate audience. Typical audience for a fire management event includes:

- Park staff
- Regional NPS staff
- Local cooperators
- U.S. Coast Guard
- Kings Bay Naval Submarine Base
- Private property owners
- Reserved estates shareholders
- Smoke sensitive receptors
- Media outlets

2. Materials

Materials that may be useful to support public information needs include:

- Electronic and hardcopy media releases
- Brochures describing positive aspects of fires
- Firewise brochures and information
- General and project specific maps
- Road signs
- Information kiosks

3. Press Kit

The Park Public Information Officer has an established press kit. For a fire management activity, the press kit should be augmented to include the following information:

- Project specific goals and objectives
- IAP
- Project fact sheet
- Project specific maps
- Incident personnel profiles (e.g. IMT, FMO, Superintendent, etc.)

4. Online Resources

Online resources have become a valuable tool for disseminating incident information. Individuals responsible for distributing information should utilize the websites listed below to support information dissemination. Reference the CUIS Fire Information Plan for more information.

- inciweb.org
- <http://www.nps.gov/cuis/index.htm>
- geomac.usgs.gov
- www.firewise.org
- www.nifc.gov/fire_info.html

b. Communications Step-Up Plan

As wildfire incidents, fuels treatment, and fire weather dictates, CUIS fire management communications may need to “step-up” in its scope. Events that could initiate increasing communication capabilities include, escalating fire danger, severe drought conditions, wildfire activity, fuels projects, smoke impacts, and public or media scrutiny. Activities that are associated with increasing capabilities include additional PIO’s, increased media releases, additional signage, and additional fire management briefings to visitors before boarding the ferry.

4.7 Air Quality/Smoke Management

4.7.1 Air Quality

CUIS is designated a class II air shed under the 1977 amendments to the Clean Air Act. Under class II, modest increases in air pollution are allowed beyond baseline levels for particulate matter, sulfur dioxide, nitrogen and nitrogen dioxide, provided that the national ambient air quality standards, established by the Environmental Protection Agency (EPA), are not exceeded. Sources of air pollutants in the park vicinity include a two paper products plants in Fernandina Beach, Florida, which produces odor and atmospheric particles; and nearby Interstate 95, a major route for north-south traffic.

4.7.2 Smoke Management

Smoke as a result of fire management activities will be closely planned and monitored. Prescribed fire plans will include a preferred wind direction and a smoke monitoring section. All prescribed fires and wildfires used for resource benefit will have a Fire Effects Monitor Officer (FEMO) in the organization with a duty of monitoring smoke production. A public information statement will be released before any prescribed fire or as soon as possible after a wildfire can be used for resource benefits to get information to the public about smoke potential. If smoke production becomes unacceptable to a receptor, ignitions will cease and mop up will occur to minimize smoke concerns.

Smoke sensitive areas of concern include:

- I-95
- City of Saint Mary's, Georgia
- City of Fernandina Beach, Florida
- Kings Bay Naval Submarine Base
- Intracoastal Waterway
- Fort Clinch State Park

CUIS will work with the U.S. Coast Guard and Kings Bay Naval base on smoke concerns in the Intracoastal Waterway and any impacts to the navy base. Signs may be put up on roadways on both mainland and island roads warning of smoke potential. If smoke impacts island residents, FMO or IC will coordinate with PIO or Park law enforcement to get information to residents.

CUIS currently gets a burn permit for prescribed fires from the Camden Unit of GFC. The burn permit addresses smoke concerns. The IC and Burn Boss will also request a spot weather forecast from the National Weather Service in Jacksonville. The spot weather webpage shows any other burns or wildfires that are in the forecasting area and enables fire managers to see where other agencies may be producing smoke and determine if the impacts from all projects may be adverse.

4.8 Data & Records Management

CUIS Fire personnel will follow the regulations and direction set forth in the current version of the Interagency Incident Business Management Guide (NWCG 2018) for all incident business management

functions except where specific NPS legal mandates, policies, rules, or regulations direct otherwise. FMP updates and revisions are accomplished on an annual basis and are the responsibility of the FMO. Updates and revisions are approved by the Superintendent.

The FMO will be responsible for submissions on behalf of the Park. Funding for preparedness activities and staffing are formulated by the FMO and requested through the Chief of Visitor and Resource Protection. The FMO will be responsible for annual funding requests and will obtain the Chief of Resource Management's concurrence.

The FMO is responsible for ensuring accuracy and timeliness of fire reports entered InFORM and WFDSS. Every wildfire, support action, and prescribed fire requires a report. Temporary and permanent records related to InFORM and WFDSS reports, are retained and archived in compliance with the NWCG's Incident Management Records (www.nwcg.gov/policies/records/index.html) and are stored in the FMO office or in the museum if files are large. FMO should review the records annually to determine what can be removed and what must be retained. All records will be archived on a five-year basis.

CUIS does not currently have a Geographic Information System Specialist. Therefore, the FMO is responsible for data and records management of GIS layers including fire history (point locations and perimeters for both wildfire and prescribed fire), burn severity, and manual/mechanical fuels treatments. Metadata related to all GIS layers are required to meet standards identified by the Federal Geographic Data Committee (www.fgdc.gov/metadata).

In order to facilitate timely and accurate data transfer from field personnel to the database, the following procedures will be followed by all individuals collecting data:

- A GIS specialist should be ordered for any fire that an IMT is being ordered.
- The FMO gathers ignition locations for wildfires from WFDSS. Incident Commanders and FMOs need to ensure that accurate information is loaded into WFDSS.
- All wildfires need to have the location of the fire's origin located and documented.
- Fires with a perimeter less than five acres can be recorded as a point, fires greater than five acres need to have a mapped perimeter. Fires that exhibit measurable growth should be mapped periodically, this will be accomplished by the most practical means, e.g., aerial perimeter mapping vs. ground perimeter mapping.
- GPS devices should be set to: WGS84, Latitude/Longitude (degrees decimal minutes).
- Perimeters and information related to manual/mechanical treatments, including prescribed fire boundary preparation and WUI thinning projects, will be recorded to the database.

The Incident Qualifications and Certifications System (IQCS) is the database used for tracking NPS wildland firefighter's qualifications, certifications, and training. CUIS works through the Southern Area Coordination Center NPS representative to update IQCS information. The FMO is responsible for establishing and coordinating new accounts and updating and maintaining existing accounts for CUIS personnel. New employees are required to submit IQCS New Responder Forms to have an account established. All active individuals participating in any wildland fire training or incidents will submit an IQCS Responder Update Form at the end of each calendar year to the FMO. This form documents training attended, training instructed, medical clearance, physical fitness completion, and qualified and trainee position performed. This information is required to generate Incident Qualification Cards (red cards) and connect availability through the Resource Ordering and Status System. All red-carded individuals will

submit a fire experience record to the FMO by the beginning of November so that the FMO can coordinate updating all red-carded individuals' fire experience.

4.9 Organizational & Budgetary Parameters

The Cumberland Island FMO coordinates all aspects of the fire management program for the Park. The FMO is supervised by the Chief of Resource Management. This FMP will challenge time management for the FMO in its implementation. It is highly recommended that the Park continue to explore ways to expand the staffing of the CUIS fire management program. To successfully implement the additional duties described in this FMP, additional positions will be required. The CUIS fire management program is currently funded through the Park's base operations funding source (ONPS). The Park should explore avenues to get into the Regional FIREPRO system for funding of preparedness activities and acquiring additional staffing to implement this plan.

A future fire management organization should have the following positions to implement this FMP:

- FMO
- Prescribed Fire Fuels Specialist
- Fire Operations Technician
- Administration Assistant/GIS Specialist

All financial activities will meet NPS requirements as well as Interagency Fire Business Management Standards in accordance with RM-18, the Interagency Incident Business Management Handbook (NWCG 2009), and any supplemental regional business rules. The FMO will be responsible for programming and implementing his/her program's funding accounts. The FMO will program an organization and program of work within their authorized funds at the beginning of each fiscal year. CUIS budget personnel will provide monthly status of funds throughout the fiscal year to the FMO.

5 ADAPTIVE MANAGEMENT STRATEGY

Nationwide, the NPS Fire Management Program is committed to applying adaptive management in all aspects of fire management activities. Therefore, it is a cornerstone of this FMP. Adaptive management is a cyclic process of setting management practices based on clearly identified outcomes and continual evaluation of management outcomes. If outcomes are not met, park management facilitates management changes that will best ensure outcomes are met. NPS guidance directs NPS units to use the adaptive management process to plan, implement, and evaluate fire management activities (USDI NPS, 2003). More information can be found at <http://www.doi.gov/initiatives/AdaptiveManagement/whatis.html>.

Adaptive management focuses on learning and adapting through partnerships of managers, scientists, and other stakeholders who learn together how to create and maintain sustainable ecosystems. Adaptive management:

- Helps managers maintain FLEXIBILITY in their decisions, knowing that uncertainties exist and provides managers the latitude to change direction
- Will improve UNDERSTANDING of ecological systems to achieve management objectives
- Is about taking ACTION to improve progress towards desired outcomes

The CUIS Fire Management program employs the adaptive management process to evaluate and adjust both programmatic and individual treatment activities. At the smallest temporal scale (i.e., hours) real-time monitoring data is used to assess whether treatment-level objectives are being met and to adjust the tactical approach to a treatment or wildfire. During the first five years following treatments, short term monitoring data is used to evaluate both treatment and programmatic objectives and to adjust future treatment objectives, implementation strategies, and monitoring design. Programmatic goals, desired conditions, and strategies are evaluated every five years and necessary adjustments are made to the program.

5.1 Fire Management Objectives

The development of management objectives is vital for the planning of fire management activities. These activities can include prescribed fire, mechanical fuel reductions, suppression tactics, and others. CUIS will continually develop a fire program that is safe and productive, suppressing unwanted ignitions, and utilizing fire as a tool in the safest, most cost-effective manner. Section 3.1.1 describes fire management goals and objectives in depth. Fire planning and activities at CUIS are designed to implement the goals and objectives of this FMP.

CUIS has not formally developed desired future conditions (DFC) at this time. CUIS will work during 2020 to explore options for funding research with the goal of providing data that will aid in the development of the DFC. CUIS Fire Management will plan to include the DFC in the 2023 Annual FMP Update.

The FMO and Chief Ranger have identified a short-term desired condition (see section 3.1.1). The desired conditions were derived from recent fire regime and historical vegetation research (Frost, 2011), GMP, RMP, GIS files, and location of structures to vegetation. Long-term goals and objectives can be found within the Cumberland Island Fire Monitoring Plan (USDI NPS, 2013).

Clear and measurable objectives are needed for a fire management program to be successful once desired conditions are determined. Through the adaptive fire management processes, program activities are planned and executed by fire management staff in order to meet these objectives. These specific objectives are listed in section 3.1 of this plan and are included in all burn plans.

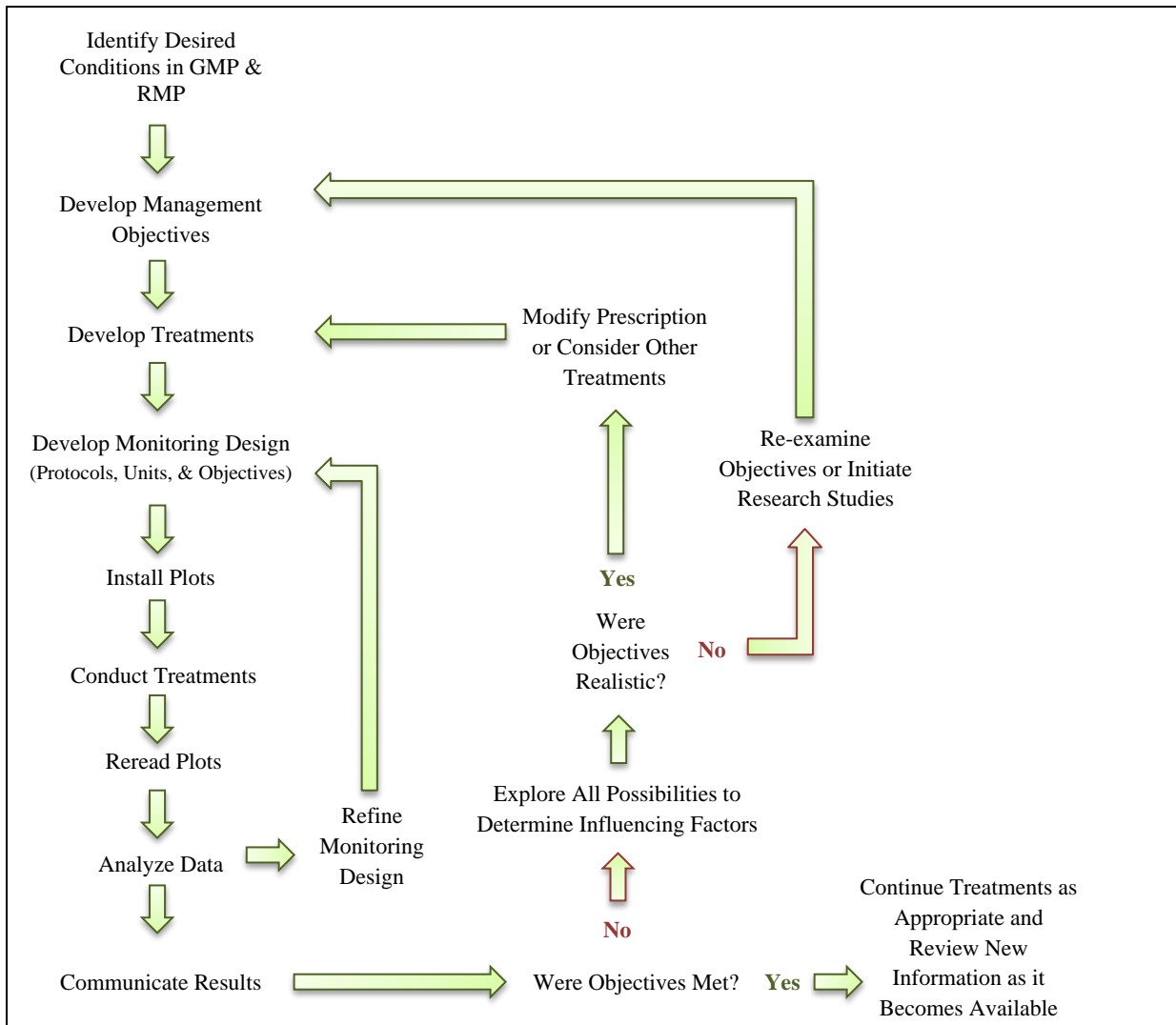


Figure 10: Adaptive Management Process

5.2 Monitoring

National Park Service Management Policies require that appropriate NPS staff monitor all wildland fires, both wild and prescribed (USDI NPS, 2006, pp. 49-50). Monitoring is not only part of the adaptive management process, but also a fundamental NPS management policy to be fulfilled. 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 monitoring is a joint effort between NPS research and resource management. Initial and baseline monitoring is defined as level 1 & 2 monitoring (USDI NPS, 2003, pp. 7-16). Short- and long-term monitoring (levels 3 & 4) at CUIS follows the guidelines established in the National Park Service Fire Monitoring Handbook (FMH). The fire-monitoring program described in the FMH allows park managers to document basic information, to detect trends, and to ensure that each park meets its fire and resource management objectives. From identified trends, park staff can articulate concerns, develop hypotheses, and identify specific research studies to develop solutions to problems (USDI NPS, 2003). The FMH defines and establishes levels of monitoring activity relative to fire and resource management objectives and fire management strategies.

Environmental and Fire Observation Monitoring are mandatory for all fires and generally carried out by a CUIS fire staff, NPS Wildland Fire Module (WFM) or Fire Effects Module (FEM), and/or other qualified fire management personnel.

All prescribed fire monitoring activities will follow the guidelines in the NPS's Fire Monitoring Handbook (2003). The Resource Management Division, in consultation with the designated FEM and the Barrens to Bayous Fire Monitoring Network, will determine the appropriate monitoring technique to be used to sample permanent plots. All plots will be sampled prior to treatment and will be sampled after the treatment to gather data for both short-term and long-term effects. As the program grows, a monitoring plan will be developed and will become part of this plan.

5.2.1 Fire Monitoring Plan

Fire monitoring is described in RM-18 Chapter 8 and the NPS Fire Monitoring Handbook (USDI NPS, 2008; USDI NPS, 2003). All NPS units applying prescribed fire, using wildland fire use, or altering the arrangement of wildland fuels for the purpose of modifying fire behavior must prepare a Fire Monitoring Plan. The park's monitoring plan is used to characterize monitoring for fire events or fuel treatment as well as landscape-level objectives.

5.3 Evaluation

In order for the fire management program at CUIS to be successful, reviews of the program should take place annually and all wild and prescribed fire incidents should be thoroughly documented and evaluated (USDI NPS, 2008). All wildland fires and fire-related incidents will be reviewed in accordance with Reference Manual 18, Chapter 17, Wildland Fire and Program Reviews and the Interagency Standards for Fire and Fire Aviation Operations (USDI NPS, 2008; USDI & USDA, 2006).

During annual reviews of the program, CUIS Resources Management staff, GRSM WFM staff, Barrens to Bayous Fire Monitoring Network staff, and/or university staff should present new knowledge gathered from research and monitoring collected from multiple sources. This evaluation process will allow for the identification and correction of outdated procedures and confirm effective actions. Evaluating incidents and the program regularly will also assist with identifying additional park needs and maintain the cost effectiveness of CUIS fire management.

During a wildfire incident, continual evaluation of tactics, goals, and objectives will occur. These evaluations will be documented by the IMT and turned back over to the park during the transition meeting. All fires will have an AAR with key personnel. These AAR's will be documented by the leader and become part of the documentation for the incident. All fuels treatment projects will receive a formal AAR

with personnel assigned to the project. FMO will review the AAR and adjust methods if deemed necessary. The FMO will analyze all documentation, including AAR's and FEM reports, to determine what if any changes need to occur in the future.

During a wildfire incident, continual evaluation of tactics, goals, and objectives will occur. These evaluations will be documented by the IMT and turned back over to the park during the transition meeting. All fires will have an AAR with key personnel. These AAR's will be documented by the leader and become part of the documentation for the incident. The FMO will analyze all documentation including AAR's, and FEM reports to determine what if any changes need to occur in the future.

5.3.1 Fire Management Plan Review

The CUIS FMO will review this FMP annually to identify any changes that should be made to improve the effectiveness of the plan and update any information as needed. This will be a good time to take note of any changes to policy, tactics, goals, or objectives and start compiling a record of potential changes to be made. The CUIS Superintendent will approve significant changes to the body of the plan (excluding grammatical corrections, minor procedural changes, deletions, corrections, and additions to the appendices). The FMO will forward copies of all changes to the Interior Region 2 Office FMO for review and comment. Changes requiring approval will be submitted with a new cover sheet for signatures and dates, which will replace the original cover sheet.

5.3.2 Fire Effects & Ecology Annual Report

The Barrens to Bayous Fire Monitoring Network will produce monitoring documents annually for the NPS Fire Management Program Center. This annual report summarizes general short- and long-term monitoring analysis for all NPS units within a broad geographic range. The FMO and Chief Ranger will also receive this document and determine if additional information is needed. These reports will be evaluated to ensure if treatment goals and objectives are being met. If changes are needed to treatment implementation, plans will be updated to show those changes.

5.4 Fire Research

The incorporation of research findings into management actions and treatment objectives is critical in the development of fire management goals and objectives. Research assisting with the development of the FMP and EA has already been conducted.

One research item that has been identified is the need for specific vegetation objectives for CUIS. Specific targets or desired future conditions are needed for management activities to meet maintenance targets for this park. Other important research that affects fire management can be found referenced in the CUIS FMP EA 2013.

Appendix A: References Cited

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APPENDIX B: Glossary of Fire Management Terms

Appropriate Response: Specific actions taken in response to a wildland fire to implement protection and incident objectives.

Burned Area Emergency Rehabilitation (BAER): An agency process following wildfires where planned emergency actions are authorized and funded to minimize post-fire damage to resources, structures, and values. The funding and actions are limited to planned and prioritized activities.

Burn Plan: A plan required for each prescribed fire application ignited by managers. It must be prepared by qualified personnel and approved by the appropriate agency administrator (Superintendent) prior to implementation. Each plan will follow specific agency direction and must include critical elements described in agency manuals.

Burning Period: The part of each 24-hour period when fires spread most rapidly; typically from 10:00AM to sundown.

Cumberland Island National Seashore (CUIS): Applies to the land under the jurisdiction of this unit of the National Park Service, or the management staff of this NPS unit.

Cultural Values: These values includes all historic structures, ethnographic features, collections, cultural landscapes, and archeological areas. May be documented or undocumented, may be a site where something occurred with no physical remains, and/or may be site specific or more general in location.

Defensible Space: Refers to the size or type of vegetation clearing, thinning and/or fuel reduction needed to protect a structure or other identified value from wildfire during defined fire conditions. The work needed varies widely depending on type and amount of vegetation, vulnerability and value of the structure or site, and the range of fire conditions expected. Good defensible space is not an absolute guarantee that the value will not burn, but greatly increases the likelihood that it will survive a wildfire. Defensible space usually must be maintained over time as vegetation tends to grow back after reduction.

Direct Attack: Fire tactic where firefighters or firefighting equipment take actions right on the edge of the fire to stop its advance as close to the fire as safely possible, and depriving the fire of additional vegetative fuels to burn. Direct attack is difficult or not feasible when flame lengths exceed 4 feet, or in thick vegetation where firefighter safety zones are not present.

Environmental Assessment (EA): A NEPA document that is prepared to (a) help determine whether the impact of a proposal or alternatives could be significant; (b) aid NPS in compliance with NEPA by evaluating a proposal that will have no significant impacts, but that may have measurable adverse impacts; or (c) evaluate a proposal that either is not described on the list of categorically excluded actions, or is on the list but exceptional circumstances apply.

Escaped Prescribed Fire: Prescribed fires are intentionally ignited fires that burn under specified conditions and a written plan. If the fire escapes the burn unit, the Contingency Plan component

of the Prescribed Burn Plan is activated. If it is successful in bringing the fire back within the scope of the Prescribed Burn Plan, the project may continue. If prescribed fire objectives are exceeded or no longer met, and the fire continues, it could be converted to a wildfire and appropriate suppression occurs.

Fire Adapted Ecosystems: Inter-related relationships where the plants and animals are adapted to periodic wildfires. Some species depend on wildfire to initiate their renewal, growth, or propagation. Numerous species exploit the changed conditions after a fire to expand their range or increase their numbers due to change in the status of resources, space, or other changed environmental factors after fires.

Fire Adapted Species: Plant or animal species that depend on fire to initiate their renewal, growth, or propagation. Some species cannot exist without periodic fires to change the vegetative or physical environment. Some fire adapted species have gone extinct in areas where fire suppression has prevented periodic fire.

Fire Management: All activities related to the management of wildland fires.

Fire Management Officer (FMO): NPS official under the direction of the Park Superintendent, or staff, with responsibility to implement the Fire Management Plan and supervise unit fire management activities, preparedness, prevention, and response. Ensures all NPS and national safety standards are followed, and develops and maintains communications with interagency cooperators.

Fire Management Plan (FMP): A plan that identifies and integrates all wildland fire management and related activities within the context of approved land/resource management plans. It defines a program to manage wildland fires (wildfire and prescribed fire). The plan is supplemented by operational plans, including but not limited to preparedness plans, preplanned dispatch plans, prescribed fire burn plans, and prevention plans. Fire Management Plan's assure that wildland fire management goals and components are coordinated.

Fire Management Units: Designated areas within a park unit where similar fire management activities and responses occur. Helps fire managers determine pre-planned response actions and fuels management work within the constraints of the FMP, fire policy, park objectives and values, protection of private property, etc.

Fire Regime: A generalized description of the role natural fire plays in an ecosystem. It is characterized by fire frequency, predictability, seasonality, intensity, duration, scale (patch size), as well as regularity or variability.

Foam: Chemical or dispersant additive to water, usually detergent based, that allows the water-foam mix to be more effective when used on vegetation for wildland fire. The mix smothers or cools the fire, allows it to better penetrate vegetative fuels, and/or does direct extinguishment of flame. Usually applied either by fire engines with automatic mixing equipment, helicopter bucket drops, or (rarely) ground pumps using fixed water sources. There are additional products now being used where some engines can apply "structural foam" directly to structures in advance of

wildfire impact to prevent fire from igniting the structure. It is usually longer lasting, and is usually washed off the structure after the fire threat is over.

Fuels Management Activities: Often used interchangeably with vegetation management activities (see below).

Hazard Fuels: Excessive live and/or dead wildland fuel accumulations (either natural or created) that have the potential to generate the occurrence of intense wildland fire.

Hazard Fuel Reduction: Hazard fuel reduction projects remove excessive live or dead fuel to protect life, property, cultural, and natural resource values. This could include structures and private properties; natural resources, including critical native plant communities and their processes, and threatened and endangered species; and important cultural, historic, and/or archaeological resources. These treatments, a variety of fire and non-fire techniques, include prescribed fire and wildfire managed for resource objectives, mechanical vegetation cutting and removal, targeted herbicide application, and manual methods.

Herbicide Use: Targeted herbicide application used as a follow-up treatment to fuel breaks created by mechanical treatments. This would help to slow regrowth of brush species and help to maintain the fuel breaks.

Incident Objectives: Incident specific guidance and direction necessary for the selection of the appropriate strategies for the tactical direction of resources.

Indirect Attack: Tactic utilized to stop fire advance away from the fire perimeter, but defining limits to fire's advance. Indirect tactics include constructing fireline, utilizing existing roads or natural barriers, changes in vegetation type, etc. Indirect attack is often safer in thick fuels or where flame lengths are high. Allows firefighters to construct fireline and/or burn out fuels in advance of the fire's arrival, thus depriving the fire of fuels, and stopping its advance. Distance from the fire depends on vegetation, fire behavior, anticipated and actual weather, values at risk, time, available firefighting resources, etc.

Initial Action: The actions taken by the first resources to arrive at a wildfire.

Initial Attack: First action(s) taken to put the fire out, consistent with firefighter and public safety, and values to be protected. Describes the initial response and actions used on most fires where the intent from the onset is to suppress the fire as quickly and cost effectively as possible. Generally used where the focus is on full perimeter control and extinguishment in the first burning period.

Initial Response: Immediate decisions and actions related to an ignition. All fires receive a response, which may not involve taking action on the ground, but may include a management or initial decision to postpone taking action on the ground to a later time based on conditions, safety, and competing priorities. A planned response, based on fire management objectives, initiated on every fire.

Manual Treatments: Activities that occur through the use of hand tools (ax, pulaski, cross-cut saw, pruners, shovel, etc.). It is a method of reducing hazardous accumulations of wildland fuels, and is used to create defensible space near structures or values. Does not include motorized equipment.

Mechanical Treatments: Vegetation management activities that include using wheeled or tracked equipment (mowers, masticators, choppers, skidders, bulldozers, etc.) and/or handheld motorized equipment (weed eaters, chainsaws, hand-held brush cutters, leaf blowers, etc.). It is a method of reducing accumulations of wildland vegetative fuels, and is used to create defensible space near structures and fuel breaks.

Minimum Impact Suppression Techniques (MIST): Minimum Impact Suppression Tactics (also referred to as Minimum Impact Techniques) are guidelines that assist fire personnel in the choice of procedures, tools, and equipment used in fire suppression and post-fire rehabilitation. These techniques reduce soil disturbance, impacts to water quality and wildlife, noise disturbance, intrusions in the wilderness, and cutting or trampling of vegetation. MIST policy is primary guidance in NPS managed natural areas, especially Wilderness.

National Environmental Policy Act (NEPA) Process: The objective analysis of a proposal to determine the degree of its environmental and interrelated social and economic impacts on the human environment, alternatives and mitigation that reduce that impact, and the full and candid presentation of the analysis to, and involvement of, the interested and affected public.

National Fire Policy: The interagency policy that guides management of all aspects of wildland fire to all federal agencies and most states. Includes direction on safety, ecosystem sustainability, response, use of wildland fire, rehabilitation and restoration, protection priorities, WUI, planning, science, preparedness, suppression, etc. For more detail see: http://www.nifc.gov/policies/policies_documents/GIFWFMP.pdf.

National Park Service (NPS): A bureau of the Department of the Interior, which manages a nationwide system of units dedicated to protecting and preserving areas with diverse natural, historical, and cultural values while allowing for visitor use and enjoyment that does not impair those values.

Planned Ignition: The intentional initiation of a prescribed fire in the wildland by hand-held, mechanical, or aerial devices (see prescribed fire).

Prescribed Fire: Fires originating from a planned ignition to meet specific objectives identified in a written, approved, prescribed burn plan. NEPA has been met prior to ignition (see planned ignition). Any fire intentionally ignited by management under an approved plan to meet specific incident objectives.

Resource Advisor: Assigned position on many longer and larger wildfire incidents. Usually a resource specialist who assists the incident commander and fire organization by providing focus and specialized knowledge related to protecting and preventing damage to unit natural and cultural values and resources, within the context of the incident objectives.

(Fire) Retardant: In wildland firefighting, a compound made by mixing chemicals with water to form a slurry that is dropped on vegetation to reduce flammability or delay their combustion. Dropping is usually performed by fixed wing air tankers, but can also be done by helicopter if a mobile retardant mixing station is set up nearby. Typical retardant now in use consists of ammonium phosphate compounds dyed red to aid in determining effectiveness of drops. To be effective in suppressing wildland fire, retardant must be followed up by ground firefighting resources.

Superintendent: The senior management official of a NPS unit with responsibility for approving general direction in the Fire Management Plan (and other park planning documents), and ensures that it receives annual review and update. Provides appropriate and reasonable review and oversight of fire management program and operations, and ensures that they are integrated with other park goals and objectives. Has other fire related responsibilities such as approving retardant use in the unit, approving equipment use in Wilderness, approving prescribed fire burn plans, fiscal responsibilities, etc.

Suppression: All the work of extinguishing a fire or confining fire spread. This tactic can be used on a whole fire or part of a fire.

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

Use of Wildland Fire: Management of either wildfire or prescribed fire to meet resource objectives specified in the Fire Management Plan.

Vegetation Management Activities: Actions taken to reduce or thin the amount of vegetative fuels available for burning. Vegetative fuels include dead vegetation and logs, live trees, brush and shrubs, grass and all live and dead vegetation that can burn. Actions can be by hand tools (ax, pulaski, cross-cut saw, pruners, shovel, etc.), handheld equipment (weed eaters, chainsaws, leaf blowers, etc.), and wheeled or tracked equipment (mowers, masticators, choppers, skidders, bulldozers, etc.). The type of equipment available to use is usually set by policy and the Fire Management Plan. The specifics are usually laid out in a written site specific fuels management or defensible space plan, unless occurring under emergency wildfire conditions.

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

Wildland Fire: A general term describing any non-structure fire that occurs in the wildland; includes prescribed fires.

Wildfire Managed for Resource Objectives: A term used to describe a fire started by lightning (unplanned ignition) and allowed to burn under written, defined conditions for resource management objectives. Examples of resource objectives include returning fire to a fire adapted ecosystem, reduction of vegetative fuels, opening up areas for fire adapted species, decreasing

brush, renewing grassland habitat for herbivores, opening up the tree canopy for endangered bird species, reducing the chance of stand replacing fire in more extreme conditions, etc. Utilizing this tool is only permitted where pre-planned in an approved FMP. Use may also be limited by availability of firefighting resources, safety, weather, vegetation conditions, fire behavior, national and regional fire preparedness levels, values at risk (natural, cultural, and private property), and other factors. A fire may be managed for resource objectives in one area, while being suppressed in another area.

Wilderness: Refers to lands protected under the Wilderness Act, (1964). The basic requirement is to preserve the wilderness character in those areas. Congress approves wilderness areas through legislation that often allows some variation in the character and uses of those areas. All fire management actions in wilderness will be consistent with the “minimum requirement” concept, (see section 6.3.5 of NPS Management Policies, 2006), which is a process to determine the tools that will have the least effect on the character of the wilderness, balanced with the need to accomplish some activity and to minimize impacts of that needed activity.

Wildland Urban Interface (WUI): An area where structures and other human development meet or intermingle with undeveloped wildland or vegetation fuels.

Appendix C. Current Species of Concern

| Species | Federal Status | State Status* | Habitat | Threats |
|--|----------------|---------------|---|--|
| Mammal | | | | |
| Right whale <i>(Eubalaena glacialis)</i> | E | E | Mate and calve in shallow coastal waters; critical habitat designated from the mouth of Altamaha River south to Sebastian Inlet, FL (from shoreline east 5-15 nautical miles) | Initial decreases probably due to overharvesting. Slow population growth after exploitation halted may be due to collisions/disturbance associated with boats and barges, inbreeding, inherently low reproductive rates, or a reduction in population below a critical size for successful reproduction. |
| Round-tailed muskrat <i>(Neofiber alleni)</i> | — | T | Bogs and ponds; creates pyramid-shaped nest in vegetation | Habitat loss from human activities and natural succession. Loss of bog/floating mat vegetation-type habitat due to man's suppression of wildfires. |
| West Indian manatee <i>(Trichechus manatus)</i> | E | E | Coastal waters, estuaries, and warm water outfalls | Initial decreases probably due to overharvesting for meat, oil and leather. Current mortality due to collisions with boats and barges and from canal lock operations. Declines also related to coastal development and loss of suitable habitat, particularly destruction of sea grass beds. |
| Rafinesque's big-eared bat <i>(Corynorhinus rafinesquii)</i> | — | R | Roosting sites in coastal plain bottomland areas, large, hollow cypress and gum trees with openings near the base. | Potential threats include pesticides and alteration of forested habitats, including removal of hollow cull trees. |
| Southeastern pocket gopher <i>(Geomys pinetis)</i> | — | R | Loose, sandy, well-drained soil for burrow construction and an abundant supply of grasses and forbs for food. | Habitat alteration and loss of longleaf pine/wiregrass communities. |
| Bird | | | | |
| Piping plover <i>(Charadrius melodus)</i> | T | T | Winter on Georgia's coast; prefer areas with expansive sand or mudflats (foraging) in close proximity to a sand beach (roosting) | Habitat alteration and destruction and human disturbance in nesting colonies. Recreational and commercial development has contributed greatly to loss of breeding habitat. |
| Red-cockaded woodpecker <i>(Picoides borealis)</i> | E | E | Nest in mature pine with low understory vegetation (<1.5m); forage in pine and pine hardwood stands > 30 years of age, preferably > 10" dbh. | Reduction of older age pine stands and encroachment of hardwood mid-story in older age pine stands due to fire suppression. |

| Species | Federal Status | State Status* | Habitat | Threats |
|--|----------------|---------------|--|--|
| Wood stork (<i>Mycteria Americana</i>) | E | E | Primarily feed in fresh and brackish wetlands and nest in cypress or other wooded swamps. Active rookeries are located in Camden County. | Decline due primarily to loss of suitable feeding habitat, particularly in south Florida. Other factors include loss of nesting habitat, prolonged drought/flooding, raccoon predation on nests, and human disturbance of rookeries. |
| American Oystercatcher (<i>Haematopus palliatus</i>) | — | R | Nests on marsh islands, upland dunes, beaches, and dredge spoils. Atlantic Coast population nests from Massachusetts to southern Florida. | Human disturbance, loss of nesting habitat to development, and predation are known threats to this species' success. |
| Bald eagle (<i>Haliaeetus leucocephalus</i>) | — | T | Inland waterways and estuarine areas in Georgia. Two active eagle nests were documented on Cumberland in 2008. | Major factor in initial decline was lowered reproductive success following use of DDT. Current threats include habitat destruction, disturbance at the nest, illegal shooting, electrocution, impact injuries, and lead poisoning. |
| Gull-billed tern (<i>Sterna nilotica</i>) | — | T | Nests in colonies on sandy sites; forages over salt marsh, dunes and other grassy areas for insects, spiders, and other invertebrates | Nest disturbance and loss of habitat to beach-front development are the major threats to this species. |
| Least Tern (<i>Sterna antillarum</i>) | — | R | Atlantic Coast breeding populations range from Massachusetts to Florida. Nesting colonies have been documented in all Georgia coastal counties. | Human disturbance of nesting colonies is the primary threat to this species' success. Predation also is a concern. |
| Swallow-tailed kite (<i>Elanoides forficatus</i>) | — | R | Nests in large pine trees within floodplain or riparian forest, or in older stands of pine forest adjacent to floodplains of large rivers or tributary creeks. | Loss of nesting, foraging, and roosting habitat from drainage of marshes and conversion of bottomland forests. |
| Wilson's Plover (<i>Charadrius wilsonia</i>) | — | T | Atlantic Coast breeding populations range from New Jersey to northern South America. Nesting habitat includes beaches, sand flats and spits. | Loss of nesting habitat from human development; predation from wild, feral, and domestic animals; and human disturbance in the form of pedestrians and vehicles are primary threats to this species. |

| Fish | | | | |
|---|---|---|--|--|
| Shortnose sturgeon (<i>Acipenser brevirostrum</i>) | E | E | Atlantic seaboard rivers | Construction of dams and pollution, habitat alterations from discharges, dredging or disposal of material into rivers, and related development activities. |
| Reptiles | | | | |
| Eastern Indigo snake (<i>Drymarchon corais couperi</i>) | T | T | During winter, den in xeric sand ridge habitat preferred by gopher tortoises; during warm months, forage in creek bottoms, upland forests, and agricultural fields | Habitat loss due to uses such as farming, construction, forestry, and pasture and to over collecting for the pet trade. |
| Gopher tortoise (<i>Gopherus polyphemus</i>) | C | T | Well-drained, sandy soils in forest and grassy areas; associated with pine over story, open understory with grass and forb groundcover, and sunny areas for nesting | Habitat loss and conversion to closed canopy forests. Other threats include mortality on highways and the collection of tortoises for pets. |
| Green sea turtle (<i>Chelonia mydas</i>) | T | T | Rarely nests in Georgia; migrates through Georgia's coastal waters | Exploitation for food, high levels of predation, loss of nesting habitat due to human encroachment, hatchling disorientation due to artificial lights on beaches, and drowning when trapped in fishing and shrimping nets. |
| Leatherback sea turtle (<i>Dermochelys coriacea</i>) | E | E | Rarely nests in Georgia; migrates through Georgia's coastal waters | Human exploitation, beach development, high predation on hatchlings, and drowning when caught in nets of commercial shrimp and fish trawls and long line and driftnet fisheries. |
| Loggerhead sea turtle (<i>Caretta caretta</i>) | T | T | Nests on Georgia's barrier island beaches; forages in warm ocean waters and river mouth channels. | Loss of nesting beaches due to human encroachment, high natural predation, drowning when turtles trapped in fishing and shrimping trawls, and marine pollution. |
| Amphibians | | | | |
| Striped Newt (<i>Notophthalmus perstriatus</i>) | — | T | Sandhills and well-drained pine flatwoods are typical adult habitats. Breeding and larvae habitat typically use isolated, ephemeral, wetlands. In Georgia, occur in the lower and middle Coastal Plain and at one site in the Upper Coastal Plain. | Loss of both upland and wetland habitats. |

| | | | | |
|--|---|---|--|--|
| Gopher Frog (<i>Rana capito</i>) | — | R | Restricted to longleaf pine ecosystems; longleaf pine-saw palmetto-wiregrass sandhills and more poorly drained longleaf pine flatwoods. | Fire suppression or lack of burning during the growing season and habitat fragmentation. |
| Plants | | | | |
| Climbing buckthorn (<i>Sageretia minutiflora</i>) | — | T | Calcareous rocky bluffs, forested shell middens on barrier islands, and evergreen hammocks along stream banks and coastal marshes. Recorded from 12 populations, 6 are on public lands. | Clearing and conversion of habitat to developments. |
| Pondspice (<i>Litsea aestivalis</i>) | — | R | Margins of swamps, cypress ponds, and sandhill depression ponds and in hardwood swamps. Recorded from 13 counties in Georgia. | Ditching, draining, and filling wetlands. Fire suppression and construction of firebreaks in wetland transition zones. |
| Wagner spleenwort (<i>Asplenium heteroresiliens</i>) | — | T | Marl outcrops, damp limestone ledges, and tabby masonry. Only 5 populations recorded. | Destruction and degradation of habitat by exotic invasive species, cave explorers, and developers. |
| Florida wild privet (<i>Forestiera segrate</i>) | — | R | Coastal/maritime forests and shrub-scrub areas over shell mounds on or near barrier islands or bordering salt marshes. Seven populations are known; most on state or federal park lands or military bases. | Clearing and development in coastal habitats. Digging and destruction of shell mounds. Invasion by exotic pest plants. |
| Soapberry (<i>Sapindus marginatus</i>) | — | R | Coastal shell mounds and hardwood hammocks, often near edges of salt marsh, with live oak, red cedar, red bay, pignut hickory, and yaupon. Five populations known; all on state and private lands. | Clearing and development of coastal hammocks. |

| | | | | |
|--|----------|----------|--|--|
| <p>Velvet sedge (<i>Carex dasycarpa</i>)</p> | <p>—</p> | <p>R</p> | <p>Well drained, sandy-loamy soils in a variety of habitats: mixed pine-hardwood forests on river bluffs and stream terraces, levees and swales in floodplains, maritime forests along Atlantic coast rivers, longleaf pine woodlands on barrier islands, beech-magnolia-spruce pine forests. 15 populations are currently known, most on conservation land.</p> | <p>Conversion of habitat to pine plantations, agriculture, and development. Invasion by exotic pest species such as Japanese honeysuckle and Japanese climbing fern.</p> |
| <p>Greenfly Orchid (<i>Epidendrum magnolia</i>)</p> | | <p>U</p> | <p>Limbs of southern magnolia and live oak trees in moist forests, usually along streams. Less frequently found in sandstone outcrops. 70 populations are currently known to occur in conservation areas.</p> | <p>Removal by orchid collectors, logging, and clearing in lowland forests.</p> |

FY21 Appendix D: Compliance Documentation

All compliance documents related to CUIS Fire Management can be found [here](#).

Appendix E: Multi-Year Fuels Treatment Plan

2,055 acres - Pre-settlement estimates from [Frost Report](#) estimating total acres burned on an average year in the original landscape.

FY2022 Rx

| <i>Treatment Name</i> | <i>Acres</i> |
|-----------------------|--------------|
| Triangle Rx | 41 |
| Settlement South Rx | 97 |
| Settlement North Rx | 123 |
| Settlement East Rx | 46 |
| Halfmoon Pines Rx | 8 |
| Halfmoon Bluff Rx | 29 |
| Burbank Point Rx | 69 |
| Long Point Rx | 291 |
| Terrapin Point Rx | 302 |
| Raccoon Key Pile Rx | 1 |

TOTAL: 1,007 Acres

FY2023

| <i>Treatment Name</i> | <i>Acres</i> |
|-------------------------|--------------|
| Stafford Field Rx | 114 |
| *Stafford Plantation Rx | 59 |
| Stafford East Rx | 141 |
| Parallel North Rx | 53 |
| Parallel South Rx | 57 |
| Parallel West Rx | 27 |
| Old House North Rx | 166 |
| Old House South Rx | 138 |
| Old River Rx | 519 |
| *North Cut Rx | 291 |
| *Stockwell Bluff Rx | 62 |
| Raccoon Key Pile Rx | 1 |

TOTAL: 1,628 Acres

*** Planned growing season burn**

FY2024

| <i>Treatment Name</i> | <i>Acres</i> |
|-----------------------|--------------|
| Triangle Rx | 41 |
| Settlement South Rx | 97 |
| Settlement North Rx | 123 |
| Settlement East Rx | 46 |
| Halfmoon Pines Rx | 8 |

| | |
|---------------------|-----|
| Halfmoon Bluff Rx | 29 |
| Burbank Point Rx | 69 |
| Long Point Rx | 291 |
| Terrapin Point Rx | 302 |
| Brickhill Bluff Rx | 111 |
| Raccoon Key Pile Rx | 1 |

TOTAL: 1,118 Acres

FY2025

| <i>Treatment Name</i> | <i>Acres</i> |
|-------------------------|--------------|
| Stafford Field Rx | 114 |
| *Stafford Plantation Rx | 59 |
| Stafford East Rx | 141 |
| Parallel North Rx | 53 |
| Parallel South Rx | 57 |
| Parallel West Rx | 27 |
| Old House North Rx | 166 |
| Old House South Rx | 138 |
| Old River Rx | 519 |
| Table Point Rx | 1610 |
| Raccoon Key Pile Rx | 1 |

TOTAL: 3,238 Acres

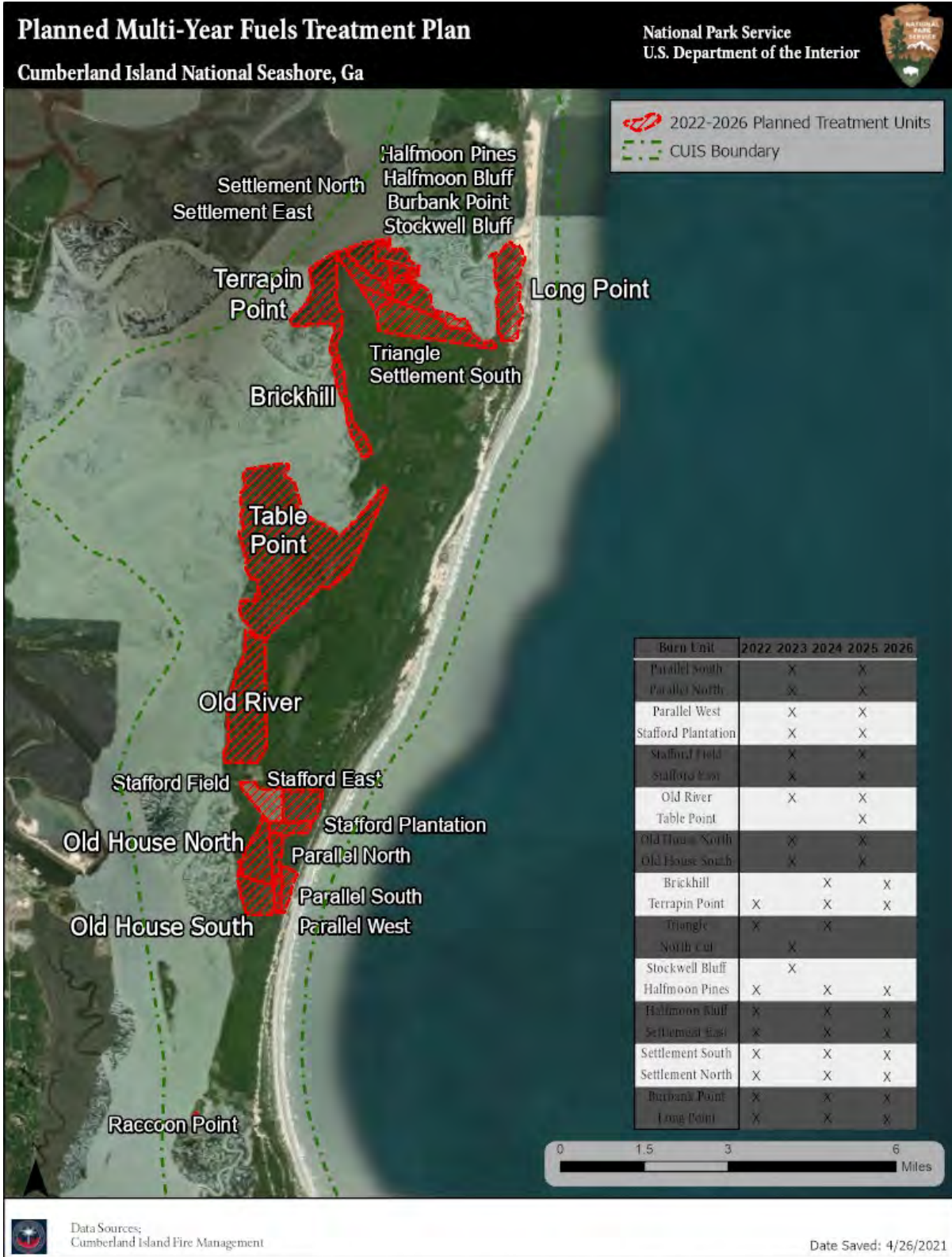
*** Planned growing season burn**

FY2026

| <i>Treatment Name</i> | <i>Acres</i> |
|-----------------------|--------------|
| Triangle Rx | 41 |
| Settlement South Rx | 97 |
| Settlement North Rx | 123 |
| Settlement East Rx | 46 |
| Halfmoon Pines Rx | 8 |
| Halfmoon Bluff Rx | 29 |
| Burbank Point Rx | 69 |
| Long Point Rx | 291 |
| Terrapin Point Rx | 302 |
| Brickhill Bluff Rx | 111 |
| Raccoon Key Pile Rx | 1 |

TOTAL: 1,118 Acres

Planned 5-Year Prescribed Fire Treatments Unit Map



Mechanical Treatments

Mechanical treatments can be grouped into two categories: Annual Recurring Treatments and First Entry Treatments.

Annual Recurring Treatments: Have already been treated initially with a skid steer with masticating head and can be maintained annually with a bush hog attachment on the skid steer or Brown's Tree Cutter on a tractor. These treatments generally have less than three feet of growth from ground level.

- This includes fuel breaks along North Cut, Shell Road, Clubb Road, Miller Access, Olsen Access, and Candler Beach Access Roads.
- Additionally, all structures on the north end of the island have a 100-300 ft buffer that is being treated annually.
- Other treated structures include Stafford Beach Campground Bathrooms, Hunt Camp Cabin, Nightingale Well House, CUIS Fire Cache, Fuel Pumps at Carriage House.
- A buffer of 6 ft of annual mechanical treatments is maintained on the east and west sides of the main road. The wilderness boundary begins 12.5 ft from the center line of the main road in the Cumberland Island Wilderness. This treatment will remain will outside of the wilderness area.
- 6 ft. buffer on north and south sides of Plum Orchard Road.
- Okefenokee Rural Power easement on Table Point.

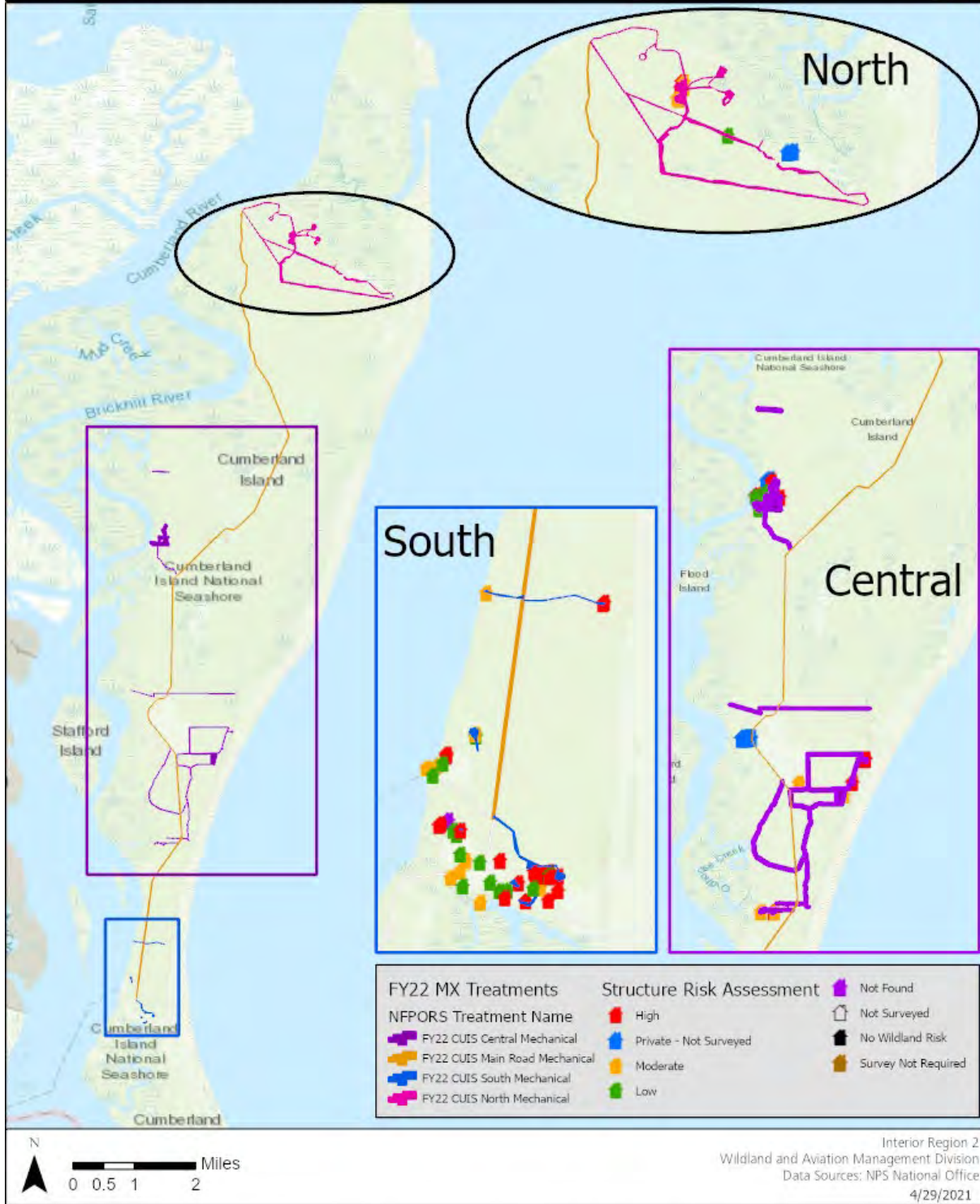
Planned First Entry Treatments: These areas generally have higher fuel loading that requires and initial treatment with a skid steer with masticating head. The goal is to move these areas once initially treated to annual recurring treatments.

- 20-acre project area in Plum Orchard area within the Historic District
- 100 ft buffer around Island Repeater site
- Fuel break on south side of Cumberland Island Wilderness on TNC property (Dependent on signed MOU with TNC)
- 3-acre acres on the north end of Parallel North burn unit.
- 6-acre area on east side of Stafford Plantation burn unit.
- 100-300 ft buffer around structures in the Stafford Beach area.
- 30 ft buffer on roads in Davisville area and 300 ft buffer around NPS structures.
- A buffer of 6 ft on the north and south sides of the Seacamp crossing along with a 100ft buffer around the Seacamp bathroom and Seacamp Ranger Station
- Structures in the Dungeness area.

Fiscal Year 2022 Mechanical Fuels Treatments

Cumberland Island National Seashore, Ga

Interior Region 2
National Park Service
U.S. Department of the Interior



Appendix F. Fire Monitoring Plan

National Park Service
U.S. Department of the Interior

Cumberland Island National Seashore
St. Marys, GA 31558

Barrens to Bayous
Fire Monitoring Network
Natchez Trace Fire Management
Natchez Trace Parkway
Tupelo, MS 38804



Cumberland Island National Seashore

Fire Monitoring Plan

2021

UPDATED BY:

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1 INTRODUCTION

1.1 Purpose

Prescribed fire will be used by National Park Service (NPS) Fire Management staff to maintain and restore fire-adapted ecosystems at Cumberland Island National Seashore (CUIS) by reducing hazardous fuel levels, limiting encroachment of invasive woody species, and/or restoring the historical structure of plant communities on the landscape. This Fire Monitoring Plan has been created to meet the requirements of the NPS Wildland Fire Management Reference Manual 18 (RM-18) and the CUIS Fire Management Plan (USDI NPS, 2014). NPS Management Policies (2006) Section 4.5, states that:

“Naturally ignited and human-ignited fires managed to achieve resource management and fuel treatment objectives.... Such fires will also include monitoring programs that record fire behavior, smoke behavior, fire decisions, and fire effects to provide information on whether specific objectives are met and to improve future fire management strategies.”

NPS policy requires managers to monitor the effects of all wildland and prescribed fires. Monitoring directives, summarized here from *Director’s Order #18* are:

- “Prescribed fire activities will include...monitoring programs that provide information on whether specific objectives are being met.”
- Fire Management Plans and programs will be based on a foundation of sound science.
- Scientific results must be made available to managers in a timely manner and must be used in the development of land management plans, Fire Management Plans, and implementation plans.
- Evaluation of fire effects data is the joint responsibility of fire management and natural resource management personnel.

RM-18 requires that all NPS units using prescribed fire as a management tool have both a Fire Management Plan (FMP) and a Fire Monitoring Plan. A major part of the adaptive management process, this Monitoring Plan helps to ensure that appropriate monitoring is conducted to assess treatment effectiveness and to determine whether fire and resource management goals are being met. This Plan illustrates the ecological basis for fire management at CUIS, the extent of monitoring, and the protocols used.

1.2 Site Description

Situated just north of the Florida - Georgia border, Cumberland Island is the largest of Georgia’s coastal islands. The park was established in 1972, and later developed the following two primary management goals as per the General Management Plan:

- Protect and enhance both natural and recreational values through environmentally compatible park activities
 - Manage the seashore in such a way as to allow natural beach and barrier island dynamics
- Beaches, sand dunes, marshes, and uplands of oak and pine forest or palmetto make up most of Cumberland Island. These basic zones are generally managed as natural areas. Areas of Dungeness, Stafford, Plum Orchard, High Point – Half Moon Bluff, and many archeological sites are managed as historic zones. Sea Camp and Little Greyfield are managed as development zones. Little Cumberland Island is recognized as a special use zone. Private land and inholdings

could be categorized into all four land classifications (USDI NPS, 1984).

1.3 Historic Fire Management and Monitoring

Interestingly, the Resource Management Plan (USDI NPS, 1994) described the majority of vegetation research, on the island, related to fire ecology. Throughout the 1900s wildfires were documented on the island, and some, such as the lightning started South-Cut Fire of 1981, were quickly studied (Davison & Bratton, 1988). Publications analyzing the impacts of these wildfires on the island's vegetation can be found in peer-reviewed journals. In the past, fire monitoring was generally limited to single event monitoring for short-term effects. There have been large fires that had monitoring during the incident but have seen limited follow up monitoring. There is no record of monitoring of prescribed fires that may have taken place from the 1970s into the 1980s. Fire management staff began utilizing prescribed fire in 2016 starting with the Stafford Field and Stafford Plantation burn units.

2 ECOLOGICAL MODELS

2.1 Fire History

One of the primary goals of fire management within the NPS is to restore fire as an ecosystem process; therefore, it is necessary to understand the historic fire regime that occurred within a landscape area. Fire has historically, and prehistorically, played an important role in shaping the structure and composition of ecological communities in the southeastern United States (Garren, 1943; Pyne, 1997). The role fire plays in the absence of modern human intervention, yet including the influence of aboriginal burning, define the fire regime types (NWCG WFEWT, 2003).

To assist with development of desired conditions and planned actions found in this document, CUIS commissioned a study of presettlement vegetation and fire regimes of Cumberland Island (Frost, 2011). This research is an in depth study of what the vegetation makeup was like before the Park was settled. It also provides detailed information about the historic fire regimes associated with the vegetation of the Park. The information in Frost's research shows that historic vegetation has been significantly altered. Human alteration of the vegetation includes agriculture, grazing, and years of successful fire suppression. Frost finds that nearly all of the vegetation was shaped by fire in the past. He also finds that old growth longleaf pine (*Pinus palustris*) is present in the Park, an indicator species of a natural fire occurrence. Maps of historic fire regimes associated with this study help shape the goals and objectives when developing FMU's for the FMP. It also provided a scientific need for prescribed fire in certain areas of the Park and also a need to manage natural ignitions when possible.

“Nearly all of the original upland vegetation of Cumberland Island was in some way structured by fire or confined by fire to fire-refugial sites. About 65 percent of rare native plants and animals in the South are in some way dependent upon fire to create or maintain their habitat. Cumberland Island supports several stands of old-growth longleaf pine and remnants of fire dependent species associated with the longleaf pine community.” –Frost, 2011

Into the 20th century, Cumberland Island supported large numbers of open-range cattle and the island's ranchers were known to practice spring burning. It is likely that the disturbances this

practice was generating permitted the survival of the remnant fire dependent species on the island today (Frost, 2011).

2.2 Longleaf Pine and Mixed Pine – Oak Savannas and Woodlands

Longleaf, and various integrations of other fire tolerant species, dominated some 6,000 acres or roughly ¼ of island above the tidal zone (Frost, 2011). These woodlands and savannas would have been characterized by open two-tiered vegetation communities, with an overstory of longleaf pine, slash pine (*P. elliotii*), live oak (*Quercus virginiana*), and turkey oak (*Q. laevis*). Understory vegetation would have likely been dominated by herbaceous species such as wiregrass (*Aristida beyrichiana*), dropseed (*Sporobolus* spp.), bluestems (*Schizachyrum scoparium* and *Andropogon* spp.), and a diverse assemblage of forbs and legumes (Jose, Jokela, & Miller, 2007). With the exception of areas burned in recent wildfires, today these herbaceous species are challenging to find on Cumberland Island. After the South Cut fire of 1981, Davison and Bratton (1988) described the herbaceous response in these communities:

“Herbaceous regrowth in the longleaf pine-oak was dominated by throughwort (Eupatorium aromaticum) in the first year after the fire. This regrowth became codominant with various grass species during the second year. The most notable feature of herb growth of this area was the high species diversity. Most of the grasses could not be identified because the grains had been grazed. There were seven grass species, several sedges, and ten forb species that occurred inside the transects and several more outside”

These fire dependent sites would have been maintained by a mean fire return interval of 3 to 5 years, with a historic range of variation of 1 to 12 years. These presettlement fire regimes are based on potential lightning ignitions, with supplementary ignitions by Native Americans, and supported by both known fire regimes for remnant species and witness trees in land grant surveys (Frost, 2011).

2.3 Coastal Oak Scrub

A natural vegetation structure for the oak scrub (scrub oak barrens) consists of 1-2 meter tall mixed scrub oaks (*Q. virginiana*, *Q. geminata*, *Q. myrtifolia*, etc.) and rusty staggerbush (*Lyonia ferruginea*) with widely scattered pond pine (*P. serotina*). Historically occupying 1,394 acres, the communities are characterized by shorter “scrubby” species that tend to experience stand replacement fires. These sites typically burn hot and the majority of above ground plant stems are killed. However, scrub oak species rapidly resprout and recolonize the site in even height and at similar composition. Davison and Bratton (1988) also made this conclusion when describing Cumberland Island’s oak scrub:

“Post-fire growth on Cumberland Island was also very stable. The relative importance of species after fire was very similar to that found prior to the burn. It is unlikely that the large scrub comprising the majority of the South-Cut site will ever succeed to hardwood forest. The fire history of this area, stable species composition, and rapid regeneration after fire suggests that this community is a pyric disclimax.”

At certain areas on the island, these areas of scrub oak may intergrade into the previously discussed mixed pine – oak woodland. The natural cycle of fire in the oak scrub may have been severe, but with lower frequencies than the adjacent longleaf pine and other fire communities. Additionally, Frost (2011) suggests that the scrub oak barrens are of a unique type, as they are

influenced by a maritime environment, incorporate wetland communities retaining surface water in wet years, and share an unusual species composition.

2.4 Wetlands

Cumberland Island hosts many wetland areas, both natural and man-made. These wetlands have been encroached on due to lack of fire. These areas consist of mixed grasses, sweet gum, pine (*P. elliotii*), and encroaching hardwoods.

2.5 Other Upland Ecological Communities

In addition to the two fore mentioned vegetation types, pocosins, hammocks, and sloughs throughout the island would have had some wildland fire interactions. At this time, these vegetation communities are not described and need further study. Prior to prescribe burning in these sites, ecological goals and objectives should be developed and monitored. Likely due to its more humid microclimate, low lying hardwood forests were found to be more resistant to wildfires (Davison & Bratton, 1988).

3 MANAGEMENT GOALS AND OBJECTIVES

3.1 Resource Management and Fire Management Goals

In restoring fire as an ecological process on the landscape, initial objectives for prescribed fire in long-unburned systems must be considered separately from the objectives for areas that have received regular fire. Operationally referred to as restoration versus maintenance goals, these goals and measurable objectives should differ (Table 1). Goals are dynamic and require continued input from Park management staff and outside researchers. An analysis of Desired Future Conditions (DFC) is also necessary for realization of long-term goals. In addition, specific objectives should be refined based on existing monitoring and research results in the adaptive management process (USDI NPS, 2008a). Fire monitoring objectives will be addressed in Section IV.

Table 1 | Restoration and maintenance goals for prescribed fire by vegetation type.

| Vegetation Type(s) | Resource Management Goal | Restoration Fire Management Goal | Maintenance Fire Management Goal |
|------------------------------------|---|--|--|
| Longleaf Pine Savanna and Woodland | <ul style="list-style-type: none"> • Maintain longleaf pine savanna habitat • Encourage native plant and animal diversity • Increase resilience of native ecosystems | <ul style="list-style-type: none"> • Restore and maintain natural fire regime • Reduce excessive fuel loading • Increase herbaceous plant cover • Reduce invasion of divergent species | <ul style="list-style-type: none"> • Two-tiered vegetation arrangement with abundant and diverse understory plant species • Successful reproduction of longleaf pine |
| Coastal Oak Scrub | <ul style="list-style-type: none"> • Encourage native plant and animal diversity • Increase resilience of native ecosystems | <ul style="list-style-type: none"> • Restore and maintain natural fire regime • Restore and maintain open site conditions • Reduce risk of | <ul style="list-style-type: none"> • To be determined based on results of restoration burns |

| | | | |
|---------|---|--|--|
| | | catastrophic wildfire | |
| Wetland | <ul style="list-style-type: none"> • Reduce encroachment into wetlands • Improve wetlands overall | <ul style="list-style-type: none"> • Restore and maintain wetlands • Improve water holding capabilities • Restore and maintain natural fire regimes | <ul style="list-style-type: none"> • To be determined based on results of restoration burns |

3.2 Desired Future Conditions and Fire Management Objectives

The specific desired future conditions (DFC's) for the vegetation types that typically support a Fire Management Plan at CUIS are currently unavailable; however, fire management and natural resource staff may be able to develop draft DFC's for proposal. Vegetation types within CUIS can be classified into rough groups (Zomlefer, Giannasi, Bettinger, Echols, & Kruse, 2008), with Maritime Hammock, Oak-Pine Forests, and Scrub Forests likely dominating areas prone to fire management activities. Revised monitoring types follow the 2011 Frost study in conjunction with NPS efforts to map the Fire Behavior Fuel Models based on the Scott and Burgan Model (FBFM40). There are two concurrent sets of fire management objectives currently in use at CUIS. They will be referred to as the original and the revised objectives. The original objectives are based on earlier described monitoring types and utilize standard Fire Monitoring Handbook (FMH) plot protocols. The revised objectives are based on Rapid Assessment plot (RAP) protocols. There will be approximately 1-3 years of overlap for the two sets of objectives to be further evaluated with new data, but some original objectives have already shown to be unrealistic. The revised objectives supersede the original objectives during this period and will be primary for short- and long-term monitoring. This exercise in adaptive management will determine which objectives and protocols are most informative and efficient. While all monitoring types have specific goals and objectives, many of the types have some shared basic objectives. Basic original objectives for initial restoration with Rx fire in most forested FMUs include:

- Reduce total fuel loadings from pre-burn levels >30% measured immediately post-burn
- Reduce mean density pole-size trees (2.5-15cm dbh) in longleaf units >20% by 3rd burn
- Increase native herbaceous cover by at least 25%

Generalized long-term objectives for these sites will be developed after further analysis of short term monitoring. Fire management objectives at CUIS will be measurable by standard monitoring protocols laid out by the National Park Service Fire Monitoring Handbook (USDI NPS, 2003). As research provides further information to describe specific desired future conditions for the target vegetation communities, fire management objectives are developed to better define how prescribed fire will help move those communities closer towards broader resource management goals (Table 1). These original fire management objectives will be reevaluated as monitoring results are analyzed and new information is gained (Table 2).

Table 2A | Original Restoration objectives for fire management within Cumberland Island National Seashore's broad ecosystems dependent on fire.

| Vegetation Type(s) | Fire Management Objectives (Restoration) |
|------------------------------------|---|
| Longleaf Pine and Mixed Pine - Oak | <ul style="list-style-type: none"> • Decrease density of shade tolerant pole trees by 30-90% (BYR02 – 00Pre)/00Pre |

| | |
|------------------------|--|
| Savannas and Woodlands | <ul style="list-style-type: none"> • Limit mortality of overstory trees to less than 30% (longleaf units) $(\beta YR02 - 00Pre)/00Pre$ • Increase native herbaceous cover by >25% by 1 year after the 3rd burn $(\beta YR02 - 00Pre)/00Pre$ • Reduce total fuel load by 10-50% immediately postburn. $(\beta Post - before \beta)/before \beta$ • Cause no net gain in percent cover of exotic plants after five years of burning $(\beta YR01 - 00Pre)/00Pre$ |
| Coastal Oak Scrub | <ul style="list-style-type: none"> • Decrease density of small (pole-sized) trees by 30-90% $(\beta YR02 - 00Pre)/00Pre$ • Increase native herbaceous cover by >25% by 1 year after the 3rd burn $(\beta YR02 - 00Pre)/00Pre$ • Reduce total fuel load by 10-50% immediately postburn. $(\beta Post - before \beta)/before \beta$ • Cause no net gain in percent cover of exotic plants after five years of burning $(\beta YR01 - 00Pre)/00Pre$ |

Table 3B Current, revised, and adapted restoration objectives for fire management within Cumberland Island National Seashore’s broad ecosystems dependent on fire.

| Vegetation Type(s) | Fire Management Objectives (Restoration) |
|---|--|
| General objectives for CUIS – Additional objectives apply to each following monitoring type | <ul style="list-style-type: none"> • Top-kill >50% of encroaching (mesophytic) woody species less than 2 meters as determined using visual estimates and/or image analysis within 2 years post-burn. $(\leq \beta YR02 - 00Pre)/00Pre$ • Top-kill >50% Loblolly pine (<i>Pinus taeda</i>) regeneration less than 2 meters as determined using visual estimates and/or image analysis within 2 years post-burn. $(\leq \beta YR02 - 00Pre)/00Pre$ • Reduce canopy cover and/or basal area by >20% over 3 burn cycles (with focus on mesophytic woody species, where appropriate). $(\leq \beta PBurn3 - 00Pre)/00Pre$ • Increase herbaceous species richness (average number of native species) and/or percent cover: Target >10% increase measured 2nd year after 2 periodic burn cycles. $(\leq \beta PBurn2 - 00Pre)/00Pre$ • Expose mineral soil on >20% of site over 3 burn cycles, >40% over 5 burn cycles. $(\leq \beta PBurn3 - 00Pre)/00Pre$ • Limit mortality of overstory longleaf pines to <20% measured 2 years post burn. |

| | $(\leq \text{BYR02} - \text{00Pre})/\text{00Pre}$ |
|--|--|
| <p>Longleaf Pine Savannas</p> <p>Restoration fire regime = 1-3 years Maintenance/Historical fire regime = 3-5 years</p> | <ul style="list-style-type: none"> • Transition from restoration fire regime to maintenance (historical) fire regime within 5 burn cycles. • Maintain fire frequency return interval 1-5 years within longleaf pine stands while maintaining 30% of fire managed habitat in three year rough condition. • Increase Wiregrass- <i>Aristida beyrichiana</i> to < 0 occurrences. • Increase other remnant fire indicator species including <i>Schizachyrium scoparium</i>, <i>Stillingia sylvatica</i>, <i>Cnidocolus stimulosus</i>, <i>Vaccinium myrsinites</i>, and <i>Galactia sp.</i> to >1% relative cover measured 2nd year after 2 periodic burn cycles. <p>$(\leq \text{BYR02} - \text{00Pre})/\text{00Pre}$</p> |
| <p>Longleaf Pine Woodland/Longleaf-Slash Pine-Live Oak Woodland</p> <p>Restoration fire regime = 1-5 years Maintenance/Historical fire regime = 2-12 years</p> | <ul style="list-style-type: none"> • Transition from restoration fire regime to maintenance (historical) fire regime within 5 burn cycles |
| <p>FM TU1 Timber Understory 2 Fuel Model, Fire-maintained Live Oak-Slash Pine forest</p> <p>TU1 comprises a fire suppressed mix of Longleaf Pine Woodland/Longleaf-Slash Pine-Live Oak Woodland and Scrub Oak Barrens Complex, Mixed Pines, and Live Oak Forests</p> | <ul style="list-style-type: none"> • Reduce canopy cover and/or basal area by >20% over 3 burn cycles with focus on laurel oak (<i>Quercus laurifolia</i>) and sweetgum (<i>Liquidambar styraciflua</i>). <p>$(\leq \text{BYR02} - \text{00Pre})/\text{00Pre}$</p> <ul style="list-style-type: none"> • Increase longleaf pine (<i>Pinus palustris</i>) and slash pine (<i>Pinus elliottii</i>) regeneration >5% cover over 3 burn cycles. <p>$(\leq \text{BYR02} - \text{00Pre})/\text{00Pre}$</p> <ul style="list-style-type: none"> • Open understory structure with <50% shrub cover and >10% herbaceous cover over 3 burn cycles <p>$(\leq \text{BYR02} - \text{00Pre})/\text{00Pre}$</p> |
| <p>Scrub Oak Barrens Complex, Mixed Pines, Live Oak Forests</p> <p>Restoration fire regime = 4-13 years</p> <p>Historical fire regime = 4-25 years</p> | <ul style="list-style-type: none"> • Maintain fire frequency return interval 3-10 years within mixed pine/scrub oak stands. |

4 MONITORING DESIGN

4.1 Fire Monitoring Levels

Fire effects monitoring at Cumberland Island National Seashore will follow designs outlined by the NPS Fire Monitoring Handbook (FMH) (USDI NPS, 2003) in addition to protocols synthesized from methods developed by several NPS Fire Ecologists. . The handbook describes four levels of monitoring, the Recommended Standards for fire monitoring in NPS units. Environmental and Fire Observation Monitoring are mandatory for all fires and are carried out by local fire management staff, local NPS wildland fire module, fire effects monitors, or other qualified fire personnel. Monitoring of level 1 and 2 are more thoroughly described in the Cumberland Island Fire Management Plan (USDI NPS, 2014). Short and Long-term Change Monitoring are typically limited to vegetation and fuels monitoring. While vegetation monitoring is not designed to answer all questions concerning fire ecology, short and long-term monitoring is part of the adaptive management cycle and provides a basis for altering and management actions (USDI NPS, 2003). This plan primarily addresses levels 3 and 4. Descriptions of these levels, as well as the data to be collected at each level, are given below:

Level 1- Environmental Monitoring

This level of monitoring includes the compilation of baseline data before a burn event, such as weather, socio-political factors, and terrain.

Level 2- Fire Observation Monitoring

Monitoring at this level consists of documentation of the ambient conditions during a fire, such as smoke and fire characteristics. Fire observation monitoring data is used in conjunction with environmental monitoring to predict fire behavior, and to aid in the understanding of short- and long-term monitoring results.

Level 3-Short-term Change Monitoring

Monitoring short-term change is required for all prescribed fires and provides information concerning fuel reduction and vegetative change as defined by the management objectives. Short-term change monitoring generally allows managers to determine whether specific management objectives were achieved within two years post-burn.

Level 4- Long-term Change Monitoring

Monitoring long-term change is mandatory for all prescribed fires if programmatic objectives require it. This level generally involves monitoring the same variables as in short-term monitoring but over longer extended periods and is involved with identification of significant trends that can guide management decisions. Even if results do not have a high level of certainty, some trends may be useful in making resource decisions.

4.2 Environmental and Fire Monitoring (Levels 1 & 2)

Monitoring of environmental conditions is primarily the responsibility of CUIS Fire Management / Resource Management staff; however, the Barrens to Bayous Fire Monitoring Network at NATR will provide requested support and/or technical expertise for any needed

monitoring at CUIS. Unlike monitoring at levels 3 & 4, fire monitoring is directly supervised by the FMO and/or assigned RXB2 at CUIS. The Barrens to Bayous Fire Monitoring Network will supply any requested Fire Effects Monitors (FEMO) for any wildland fire or fuels management activity.

Descriptions of roles and responsibilities for FEMOs are outlined in the FMH and [NWCG's Wildland Qualification System Guide](#). All assigned FEMOs should appropriately document fire, smoke, and weather utilizing the Interagency Fire Use Module Observations forms modified by the Barrens to Bayous Fire Monitoring Network. All wildland fire observations should also be well documented on the FEMO Report Form. All forms can be found on the NATR fire division network drive and/or the FMH. Utilizing the crew from the Barrens to Bayous Network, additional first-order fire effects can also be included in FEMO reports. Fire severity and perimeter mapping should also be included in annual reports for fires of significant acreage. These maps can be requested through the Monitoring Trends in Burn Severity website (<http://www.mtbs.gov/>). FEMO reports completed by fire effects monitors from the Barrens to Bayous Fire Monitoring Network will be e-mailed as soon as possible to the designated burn boss of the fire and a designated Cumberland Island employee. FEMO reports will be stored within the local NATR Fire Effects archive and backed-up onto the SER shared drive.

4.3 Short- and Long-term Monitoring (Levels 3 & 4)

The long-term monitoring of vegetation and fuels is foremost in determining the success of a fire management treatment. Short- and long-term monitoring must succeed in providing land managers with adequate and reliable data in order for appropriate decisions to be made and to apply the adaptive management process.

Short and Long-term Change Monitoring are generally limited to fuels and vegetation monitoring. While vegetation monitoring is not designed to answer all questions concerning fire ecology, short and long-term monitoring is part of the adaptive management cycle and provides a basis for altering management actions (USDI NPS, 2008a). More specific descriptions of these levels, data to be collected at each level, and processes for evaluation and reporting of results are described within this plan. Long-term monitoring will include the installation of permanent plots in representative fuel types to determine the effects of prescribed fire. Monitoring results will be used to validate the program, adjust prescriptions, and identify new units suitable for prescribed fire treatments.

4.4 Monitoring Objectives

Unlike the management goals and objectives described in the previous section, monitoring objectives describe how to monitor progress toward that condition. Monitoring objectives contain statements about the certainty of results. A common mistake is for managers to collect data first and rely on statistics to generate a question or objective later (USDI NPS, 2003). Monitoring type description sheets (FMH4) will be developed for vegetation types prior to prescribed fire treatments and inserted into this monitoring plan.

4.5 Monitoring Types and Plot Installation Plan

The Fire Monitoring Handbook defines a monitoring type as a major fuel-vegetation association that is treated with a specific burn prescription (USDI NPS, 2003). In 2014, two monitoring types were identified at CUIS for the original objectives. In 2019, four revised monitoring types were described based on the 2001 Frost study and the FBFM40 mapping. Additional monitoring could be created in the near term; however, all types and their associated FMH4 descriptions should be reevaluated at least every five years. As monitoring data are analyzed, objectives or monitoring variables may change based on information acquired about treatment effects.

4.6 Sampling Design and Protocols

FMH Protocol

Plots are randomly located within areas scheduled for burning in the near future and stratified by monitoring type. Random plot location points are generated using geographic information systems and/or according to the methodology of the FMH (USDI NPS, 2003). Sampling unit shape and size follows the National Park Service's FMH protocol(s). Macroplots, defined as the sampling area in which subsampling will occur, serve as the sampling units and are 25 m by 50 m in size for forest plots. Minimum sample sizes will be calculated for all objective variables, and the largest sample size will be used for plot installation. Minimum sample size will then be recalculated post-burn to determine final sample size. After collecting data from 10 plots, optimal size/arrangement of subsamples (overstory, poles, seedlings, and size of nested subplots, and number of herbaceous transects) will be determined by comparison of the variability in the respective subsamples.

FMH monitoring plots are permanently marked using painted/flagged ½" diameter rebar, and labeled with brass tags according to FMH protocol. All plots have written directions and have been georeferenced using a GPS. Plot location shapefiles are stored at the CUIS Fire Management Office and Barrens to Bayous Fire Monitoring Network office.

4.6.1 Field Measurements

The table below lists the variables measured in the fire monitoring plots at CUIS (Table 3). See the NPS Fire Monitoring Handbook for samples and descriptions of all the FMH datasheets utilized for monitoring in Cumberland Island (USDI NPS, 2003).

Table 4A | FMH Protocols used for various monitoring types at CUIS

| | | Longleaf Savanna | Coastal Oak Scrub |
|-----------------------|--------------------------------------|---------------------|----------------------|
| Immediate Postburn | Photographs | ✓ | ✓ |
| | Fuel Load | ✓ | ✓ |
| | Substrate & Vegetation Burn Severity | ✓ | ✓ |
| | Tree Char and Scorch | ✓ | ✓ |
| Long-term Change | Photographs | ✓ | ✓ |
| | Fuel Load | ✓ | ✓ |
| | Overstory Tree Density | ✓ | ✓ |
| | Pole Tree Density | ✓ | ✓ |
| | Seedling Tree Density | ✓ | ✓ |
| | Herbaceous Cover (Point Intercept) | ✓ | ✓ |

Table 5B | RAP Protocols used for various monitoring types at CUIS

| | | Longleaf Savanna | Coastal Oak Scrub |
|-----------------------|--|---------------------|-------------------------|
| Immediate Postburn | Photographs | ✓ | ✓ |
| | Fuel Load | ✓ | ✓ |
| | Substrate & Vegetation Burn Severity | | |
| | Tree Char and Scorch | | |
| Long-term Change | Photographs | ✓ | ✓ |
| | Fuel Load | ✓ | ✓ |
| | Overstory Tree Density] | ✓ | ✓ |
| | Midstory tree/shrub Density | ✓ | ✓ |
| | Seedling Tree Density (Optional species dependent) | | |
| | Herbaceous Cover (Dominant species/percent cover estimate and 1M Photopoint frame) | ✓ | ✓ |

4.6.2 Forest Plots

FMH Protocol

CUIS's forest plot monitoring types include longleaf pine and mixed savannas & woodlands and coastal oak scrub monitoring types. FMH forest plots are rectangular, centered on a central point

called the origin. Then centerline's azimuth (0P-50P) is determined randomly and the plot is then arranged following FMH protocols in Chapter 5 (USDI NPS, 2003).

The monitoring plot is photographed from eight locations around the plot. The photos are taken above the permanently affixed rebar facing the direction of the laid-out measuring tapes, 4 feet above the ground (Q1-Q4, P1-P2, Q4-Q1, 0P-50P, Q3-Q2, P2-P1, Q2-Q3, & 50P-0P). Forest fuel loading is measured from four transects originating from the center (0P-50P) line (Figure 1). These transects start at permanently marked points (1-4A) and follow a randomly assigned azimuth, ending at another permanently marked point (1-4B). Measurements of the fuels follow the standardized Brown's method (Brown, 1974). Herbaceous plants are primarily monitored with both point intercept transects; however, nested subplots can be utilized to augment the point intercept method (Figure 2). Refer to the plot folder to determine which quarter the nested subplot(s) are measured. All trees, including overstory, understory, and seedlings, are measured in various portions of the FMH plot depending on size class (Figure 3). Specific sampling design descriptions are located in the monitoring type's FMH-4 and plot folders.

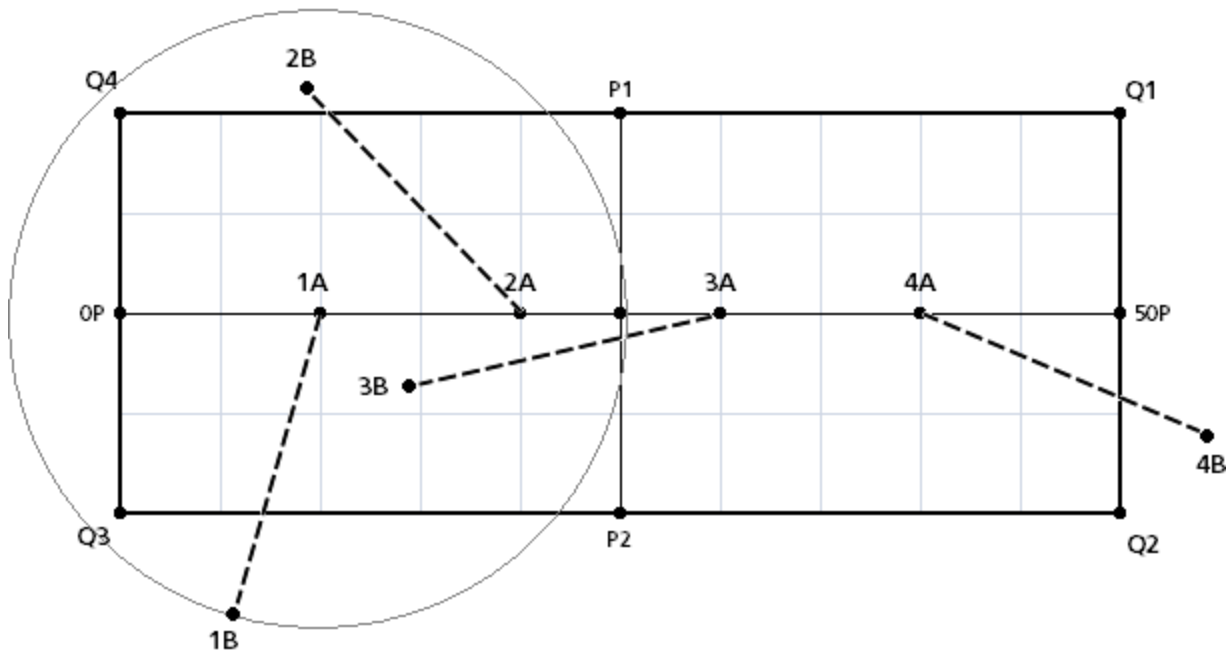


Figure 1 | Litter & Duff depth and 1-1000 hour fuels are measured from four 50ft transects with randomly assigned azimuths.

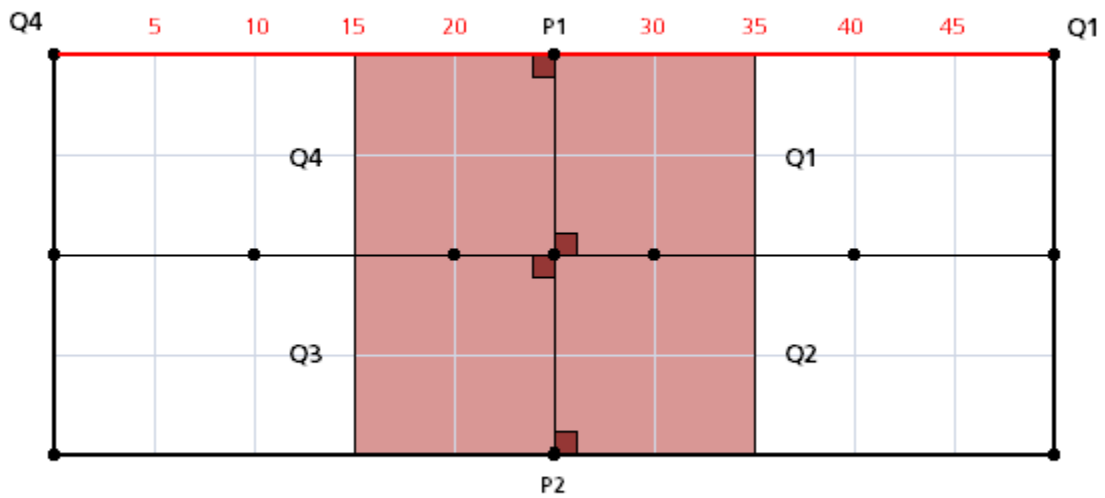


Figure 2 | Herbaceous species are recorded on a 50 m transect (Q4-Q1).

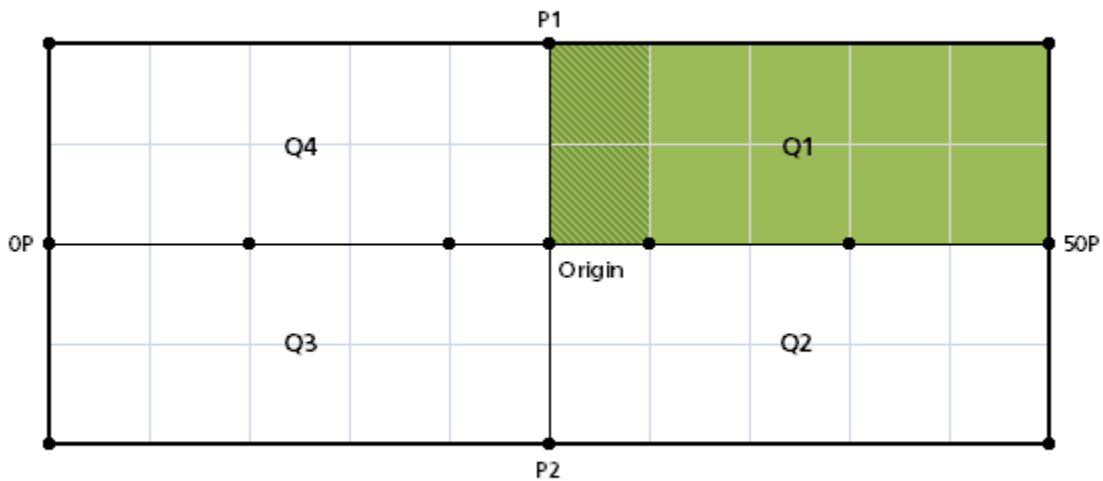


Figure 3 | Overstory trees ($\geq 15\text{cm dbh}$) are measured in all quarters of the 20x50m plot. Pole-size trees ($< 15\text{cm}$ & $\geq 2.5\text{cm dbh}$) are monitored in quarter one (Q1), shaded in light green. Seedling size trees ($< 2.5\text{cm dbh}$) are measured in the nested 5x10m sub-plot in Q1, represented by the thatched dark green.

FMH Adaptation - Spherical photos will be tested at the same points used for standard photo points. Since the photo will capture 360 degrees, it is only necessary to name the photo of the point. Overstory data will be collected 5 years post burn. Cover transects (point line intercept) may be trialed with plant categories rather than species level identification. This method will be further investigated and adapted to enhance monitoring efficiency.

Photopoints will be taken at the Origin, Q1, Q2 Q3, and Q4 rebar points within the FMH plot. These efforts will enable a comparison of data from RAP to FMH to determine effectiveness for monitoring objectives.

Fuel Plots - (CUIS) Fuels Plot consists of 4 transects radiating from origin in the 4 cardinal directions. Each transect is 50 feet long and follows standard Brown's Planar Intercept/FMH protocol. 360 spherical pictures are taken at each of the five rebar posts.

RAP Protocol

Spherical Photography Photo Points - Plots will be photographed using spherical photography methods using a fisheye lens to take four high definition photos that will be stitched together into a 360 degree fully spherical image. Photos will be analyzed to determine canopy cover, midstory cover, and herbaceous cover. A ranging pole will be placed 8 meters North of the plot center.

Repeat photography will be utilized over time to monitor overall burn unit change, as well as serve as a reference when deciding if burn objectives are met. 360 photos will be used due to their high quality and potential future fuel modeling applications. 360 photos will be achieved by stitching together 4 photos taken using a fisheye lens. Four photos will be taken at the origin above the center rebar in the four cardinal directions (N,E,S,W).

MRZ-RAP plots are circular plots with an 8 m radius sample area. They may be used with one or more 50 ft fuel transects. A nested 1-meter frame will be used for herbaceous cover. New plot installation points are either assigned using a stratified random sampling method, chosen on site to represent the management area, or arranged into a cluster plot configuration. RAP plots are designed to efficiently answer three to five management questions about fire effects to vegetation and fuel. For this reason, monitoring frequency depends on the management objectives in the monitoring unit. Currently, RAP plots are scheduled for pre-burn baseline measurement and post-fire year 2 to assess tree and understory species variables. This measurement schedule may be flexible and need reevaluation in the future as additional data becomes available.

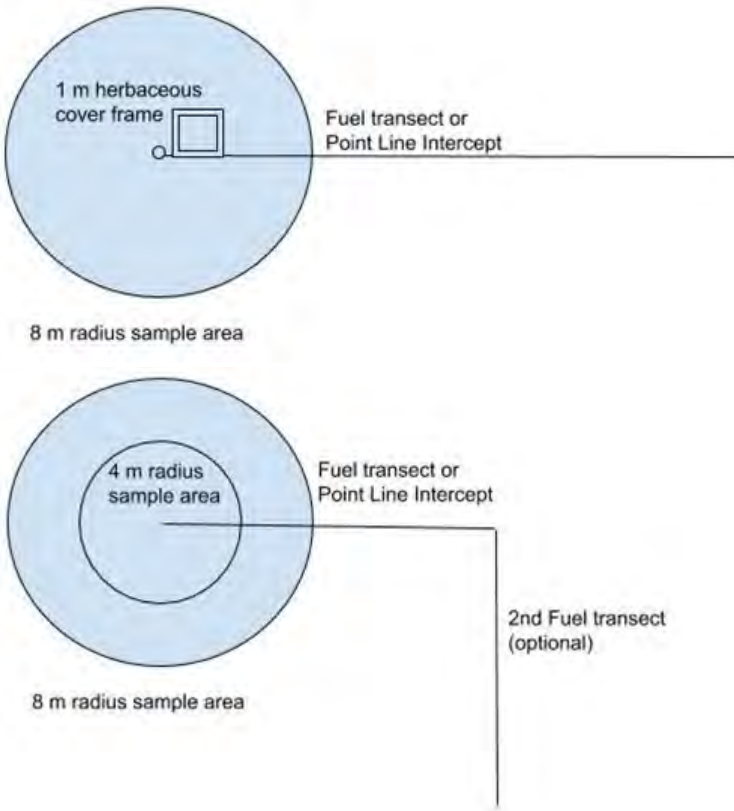


Figure 4. Mississippi River Zone Rapid Assessment Plot – MRZ-RAP.

RAP plots may be any combination of methods described. Measurement variables for RAP plots may differ for each monitoring unit, but measurement protocols are designed to stay consistent across monitoring units. To date, protocols have been developed for plot establishment and photography, overstory tree measurement, herbaceous and shrub measurement, and fuel transect measurement. These protocols include optional elements that can be added or subtracted based on the data needs in a project unit. Additional protocols may be developed in the future if new management objectives or questions arise.

Fuels Monitoring - We will use Brown's Planar intercept lines incorporated into the FMH or RAP plots to quantify fuel loading. We will follow FMH-19 protocols.

Overstory trees - Measurements of overstory trees, pole-sized trees, herbaceous species, shrub species, and non-native plant species are conducted in the 8 m radius sample area. Measurements of individual overstory tree diameter and condition variables follow the NPS FMH protocols (NPS 2003). No identification tags are installed on the trees, but GPS location data will be taken with ESRI Collector application.

Canopy Cover - Visual estimates of canopy cover will be determined in the plot using Cover Class as described in the Fire Behavior Field Reference Guide, PMS 437.

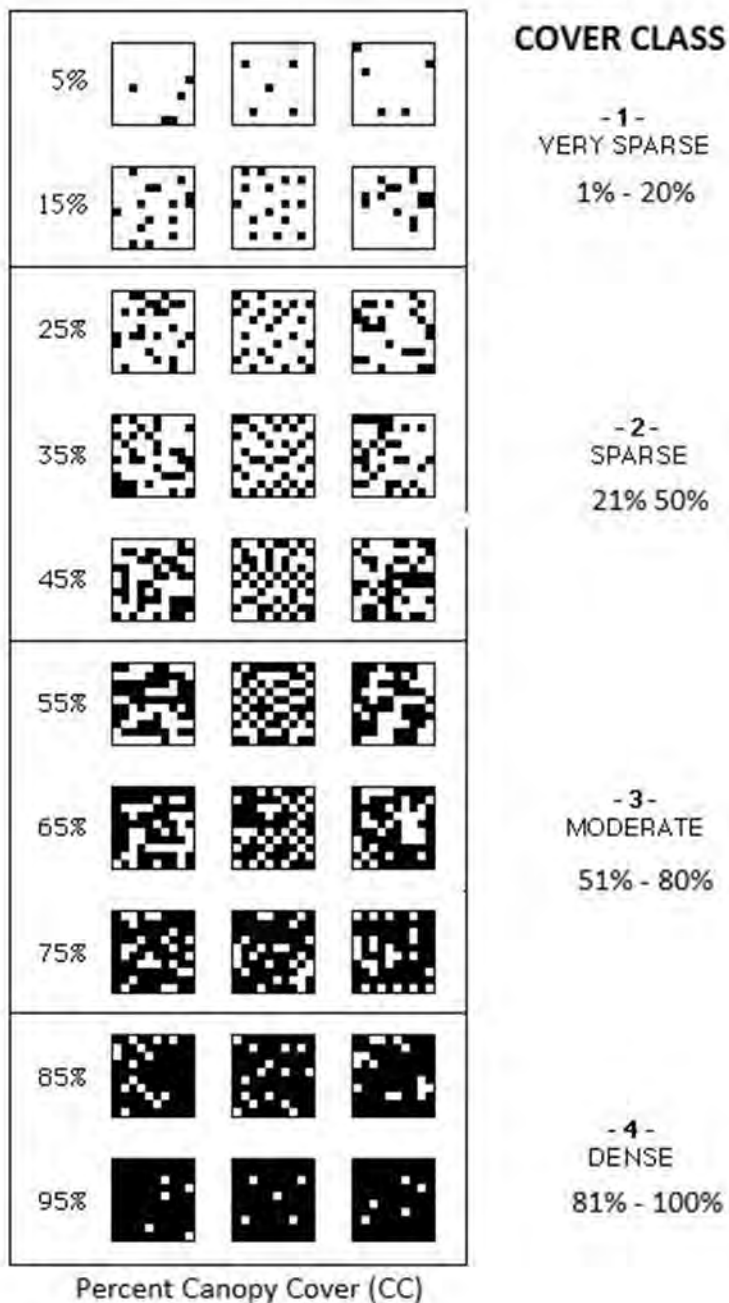


Figure 5. Fire Behavior Field Reference Guide, PMS 437 Cover Class Chart

These estimates provide a baseline and will be compared to future methods which will utilize image analysis of the spherical photos.

Herbaceous and shrub cover - Total herbaceous cover in the 1-meter sample area is recorded by percent cover class (0-5%, 6-25%, 26-50%, 51-75%, 76-95%, and 96-100%). Total shrub cover is estimated from the 8-meter circular plot. Native herbaceous and shrub species may not be identified to species. Categories are available to identify to genus and/or to type such as forb, graminoid, native grass, vine, etc...

Non-Native/Invasive

Non-native and/or invasive species are identified, and percent cover class is recorded for each species within the sample area.

Surface fuel - Dead woody material in the 1-hr and 10-hr TLFM classes is tallied within the first 6 feet of the fuel transect. Dead woody material 100-hr TLFM class is tallied within the first 12 feet of the fuel transect. Dead woody material greater than 3 inches diameter that intersects the 50 ft transect is recorded as either sound or rotten and the exact diameter measurement is recorded. Litter and duff depth measurements are recorded at the standard locations (1, 5, 10, 15, 20, 25, 30, 35, 40, and 45 ft from 0P) along the transect. (Parameters for describing FBFM40 fuel models will also be identified and implemented).

Point Line Intercept - (optional) Since much of the analysis of this data combines the species into categories such as forbs & graminoids, we will trial gathering the data in this categorical manner. All herbaceous species will be gathered into native forbs, native grasses, and native shrubs/trees. If a species is determined to be invasive, it will be identified to species in order to monitor its status. This modified protocol will be trialed and evaluated against another protocol which assigns a percent cover among these categories.

Species richness protocol (optional) - Description of protocol will be further refined as evaluations of several herbaceous/understory methods are trialed for use with the RAP. Two similar methods of species richness and/or diversity index will utilize a species list specific to the area and will either tally the species plus a total count within the plots or tally species present once, twice, and more than twice within a plot. These data will be analyzed using SpadeR Diversity Profile Estimation or the Good-Turing Diversity index.

4.6.3 Plot Monitoring Schedule

Plots are no longer monitored following the frequency recommended by the FMH. It is much too labor intensive and inefficient based on our current staffing. Current scheduling is to replicate full FMH protocols every 5 years and 2 years post burn to gather herbaceous plant and fuels data depending on objectives. RAP protocols are flexible and designed to be rapid enough to deploy immediately pre and post burn. Follow up monitoring is also flexible to allow up to 2 years post burn to monitor conditions related to burn objectives. Pre-burn, post-burn, and follow up monitoring will be coordinated directly with Atlantic Zone Fire Management and may be opportunistic based on scheduling and budget constraints.

5 DATA MANAGEMENT AND ANALYSIS

Most numerical data collected by fire effects crews are entered and stored within the FEAT-FIREMON Integrated (FFI) software. This software is available at: <http://www.frames.gov/partner-sites/ffi/ffi-home/>. Depending on the complexity of the data, stored data will either be analyzed within FFI or exported to Microsoft Excel. Data may then be further analyzed using Minitab. Results for all objective variables are analyzed as needed. In general, data analysis will be used to determine whether objectives are being met and establish

minimum plot numbers. New results will be summarized annually and reported to the regional fire ecologist and CUIS's park management staff. These reported results and associated level 2 FEMO reports with fire observations will be stored on the SER Fire Management shared drive: <http://share.inside.nps.gov/sites/SER/FIRE/Shared%20Documents/Forms/AllItems.aspx>.

Typically, hypothesis testing utilizes paired t-tests to determine if objectives have been met. Other data analysis may be conducted for specific questions or variables on a case-by-case basis. Statistics consultation is available through contracts arranged at the national level.

Quality control is a crew-wide responsibility applicable through all phases of data collection, storage, and analysis. Proper data collection begins with insuring that all crewmembers collect data in a consistent manner according to FMH or adapted protocols. In order to verify the precision of field measurements, data will be collected independently by two different observers from a random sample of monitoring plots (~ 10% of the plots within the monitoring type) and compared. Such periodic in-field comparisons will allow for additional training in areas where data measurement error is greatest. Every effort will be made to eliminate non-sampling "field effect" errors, such as the effects of trampling. The Lead Monitor ensures that all datasheets are completed before leaving the field.

Ensuring the correct identification of species is ultimately the responsibility of the Lead Monitor, in consultation with the Fire Ecologist, other staff, and local experts. Voucher specimens will be collected as necessary, and specimen books are located in the Barrens to Bayous fire ecology library. A voucher herbarium is also maintained at the same office. Unknown species will be named according to accepted conventions. CUIS Resource Management staff will be consulted for the application permitting the collection of plant specimens.

Data is entered, quality-checked, and managed by the fire effects monitoring crew at the Natchez Trace Parkway. In order to minimize data entry/transcription errors, each datasheet will be checked by a crewmember that did not enter the data into FFI. Data will be processed further only after data checking is completed. Original copies of all data are kept in brown multi-divided file folders in a secure location within the Natchez Trace Parkway Headquarters. Copies of original data for use in the field are kept in green multi-divided folders and are stored at the NATR fire effects office. All datasheets and plot photographs are scanned and stored on the fire effects server. Electronic copies of all entered data will be filed in the national fire ecologists' network. Copies of the FFI database will be backed-up on the NPS Data Store annually.

6 ROLES AND RESPONSIBILITIES

The Barrens to Bayous Fire Monitoring Network currently under the Mississippi River Zone Fire Management, located at the Natchez Trace Parkway, is responsible for monitoring and reporting fire effects at CUIS. In conjunction with the CUIS FMO and SER Fire Ecologist, the fire ecologist located at NATR is responsible for the creation and modification of CUIS's Fire Monitoring Plan. This Plan will define and direct the methods used to install, read, and analyze the data collected from CUIS's long-term monitoring plots. Prescribed fire monitoring at this park works to ensure that the park's pyrogenic communities are being restored and biodiversity is protected. Monitoring strategies may also include sampling schemes that over time will provide some predictive capability, and reduce the need to intensively monitor each event. While CUIS staff relies on regional fire monitoring staff to provide in-depth monitoring, qualitative monitoring projects (i.e. photo plots) can be conducted in-house.

- The Network Fire Ecologist located at NATR, in conjunction with the CUIS Resource and Fire Management Division staff, is responsible for the development of monitoring and management objectives. The Fire Ecologist serves as the program expert in fire ecology and coordinates with other resource specialists to gather scientific information concerning fire management activities. This position serves a critical role in the coordination and communication of fire management staff, natural resources staff, and outside scientific knowledge. Other responsibilities of this field-level Fire Ecologist include supervising the monitoring crew, determining the appropriate sampling design, managing databases, analyzing data, and distributing results.
- The Lead Fire Effects Monitor at NATR is responsible for quality control of collected fire monitoring data, identification and storage of plant specimens, and the training of Fire Effects Monitors and other NPS staff assisting with FMH data collection. A detailed description of duties and responsibilities of the Fire Ecologist and Fire Effects Monitors can be found in the NATR FMP (USDI NPS, 2008b) and in Chapter 8, Reference Manual 18 (USDI NPS, 2008a).
- The responsibilities of the CUIS FMO position, regarding fire monitoring, include the delegation of resources to ensure adequate measures are taken to monitor, report, and initiate the adaptive management process. This position has the authority to suspend and direct all wildland fire activities, and in addition to the Fire Management Plan, this document provides guidance for their decision making regarding CUIS. The FMO will also coordinate with the Network Fire Ecologist to ensure an adequate Fire Effects Monitor (FEMO) is assigned to all Rx fires with a moderate or higher complexity (USDI/USDA, 2008). Additional roles and responsibilities can be found in the Reference Manual 18 and the “Red Book” (USDI NPS, 2008a; Federal Fire and Aviation Task Group, 2012).

7 REPORTING AND ADAPTIVE MANAGEMENT

Fire effects monitoring data will be examined annually by the Fire Ecologist and reported to the CUIS Fire Management Officer, Division of Resource Management, Regional Fire Ecologist, and the NPS Fire Management Program Center. Results will be reported via written report and/or an annual meeting. Consultation regarding whether results are acceptable and if monitoring objectives have been met will take place with these parties. Results will be disseminated appropriately and presentations at scientific meetings will occur as possible. Depending on the monitoring results changes in current objectives, burn prescriptions, or burn season may be in order. Additionally, if applicable, the need for further research will be recognized. See Cumberland Island National Seashore Fire Management Plan, Chapter 5, for additional content regarding adaptive management.

8 FUTURE DIRECTION OF FIRE MONITORING

The future direction of fire monitoring at CUIS will require additional input from research projects, local resource management staff, Southeast Coast I&M Network, and/or national NPS fire management staff. Some of the most important information that monitoring provides is the

identification of the need for further study.

9 CONSULTATION AND COORDINATION

This monitoring plan update was completed in consultation with CUIS Resource Management Division, and National NPS Fire Ecology staff.

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Appendix G. Preparedness Activity Elements

1 Annual Delegation of Authority from Park Superintendent

Delegation of Authority

Richard Sinkovitz, Fire Management Officer (FMO) for the Atlantic Zone including is hereby delegated authority to act on behalf of the Park Superintendent from Cumberland Island National Seashore for the following duties and actions related to wildland fire management and fuels management activities in Cumberland Island National Seashore:

1. Initiate and certify wildland fire task books, and approve Red Cards in accordance with National Wildland Fire Qualification and Systems Guide 310-1 and additional NPS guidance identified in the “Interagency Standards for Fire and Fire Aviation Operations”.
2. Ensure fire management and fuel treatment activities are initiated and implemented within National Park Service (NPS) policy directives and guidelines.
3. Assist and advise Superintendent on all aspects of wildland fire incidents and fuels management projects.
4. Coordinate with respective Park resource management staff on incidents and projects.
5. Utilize fire management assistance from Cumberland Island Fire Staff, as outlined in the 2018 Inter-park Agreement for the NPS Atlantic Zone.
6. Coordinate with Human Resources implementing position requirements as identified in the Interagency Fire Program Management Standards and Qualifications Guide.
7. Coordinate information needs to inform internal and external customers with necessary information.
8. Wildfire suppression activities will be initiated with the Appropriate Management Response (AMR) in accordance with the approved fire management plan objectives.
9. Ensure all wildland fire incidents and fuels management projects are managed in a safe, environmentally responsible and cost-effective manner, commensurate with values to be protected.
10. Assure that only fully qualified personnel are used in wildland fire and prescribed fire operations.
11. Request and oversee distribution of severity funding for park wildland fire activities.

12. Ensure the well-being and safety of employees, as specified in the “Interagency Incident Business Management Handbook”.

Prepared by: RICHARD SINKOVITZ Digitally signed by RICHARD SINKOVITZ
Date: 2021.04.08 08:47:39 -04'00'
Richard Sinkovitz, Atlantic Zone Fire Management Officer
Cumberland Island National Seashore

Approved by: GARY INGRAM Digitally signed by GARY INGRAM
Date: 2021.04.08 13:18:39 -04'00'
Gary Ingram, Superintendent
Cumberland Island National Seashore

2 Delegation of Authority for Initial Attack Incident Commanders

To: Atlantic Zone FMO and Initial Attack Incident Commanders

From: Superintendent, Cumberland Island National Seashore

I delegate authority to the Incident Commanders listed below to act as Initial Attack Incident Commanders for wildland fire response in Cumberland Island National Seashore. You have full authority and responsibility for managing the fire and response within the framework of law, agency policy, and direction provided in this Delegation of Authority.

| Incident Commander | Highest Complexity Qualified |
|--------------------|------------------------------|
| Richard Sinkovitz | Type 4 |
| Scott Tuner | Type 4 |

My considerations for management of this fire are:

1. Provide for firefighter, staff, visitor, and public safety. Accountability for fire safety is your first and most important responsibility. You must observe a “Zero Tolerance” for careless or unsafe actions. Utilize a risk management process to consider the effects of all planned actions on human safety.
2. The fire should be managed per National Fire Policy. Make reasonable efforts to contain the fire while protecting preserve resources and objectives. Minimize environmental impacts to natural and historic values, minimizing the spread of exotic plants, and protection of riparian areas. Utilize my Resource Advisor to learn about and minimize impacts to these and other values.
3. Protecting private and NPS infrastructure should be a high priority. Special attention should be paid to the areas around the historic structures in the preserve and other public areas. Avoid high intensity fire in these areas if possible.
4. Regular and positive communications should be maintained with the NPS staff and local entities. Please ensure that personnel assigned to this incident are sensitive to residents and show respect to individuals, other agencies/organizations, and private property interests. Work closely and maintain communications with our local fire departments, and other park neighbors and cooperators.

5. Utilize existing human-made (roads, trails) or natural features (water features) as primary fire lines whenever possible. Construct new firelines if necessary according to MIST standards in consultation with my Resource Advisor.
6. The use of bulldozers and tractor plows to create lines or roads may be considered for use by the superintendent upon emergency request detailing immediate threats to life and or property.
7. You have approval for pumps, chainsaws, power brushers, or other powered hand tools for initial attack throughout Cumberland Island National Seashore including the Cumberland Island Wilderness Area. All use of the mechanized tools mentioned above for initial attack response to wildfire response in the wilderness should consider and minimize impacts to wilderness values.
8. The Cumberland Island Wilderness Area is part of the Natural Zone FMU. All natural ignitions in the Natural Zone FMU should be considered for potential management for resource benefits according to the CUIS Fire Management Plan.
9. Indirect burnout tactics which involve large acreages should be discussed in advance with my Agency Representative.
10. Use of retardant for purposes other than immediate threat to life or significant property must be specifically approved by the Superintendent. If retardant drops are utilized, they should be located more than 300 feet from surface water and wetlands.
11. Manage the fire with minimum disruption to visitor and neighbor access; Superintendent notification is necessary for closures or restrictions but will be considered consistent with public safety issues.
12. Tactics should be commensurate with values at risk. Cost containment and operational efficiency should be considered in all fire management decisions.
13. My Agency Representative and Resource Advisor will be Doug Hoffman 706-594-6878.
14. This delegation will remain in effect for one year from date of signature.

GARY INGRAM Digitally signed by GARY INGRAM
Date: 2021.04.06 13:17:29 -0400

Gary Ingram, Superintendent
Cumberland Island National Seashore

Date

3 Fire Management Staff and Park Superintendent Roles and Responsibilities

Information regarding roles and responsibilities of the Fire Management Staff and Park Superintendent can be found in the current year “[Interagency Standards for Fire and Fire Aviation Operations](#)” (“Red Book”).

3.1 Superintendent

1. Has ultimate responsibility and accountability for all fire management activities.
2. Approves wildland fire management plan and updates, interagency agreements and operating plans, delegations of authority, prescribed burn plans, and management of wildland fire incidents, through daily updates.
3. Ensures compliance of Section 106 of NHPA, NEPA, NPS Organic Act and other relevant laws and policy.

3.2 Fire Management Officer

1. Manages overall fire management program for the park.
2. Maintains qualifications and training records in IQCS.
3. Recommends fire training needs and priorities and provides and coordinates wildland fire training for the park and cooperating parks.
4. Ensures fire preparedness equipment and fire prevention plans are in place and in working order.
5. Ensures the park has the qualifications and skills to safely implement wildland fire programs as identified in the fire management plan.
6. Establishes liaison with cooperating agencies and coordinates and maintains cooperative agreements.
7. Determines daily fire danger ratings and recommends fire restrictions.
8. Monitors daily fire danger through WIMS and recommends daily fire danger ratings.
9. Coordinates with the NPS regional fire staff and network FMOs, on fire management actions, issues, and budgeting.
10. Performs administrative duties, i.e., approving work hours, completing fire reports for command period, and maintaining property accountability.
11. Coordinates fuels project planning in consultation with other park divisions where necessary for resource protection and continuity of operations.
12. Monitors actions taken on wildland fires and ensures proper and adequate documentation.
13. Approves hand-written Individual Fire Report, ensuring proper preparation and entry into the Interagency Fire Occurrence Modules ([InFORM](#)) and Wildland Fire Decision Support System ([WFDSS](#)).
14. Serves as the point of contact and ensures proper maintenance and functioning of the [Stafford RAWS](#).
15. Formulates accounts for preparedness, hazard fuels operations, and emergency fire with assistance from NPS regional fire staff.

16. Coordinates with Georgia Interagency Communications Center (GICC) and Southern Area Coordination Center (SACC) to ensure available red-carded personnel are correctly entered into ROSS.
17. Serves as Fire Duty Officer for the Park.
18. Enters accomplishments into NFPORS.

3.3 Chief of Visitor and Resource Protection

1. Supervises CUIS FMO.
2. Provides management expertise, technical advice, and review of plans.
3. Works with the NPS Regional Fire Ecologist to ensure ecological effects of fire and suppression activities are considered and potential negative impacts are mitigated.
4. Works with NPS regional cultural resource specialists to ensure effects of fire and suppression activities are considered and potential negative impacts are mitigated.
5. Assists with the formulation of yearly fire management budget.
6. Serves as and assigns staff as Resource Advisors and to the local response BAER team.
7. Reviews compliance documents, fire management plans, burn plans, and mechanical treatment plans.

4 Response Plan

4.1 Step Up Plan

Cumberland Island National Seashore uses the Energy Release Component (ERC) using 2016 NFDRS Fuel Model Y as its adjective to define fire danger, fire staffing, and severity needs. The table below outlines actions needed at defined ERC outputs.

| Staffing Level | ERC Rating | Activity |
|----------------|---------------|--|
| 1 | 1-6 | Maintain fire-readiness of Type 6 engine, Type 3 water tender, weather station, and island communications system. FMO or duty officer is scheduled to complete daily weather analysis to determine current and predicted staffing level, and obtain daily weather briefing. Available initial attack IC is not pre-identified, but a list of qualified local ICs is maintained. |
| 2 | 7-13 | Same as SL 1, additional duty hours may be assigned to ensure availability of suppression staff and for specialized personnel to make emergency equipment repairs and provide logistical boat support for fire preparedness activities. |
| 3 | 14-26 | Same as SL 2, but IC must be Type 4 qualified. Suppression resources may be pre-positioned to enable more rapid initial attack response times. Aerial reconnaissance detection flights may be requested from cooperators. |
| 4 | 27-30 | Same as SL 3, plus duty officer will notify superintendent of high fire danger and maintain contact with cooperators to determine helicopter and other initial attack suppression resource availability. Additional suppression resources may be brought in or staged at the park. Additional prevention activities including landowner contacts and briefings to visitors will be conducted. Additional duty hours may be assigned for fire detection patrols and prevention activities. If aircraft are not available from cooperators, a fixed wing aircraft may be hired for a detection flight. Duty officer should start analyzing need for severity package to be prepared for Regional FMO |
| 5 | 30 or greater | Same as SL 4, plus additional duty hours may be assigned for personnel to staff an additional Type 6 engine. Severity resources may be requested. |

- If KBDI Rating is greater than 600 increase staffing level by one

4.2 Response Plan

Every fire report will get a response. Once a fire is reported to the duty officer, a crew will attempt to locate fire and get a size up.

- Fire Name (Geographical Location if Possible)
- Date
- Incident Action Number (FMO will assign)
- Reporting party information
- Descriptive location
- Latitude and Longitude
- Estimated size in acres
- Ownership at origin
- FMU number
- Structures and/or private property threatened
- Does fire constitute control problems
- Additional resource needs
- Estimated containment and control times
- Cause
- Spread potential
- Character of fire
- Weather conditions
- Fuel type
- Wind direction

Once a size up has occurred and has been relayed to the FMO, the FMO along with the CUIS Superintendent will decide as to what action to take on the fire. Actions include full suppression, modified suppression, and monitoring.

As soon as possible after an initial fire has been reported the FMO or Duty Officer will call the local cooperators to notify them of a potential fire within the Park boundaries.

Cooperator notification includes:

- Camden County Fire and Rescue – 911 (ask for Battalion Chief to be notified)
- Georgia Forestry Commission, Camden Unit - 912-576-5387 or Wes Merkison (Chief Ranger) at 912-552-3821
- Okefenokee National Wildlife Refuge Fire Staff, Rob Wood (Zone FMO) 912-346-0978 or Reggie Forcine (Unit FMO) 912-614-4041
- Georgia Interagency Coordinating System 770-297-3067

Once a fire has been identified, the FMO and Park Superintendent will discuss actions to be taken on the fire. The WFDSS will be used to document decisions as required by policy. Items that the FMO and Park Superintendent will analyze when deciding on response type includes:

- Current and expected weather
- Current and expected fire danger
- Seasonal timing

- Long term drought and fuel conditions
- National preparedness level
- Availability of resources
- Local cooperator fire occurrence
- Anticipated social and political complexities if fire is allowed to burn naturally

Every fire report will be entered into the WFDSS and InFORM systems to keep track of fires and fire reporting according to agency policy.

5 Minimum Impact Suppression Tactics Guideline

CONCEPT

The concept of Minimum Impact Suppression Tactics (MIST) is to use the minimum amount of forces necessary to effectively achieve the fire management protection objectives consistent with land and resource management objectives. It implies a greater sensitivity to the impacts of suppression tactics and their long-term effects when determining how to implement a suppression response. In some cases MIST may indicate cold trailing or wet line may be more appropriate than constructed hand line. In another example, the use of an indirect trail system may be used rather than cutting new fireline. Individual determinations will be dependent on the specific situation and circumstances of each fire.

MIST is not intended to represent a separate or distinct classification of firefighting tactics but rather a mindset of how to suppress a wildfire while minimizing the long-term effects of the suppression action. When the term MIST is used in this document it reflects the above principle.

Suppression actions on all wildfires within CUIS protected lands and wilderness will be those having a minimum impact on the physical resources associated with each site. In so doing, the principle of fighting fire aggressively but providing for safety first ***will not be compromised.***

The key challenge to the line officer, fire manager, and firefighter is to be able to select the wildfire suppression tactics that are appropriate given the fire's probable or potential behavior. MIST, may result in an increase in the amount of time spent watching, rather than disturbing, a dying fire to insure it does not rise again. Tactics may also involve additional rehabilitation measures on the site that were not previously carried out.

When selecting an appropriate suppression response, firefighter safety must remain the highest concern. In addition, fire managers must be assured the planned actions will be effective and will remain effective over the expected duration of the fire.

Goal

The goal of MIST is to halt or delay fire spread in order to maintain the fire within predetermined parameters while producing the least possible impact on the resource being affected. These parameters are represented by the initial attack incident commander's size-up of the situation in the case of a new start or by the WFDSS analysis in case of an extended attack wildfire.

It is important to consider probable rehabilitation needs as a part of selecting the appropriate suppression response. Tactics that reduce the need for rehab are preferred whenever feasible.

Suppression Responsibility

As stated previously, safety is the highest priority. All actions will be anchored to the standard fire orders and watch out situations. Safety will remain the responsibility of each person involved with the incident.

Initial Attack

Incident Commander –

- To understand and carry out an appropriate suppression response which best meets the management objectives for the area at the least cost and damage to the resource.
- Ensure all forces on the fire understand the plan for its suppression in conjunction with MIST.
- Keep in communication with responsible fire management or line officer to ensure understanding and support of tactics being used on the fire.
- Evaluate and provide feedback as to the tactical effectiveness during and after fire incident.

Extended Attack / Project Fire

Incident Commander –

- To carry out instructions given by the responsible line officer both verbally and through the WFDSS decision.
- Establish and nurture a close dialogue with the resource advisors assigned to the fire team.
- Review actions on site and evaluate for compliance with line officer direction and effectiveness at meeting fire management protection objectives.

Responsible Line Officer –

- Relays the resource management objectives of the fire area to the fire team and defines specific fire management protection objectives.
- Periodically review actions to ensure compliance.

Resource Advisor –

- To ensure the interpretation and implementation of the suppression tactics and other oral or written line officer directions are adequately carried out.
- Provide specific direction and guidelines as needed.
- Participate at fire team planning sessions, review incident action plans, and attend daily briefings to emphasize resource concerns and management's expectations.
- Provide assistance in updating WFDSS when necessary.
- Participate in incident management team (IMT) debriefing and assist in evaluation of team performance related to MIST.
- Work with the IMT and BAER team on suppression damage repair.

MIST Implementation Guidelines

The following is a list of considerations for each fire situation:

Hot-Line/Ground Fuels

- Allow fire to burn to natural barriers.
- Use cold-trail, wet line or combination of fireline tactics when appropriate.
- If constructed fire line is necessary, use only width and depth to check fire spread.
- Burn out from trail system or natural barrier
- Minimize bucking and cutting of trees to establish fire line; build line around logs when possible.
- If equipment is authorized, use alternative mechanized equipment such as excavators, rubber tracked skidders, etc. rather than large bulldozer type equipment when possible. Use high pressure type sprayers to clean equipment prior to assigning equipment to the incident command in order to reduce the potential to spread noxious weeds.
- Constantly re-check cold trailed fire line.

Hot-Line/Aerial Fuels

- Limb vegetation adjacent to fire line only as needed to prevent additional fire spread.
- During fire line construction, cut shrubs or small trees only when necessary. Make all cuts flush with the ground.
- Minimize felling of trees and snags unless they threaten the fire line or endanger workers. In lieu of felling, consider identifying hazard trees with a lookout or flagging.
- Scrape around tree bases near fire line if it is likely they will ignite.

Mop-up/Ground Fuels

- Do minimal spading; restrict spading to hot areas near fire line and within identified mop up standards.
- Cold-trail charred logs near fire line; do minimal tool scarring.
- Minimize bucking of logs to extinguish fire or to check for hotspots; roll the logs over if possible.
- Return logs to original position after checking and when ground is cool.
- Consider allowing large logs to burn out.
- Consider using infrared detection devices along perimeter to reduce risk of hot spots.

Mop-up/Aerial Fuels

- Remove or limb only those fuels which if ignited have potential to spread fire outside the fire line.
- Before felling consider allowing ignited tree/snag to burn itself out. Ensure adequate safety measures are communicated if this option is chosen.
- Identify hazard trees with a lookout or flagging.
- If burning trees or snags poses a serious threat of spreading fire brands, extinguish fire with water or dirt whenever possible.
- Align saw cuts to minimize visual impacts from more heavily traveled corridors. Slope cut away from line of sight when possible.

Logistics

Campsite Considerations

- Locate facilities outside of wilderness or use established campsites.
- Coordinate with the Resource Advisor in choosing a site for appropriate resource protection and safety concerns.
- New site locations should be on impact resistant and naturally draining areas such as rocky or sandy soils, or openings in heavy timber. Other options include using dorns, or grass areas in the historical districts.
- Lay out the camp components carefully from the start. Define cooking, sleeping, latrine, and water supply.
- Use commercial portable toilet or established toilet facilities where available. If these cannot be used a latrine hole should be used.
- Select latrine sites a minimum of 200 feet from water sources with natural screening.
- Do not use nails in trees.
- Constantly evaluate the impacts which will occur, both short and long term.

Personal Camp Conduct

- Use “leave no trace” camping techniques.
- Minimize disturbance to land when preparing bedding site. Do not clear vegetation or trench to create bedding sites.
- Use stoves for cooking, when possible. If a campfire is used, limit to one site and keep it as small as reasonable.
- Use down and dead firewood. Use small diameter wood, which burns down more cleanly.
- Don’t burn plastics or aluminum – “pack it out” with other garbage.
- Keep a clean camp and store food and garbage so it is unavailable to wildlife.
- Select travel routes between camp and fire and define clearly.
- Personnel must not introduce soaps, shampoos, or other personal grooming chemicals into waterways.

Aviation Management

Aviation Use Guidelines

- If using buckets to drop water, use fresh water from ponds on the mainland if possible. If this is not an option due to time constraints, use brackish water from the sound.
- Aviation crews will count the number of buckets that were brackish water. If any fresh water from the island was used, those need to be counted also.
- Maximize back haul flights as much as possible.
- Use long line remote hook in lieu of constructed helispots for delivery or retrieval of supplies and gear if possible.
- Take precautions to ensure noxious weeds are not inadvertently spread through the deployment of cargo nets and other external loads.
- Use predetermined helispots and LZ’s when possible.

- Use natural openings for helispots and para-cargo landing zones as far as practical. If construction is necessary, avoid high visitor use areas.
- Consider maintenance of existing helispots over creating new sites.
- Obtain specific instructions for appropriate helispot construction prior to the start of any ground work.

Retardant Use

While unlikely to be used at CUIS, retardant and tanker drops are an option for incident commanders. During initial attack, fire managers must weigh the non-use of retardant with the probability of initial attack crews being able to successfully control or contain a wildfire. If it is determined that use of retardant may prevent a larger, more damaging wildfire, then the manager might consider retardant use even in sensitive areas. This decision must take into account all values at risk and the consequences of larger firefighting forces' impact on the land.

- Any use of air tankers or retardant requires the CUIS Superintendent's approval.
- Consider impacts of water drops versus use of foam/retardant. If foam/retardant is deemed necessary, consider use of foam before retardant use.
- Keep retardant 300 feet from any body of water.
- Consult with resource advisors before retardant use if possible.

6 Additional Preparedness Elements

6.1 Fire Danger Operating Plan

The Fire Danger Operating Plan is in the development process at the time of this FMP revision. When it is complete, a copy will be added to this appendix of the FMP.

6.2 Location of Job Hazard Analysis

Job hazard analysis (JHA) worksheets are reviewed and signed each year by the Superintendent. These worksheets are filed and located on the parks shared drive. Hard copies of JHA's frequently used in fire management are kept in a file in the FMO's office. A JHA will be reviewed before any hazardous work is completed.

6.3 Location of Agency Administrators Guide to Critical Incident Management

A copy of the Agency Administrators Guide to Critical Incident Management is in the Superintendent's office. The guide can also be found online at <http://www.nwcg.gov/var/products/agency-administratoros-guide-to-critical-incident>

6.4 List of Wildland Fire Qualified Park Personnel

A current list of qualified red carded park employees is in the FMO office, Southern Area Coordination Center (SACC), and at GICC. Below is a list that will be updated annually:

| CONTACTS | | Email: first name_last name@nps.gov |
|------------------------------|--|--|
| Name | Qualification | Contact Info |
| Gary Ingram | Park Superintendent AADM | (O): 912-882-4336 Ext. 227 (C): 229-854-8996 |
| Steve Theus | Deputy Superintendent AADM | |
| Jared Brewer | Chief Ranger | (O): 912-882-4336 Ext. 258 (C): 912-409-0361 |
| Richard Sinkovitz | ZFMO, ICT3(T), DIVS(T), TFLD, RXB2 | (O): 912-882-4336 Ext. 303 (C): 912-464-9453 |
| Scott Turner – Fire Ops Tech | ENGB, CRWB, FIRB, ICT4, TFLD(T), RXB2(T) | (O): 912-882-4336 Ext. 221 (C): 912-464-7067 |
| Giles Blumer | EMTB, FFT1(T), FFT2, FALC(T), SEC1, LEO1, ATVO, UTVO | (O): 912-882-4336 Ext. 255 (C): 912-409-0365 |
| Caleb Hayes | FFT1, FALC(T), FFT1(T), ATVO, UTVO | (C): 912-464-4314 |
| Brandon Mills | FFT2 | (C): 912-230-0992 |
| Elizabeth Rico | FFT2 | (C): 404-834-7867 |
| Dustin Nelson | Boat Operator, Logistics | (O): 912-882-4336 Ext. 302 |
| Jim Osborne | Boat Operator | (C): 912-409-0371 |

6.5 Park Evacuation and Closure Procedures

If the Park needs to be evacuated or closed due to fire management activities, the procedures can be found in the Chief Rangers Office. During any evacuation event Park Rangers would take the lead role in evacuation operations.

6.6 Fire Cache Inventory

CUIS Fire Cache Inventory

5/6/2020

Outside Refrigerator

| | | | | |
|----|-----------------------|--|----|---------------------------|
| | <u>Hazmat lockers</u> | | 6 | bar oil (gal) |
| 14 | jerries | | 13 | 2 stroke mix(1 gal mixers |
| 5 | drip torches | | 6 | phoschek Class A foam |
| | | | 1 | foldatank |
| | | | 3 | pumpkins |

Saws

| | |
|------------|-----------|
| MS 260 | |
| CIP2 | 266303826 |
| MS270C | 273161232 |
| MS 460 | |
| full | 171344786 |
| MS460 full | 173802592 |

Leafblowers

| | |
|--------------|-----------|
| BR550 | 275023085 |
| BR600(GRSM?) | 271162221 |
| BR600(NATR?) | 282433949 |
| BR430 | 299063961 |

Bars

| | |
|---|--------------------|
| 2 | Oregon 20" 325 063 |
| 1 | stihl 20" 3/8 063 |
| 2 | stihl 18" 3/8 050 |
| 1 | stihl 18" 325 063 |
| 3 | stihl 16" 325 063 |

Pumps

| | |
|-------------------|------------------|
| Honda Ministriker | 210020297 |
| Honda Ministriker | 210050172(NATR?) |
| Honda Ministriker | 0174(OKER?) |

| | |
|------------------------|--------------|
| Honda Ministriker | 1135140 |
| Champion Mod. 66520 | 15SEP2100331 |
| Honda 270 | P70013477 |

Brass

| | | | |
|----|-----------------------|----|---------------------------|
| 13 | 2.5-1.5 NH reducer | 4 | 3/4-1 NH-NPSH increaser |
| 46 | 1.5-1 NH-NPSH reducer | 8 | 1-1.5 NPSH-NH increaser |
| 29 | 1-3/4 NPSH-NH reducer | 4 | 1.5-2.5 NH increaser |
| 9 | 1.5 NH-NPSH adapter | 6 | 1.5-1 NPSH reducer |
| 3 | 1.5 NPSH-NH adapter | 1 | 1.5-1 NH reducer |
| 2 | 1 NH-NPSH adapter | | |
| 2 | 2.5 double male | 12 | 1.5 double male |
| 2 | 2.5 double female | 7 | 1.5 double female |
| 2 | 2 double male | 11 | 1 double male |
| 3 | 2 double female | 8 | 1 double female |
| 16 | 1.5 combi nozzle | 15 | 1 combi nozzle |
| 9 | forester nozzle | 7 | forester fog tip |
| 30 | forester straight tip | 20 | forester fog (mop-up) |
| 22 | 3/4 nozzle | 20 | 3/4 wye |
| 19 | 3/4 ball vlave | 19 | 1 tee |
| 26 | 1.5 tee | 7 | Strainers |
| 4 | 1.5 ball | 2 | 1 ball |
| 9 | 1 wye | 18 | 1.5 wye |
| 1 | 1 ejector | 1 | 1.5 pressure relief valve |
| 1 | 3/4 foam nozzle | 1 | 1 foam nozzle |

Handtools

- 38 Pulaski
- 8 McLeod
- 24 Flapper
- 1 Combi Tool
- 30 Council Rake
- 47 Shovel
- 9 Rhino Tool
- 3 Felling Axe
- 4 Loppers
- 3 Clearing Axe

Inside Refrigerator

- | | | | |
|----|--------------------------|------|---------------------|
| 4 | sleeping bags | 6 | red bags |
| 7 | gray sleeping pads | 5 | fire shelters |
| | | | shelter holders(4 |
| 12 | inflatable mattress | 8 | plastic sleeves) |
| 2 | handpumps | 9 | FSS yellow packs |
| 2 | box towels | 13 | FSS yellow pouch |
| 3 | box general cleaning kit | 5 | FSS straps (sholder |
| | | 18 | FSS waist straps |
| | | 50 | canteen holders |
| | | | FSS blue |
| 5 | 10man medical bags | 3 | packs |
| 2 | containers misc med gear | 3 | other packs |
| | | | radio |
| 1 | body fluid barrier kit | 5 | harness |
| 1 | mole skin(roll) | 7 | blue saw pouch |
| 1 | SKED stretcher | 22 | hose packs |
| 1 | EMS collar kit | | boxes killer tree |
| | | 2.5 | flagging |
| 1 | box 7.5V batteries | 0.75 | box orange flagging |
| 1 | box fusees | 0.5 | box pink flagging |
| | belt weather | | |
| 2 | kits | 0.75 | box red flagging |

| | | | |
|-----|------------------------|-----|--------------------------|
| 6 | anemometer | 1 | box blue dot flagging |
| 5 | sling psychrometer | 8 | nps fire flagging |
| 2 | wet bulb kit | | |
| 5 | spanner wrench holders | | |
| 2 | hydrant wrenches | 1 | windsock |
| | | | high viz |
| 4 | plastic sheets | 7 | vests |
| | RX Ahead Do not report | | amber |
| 2 | sign | 3 | flashers |
| | | | helispot |
| 4 | drip torch holders | 7 | signs |
| | backpack | | |
| 24 | pumps | 1.5 | roll helicopter paneling |
| 21 | backpack pump wands | 4 | crash rescue kits |
| 17 | cases water | | |
| 1 | box canteens | 4 | hardline |
| 30 | small gloves | 48 | 3/4 hose |
| | medium | | |
| 12 | gloves | 18 | 1" hose |
| 10 | large gloves | 26 | 1.5" hose |
| | | | 50' 1.5" |
| 25 | Xlarge gloves | 5 | hose |
| | | | 50ft rolls 1.5-2" hose |
| 11 | shrouds | 24 | cotton jacket |
| 6 | emergency blankets | 4 | 50' 1" hose |
| 1 | cabella headlamp | 6 | 1.5" shortee |
| | handheld | | |
| 3 | lights | | |
| 9 | FSS headlamp | | |
| 19 | cases MRE | 5 | yellow helmets |
| 7 | goggles | 1 | red helmet |
| | cases AA | | |
| 6 | battery | 5 | Xlarge ATV helmet |
| 6 | individual 1st aid kit | 1 | Large ATV helmet |
| | box face | | |
| 0.5 | masks | | |
| 4 | safety glasses | | |
| 1 | case technu | | |
| 4 | cases Off Deep woods | | |

6.7 Transfer of Command Package

Transfer of Command Package

General Information

Incident Name

Approx. Size @

Date

Time

Location

Date of Start

Overhead and Suppression Resources Currently on Incident and Present IC

General Fire Situation in Area

Resources Ordered

Other Organizations Requiring Coordination (Area Command, Expanded Dispatch, MAC, Buying Team, Payment Team, Tribal Government, Other Agency Jurisdictions)

Law Enforcement/Ongoing Investigations

Financial Considerations/Limitations

Fire Behavior Considerations

Weather Situation

Fuel Types

Topography

Fire Behavior

Appropriate Management Response Considerations Established
Through and for the WFSAs Development Priorities

Environmental Constraints

Utility Corridors

Air Operations

Effectiveness

Hazards

Air Space Restrictions

Airports, Heliports, Helispots

Suppression Policies

Other

**Environmental, Social, Political, Economic, and Cultural Resource
Considerations**

Environmental

Social

Political

Economic

Cultural Resource

Communications

Radio

Telephone

Electronic (Computers)

Expanded Dispatch

Procurement Arrangements

Agreements

Tribal Government

Infrared Status

Security Considerations

Incident Management Direction and Considerations

Wildland Fire Situation Analysis

Delegation of Authority

Agency Administrator's Representative

Incident Business Advisor

Resource Advisor

Suppression Priorities

Forest Supervisor/Incident Commander Contact

Time

Process

News Media and Incident Information Management

Training Considerations

Interagency/Private Property Considerations (costs, etc.)

Mop Up Standards

Rehabilitation Considerations

Initial Attack Responsibility

Support to Other Incidents

Disposition of Unit Resources on the Incident

Close Out and Debriefing

Human Welfare

Safety

Health

Civil Rights

Distribute Support Documents

WFDSS (Common WFDSS if Unified Command?)

Delegation of Authority Letter

Map & Photos

Fire Management, Pre-Attack, Land Management Plans

Weather Forecast

Special Management Area Documents

Phone Directory, Fax Number

Agreements

Incident Status Summary (ICS - 209)

Business Management Documents

Payments (Vendors and Casuals)

Claims

Injury Compensation

Incident Business Guidelines (ISOPS)

Appendix H. Fire information Plan

Fire Information Plan

Cumberland Island National Seashore

April 2021

Goal/Objective

Establish and maintain a proactive information organization to provide regular and accurate information to the public, media, involved agencies, cooperators and park staff.

Protocol for release of information

All information will be approved by appropriate members of the Cumberland Island National Seashore (CUIS) fire and resource management staffs and administration before release. The CUIS Public Information Officer (PIO) or their delegate will serve as the single point of information release to media outlets.

Key Messages (Talking Points)

Specific talking points relating to fire-related issues (i.e. prescribed fires, wildland fires, policy, etc.) will be produced by the PIO, with input from the CUIS fire staff and/or staffs of other cooperating agencies when they are involved. The talking points will be approved by the appropriate staff for all involved agencies. Talking points will be made available and used by the fire information staff, interpretive staff, and all others involved with dispersing information regarding wildland fire response, prescribed burns, policies, etc. These messages can be utilized in all forms of disseminated information, both written and oral. When dealing with the media these messages should be specifically used.

Information Staff

The information function will be headed by the CUIS PIO, with direction from appropriate CUIS fire management staff. Additional information staff will be utilized from other park divisions as needed.

Written Information

- Information will be updated daily, approved by the PIO and other appropriate staff and sent to all involved/interested parties.
- Information can be e-mailed, faxed or sent as a hard copy and posted on the CUIS website.
- Some information can be produced prior to an incident and then the event-specific facts and figures can be incorporated. This information can be used as long as it is relevant.
- News releases will be produced as needed, particularly if fires status changes.

- Updated handouts and posters will be produced as needed. Recent photos are to be included whenever possible.

Information Stations

- Information station(s) will be established as determined by the PIO with input from fire management staff. These stations will be staffed with personnel able to discuss fire activity.
- Information station(s) will be where fire, smoke from the fire, or the effects of the fire can be viewed by the public, both in and outside of the park.
- Station(s) should be at established docks or ranger stations on the island, at the Greyfield Inn on the island if necessary, and the St. Marys Visitor Center. Other area visitor centers, fire stations, Kingsland EOC, or other places where smoke may be visible can serve as locations to post information for the public. These locations will vary based on the size and scope of firefighting activities, but partners will be contacted before fire season to ensure their cooperation as an information location.
- Signs informing the public of the upcoming information station should be set-up along the roadside approximately 100-200 yards before the station. They should not interfere with traffic. These vinyl signs will need to be procured and stored on the island.
- Information such as maps, fire updates, press releases, closures and restrictions should be made available to the public at the stations.
- Numbers of public contacts should be recorded.
- Staffing times will be judged according to public interest.

Information Bulletin Boards

- Information boards should be established at appropriate sites and updated daily
- These sites should be areas frequented by the public (such as visitor centers, grocery stores, community events, etc.) or where the fire or smoke from the fire can be seen.
- The bulletin boards can be constructed from basic plywood and 2x4 materials in a tripod fashion with the plywood measurements no more than 4x4 feet.
- The park maintenance staff (with prior approval and advance notice) or the fire staff can construct these bulletin boards.
- Information should be laminated if it will be used on the bulletin board for a number of days.
- Information should be attached using a heavy duty staple gun with old staples removed before new ones are put on.
- The bulletin boards should be taken down as soon as fire activity warrants it.

Trap lines

- If the situation warrants, a trap line(s) should be established to distribute information to the public of the fires status. This decision will be made by the PIO with input from the fire staff.

- These trap lines should include a series of stops at appropriate locations to drop off information, post bulletin boards, and talk to the public.
- Most trap lines will involve a driving route (sometimes covering many miles) and others may involve walking to numerous locations within a community.
- Numbers of contacts should be recoded.

Websites

Update information daily (if fire status changes) on the following websites. To be performed by Lead PIO or designated staff.

- Cumberland Island NS website, <http://www.nps.gov/cuis/>
- NPS Fire News website (data.2.itc.nps.gov/fire/admin)
- InciWeb, the national interagency incident information system
- Social media sites (Facebook, Twitter, etc.).
- Other Interior Region 2 NPS information sites as determined as necessary

Visual Information

Photographs, both digital and video of the fire and related activities will be taken when possible by information staff and other personnel. This photography will be used to document the fire and to produce information for visitors and other interested parties.

Media

Update local media daily on fires status and respond to requests as needed. Be proactive with them and work to incorporate fire management related narratives (i.e. resource benefit fires), other than just fire updates. (See contact below list for local media outlets).

Closures

Any closures will be established by the appropriate park staff. A press release should be sent out addressing the closure. Park staff should be made aware of the closure through an all employee e-mail. Closure signs should be posted at the appropriate places with a concise explanation of the reason for the closure.

Key Contacts

| | <u>Office</u> | <u>Cell</u> | <u>Home</u> |
|--------------------------------|--|--------------|-------------|
| Camden County Dispatch SACC | 912-729-1442 (non-emergency) 678-320-3000 | | |
| Gary Ingram | 912-882-4336 x227 | 229-854-8996 | |
| Richard Sinkovitz | 912-882-4336 x303 | 912-464-9453 | |
| Jill Hamilton-Anderson | 912-882-4336 x257 | 912-409-2612 | |
| Dustin Nelson | 912-882-4336 | 912-409-1461 | |

Local Media

Media contacts for distribution are located on the CUIS network drive, I:\Administration\Press Release. The excel spread sheet with the most current file date should be used. Media contacts are listed under the tab “media” but all press releases should go to all email addresses listed under each tab as these also

include island residents, stakeholders, employees, volunteers, and SER regional PIO and Directors. Congressional delegations are also included in the lists.

Stakeholders

Stakeholders for Cumberland Island include island residents, government officials, non-governmental organizations, and visitors. A daily briefing statement should be prepared for presentation to the congressional delegation should the fire show potential for growth or daily change.

Monitoring Effectiveness of Information Dissemination

- Review all media coverage
- Monitor and collect newspaper articles
- Feedback from visitors and media
- Record information contacts

Appendix I: Interagency Agreements

Agreements and operating plans relevant to the CUIS Fire Program can be found [here](#).

2021 CUIS Duty Officer Manual

Duty Officer Responsibilities

All Fire Management Officers are responsible to provide DO coverage during any period of predicted incident activities. DO's responsibilities may be performed by any individual with a signed Delegation of Authority from the local Agency Administrator. The Duty Officer may be in a location remote from the park, but will be familiar with local incident response procedures, agreements and resources.

DOs will provide operational oversight of these requirements as well as any specific duties assigned by fire managers through the fire operating plan. Dos will not fill any ICS incident command functions connected to any incident. In the event that the DO is required to accept an incident assignment, the FMO will ensure that another authorized DO is in place prior to the departure of the outgoing DO.

The required duties for all DOs are:

- Monitor unit incident activities for compliance with NPS safety policies.
- Coordinate and set priorities for unit suppression actions and resource allocation.
- Keep Agency Administrators, suppression resources and Information Officers informed of the current and expected situation.
- Plan for and implement actions required for future needs.
- Document all decisions and actions.
- Daily staffing decisions
- Interface with local cooperators
- Initial attack of fires
- Staff every fire with **ONLY QUALIFIED INDIVIDUALS**. If no qualified individuals are at the park, call Tri-Agency contacts, order what you need through GICC or a local agency.
- Documenting wildfires (WFDSS, InFORM)
- Fire reports
- Equipment inspections
- Providing information to the park or team PIO
- Mobilizing resources locally and nationally (CUIS and TIMU)

Duties Conducted Daily:

- Morning briefing to include predicted weather, fire danger, availability of resources, national situation report, and 6 minutes for safety.

<https://forecast.weather.gov/product.php?site=NWS&issuedby=JAX&product=FWF&format=CI&version=1&glossary=1> (Fire Weather Forecast)

- https://gacc.nifc.gov/sacc/predictive/weather/99_dsi_stuff/gnfdrs7/chart_htmls/SA46.html (Fire Danger and ERC Rating for Coastal GA)
<http://gacc.nifc.gov/sacc/intelligence.php> (SACC Intelligence Page)
<http://gacc.nifc.gov/sacc/predictive/intelligence/SACCMorningReport.pdf> (SACC Morning Report)
<http://www.nifc.gov/nicc/sitreprt.pdf> (National Sit Report Including 6 Minutes for Safety)
- If lightning occurred in the last 24 hours utilize the Enterprise Geospatial Portal to reference lightning activity and export georeferenced lightning maps
https://egp.nwcg.gov/iam/login?redirect_uri=https%3A%2F%2Fegp.nwcg.gov%2Fportal%2Fauth%2Fbrokerlogin&response_type=code&client_id=PortalEgp&scope=offline_access.
- Patrol as necessary.

Location of Fire Cache and Equipment

- Fire Cache is in the Dungeness area of the Park in the carpenters shed. You will need a CT5 key to get in. Cache inventory is in the FMO office on a clipboard. (Familiarize yourself with cache items).
- A Type 6 fire engine is located at the Nightingale Well. The key is over the driver's sun visor. Another Type fire engine is located on either the mainland in St. Marys or parked in front of fire cache. If on mainland request to maintenance supervisor to move to island during periods of high fire danger.
- A 1800 gallon water tender is located at the Nightingale Well. Key is in the ignition. Use the battery switch beside the driver's side seat on the floor.
- A 770T Tracked Bobcat Skid Steer is located at the equipment shed east of the Carriage House.
- CUIS Fire Management has a satellite phone generally located in the CUIS Type 6 Engine. This can be used during initial attack in the numerous cell phone dead zones throughout the island.
- A Transverse Rescue Stretcher, Kendrick Extraction Device, and trauma kit are located on the CUIS Type 6 Engine. Rescue stretcher and extraction device are in the storage compartment near light bar on top of the pump.

What to do if a Fire is Reported:

- Obtain all information possible including, location, reporting party and contact information, any size up information.
- Try to locate fire.
- Once fire is located, get a size up. (See CUIS Size Up Card)
- Determine course of action (suppress, monitor, evacuate, etc)
- Contact the following agencies ASAP;
Gary Ingram, CUIS Superintendent 229-854-8996
Steve Theus, CUIS Deputy Superintendent 912-222-6868
Jared Brewer, CUIS Chief Ranger 912-409-0361

Georgia Interagency Coordination Center (GICC) 770-297-3067 (for Resource Ordering)

Georgia Forestry Commission, Camden Unit (GFC) 912-552-3821 or 912-576-5387
Camden County Fire and Rescue non-emergency number 912-729-1442. (Notify this is a courtesy call and to please notify the fire duty officer).

- Order an Incident Commander and any needed resources such as hand crews, engines, etc) through the GICC 770-297-3067
- Create a charge account. Sandra Mallard 404-507-5627
- Start logistic planning for incoming resources.

Agreements in Place for the First 24 Hours of Operations:

Consider calling the following agencies for immediate assistance

- Okefenokee National Wildlife Refuge (OKE)
 - Reggie Forciane, (FMO) 912-614-4041
 - Andy Heisey (Operations Tech) 912-602-9317
 - Brantly Boatright, Dispatch 912-496-7366 X 230
- Osceola National Forest
 - Byron Hart 850-264-9567
 - Shawn Kinghorn 904-654-9677
- Merritt Island National Wildlife Refuge
 - Alan Taylor 803-646-5986
- Savanna Refuges
 - Rob Wood, FMO 912-346-0978
- Georgia Forestry Commission
 - Frank Allen, Chief Ranger 912-390-1150

After size up is complete, notifications have been made, and resources have been ordered, work with the Ranger Division to coordinate any evacuations or road closures. The Maintenance Division will be very helpful with moving gear, boat logistics, and general needs..

List of Red Carded CUIS and TIMU Fire Fighters:

| Name | Qualification | Contact Info |
|-------------------|------------------------------|--------------|
| Richard Sinkovitz | ICT3(T), DIVS(T), RXB2, CRWB | 912-464-9453 |
| Scott Turner | ICT4, ENGB, TFLD(T), HECM | 912-464-7067 |
| Jared Brewer | FFT2, EMTB, LEO1, ATVO, UTVO | 912-409-0361 |
| Giles Blumer | FFT2, EMTB, LEO1, ATVO, UTVO | 912-409-0365 |
| Caleb Hayes | FFT2, EMTB, LEO1, ATVO, UTVO | 912-230-0992 |
| Elizabeth Rico | READ, FFT2 | 404-834-7867 |
| Brandon Mills | FFT2 | 912-230-0992 |
| Dustin Nelson* | Maintenance Supervisor | 912-464-1461 |

| | | |
|---------------------|------------------|--------------|
| James Osborne* | Boat Operator | 912-409-0371 |
| Morgan Baird (TIMU) | FFT2, ARCH, READ | 843-472-0427 |
| Robert Aenchbacher | FFT2 | 904-534-4807 |

*Denote people that can help with trail closure and logistics but are not red carded

MEDICAL PLAN (ICS 206 WF)

Controlled Unclassified Information//Basic

| 1. Incident/Project Name | | 2. Operational Period | | | | | |
|--|--|---|--|--------------------------|-------------------------------------|-------------------------------------|------------------------------|
| CUIS Fire Management | | General | | | | | |
| 3. Ambulance Services | | | | | | | |
| Name | Complete Address | Phone & EMS Frequency | Advanced Life Support (ALS) | | | | |
| Camden County Fire Rescue | 3357 Charlie Smith Sr. Highway St. Marys GA 31558 | 911 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | | | |
| | | | <input type="checkbox"/> | <input type="checkbox"/> | | | |
| 4. Air Ambulance Services | | | | | | | |
| Name | Phone | Type of Aircraft & Capability | | | | | |
| Trauma One | 1-800-223-4878 | Bell 407 Out of Yulee, FL 25 minutes response | | | | | |
| Life Flight | 904-202-2139 | Bell 407 Jacksonville, FL 32 , minutes response | | | | | |
| 5. Hospitals | | | | | | | |
| Name Complete Address | GPS Datum - WGS 84 Coordinate Standard Degrees Decimal Minutes: DD° MM.MMM' N - Lat DD° MM.MMM' W - Long | | Travel Time Air Gnd | | Phone | Helipad Yes No | Level of Care Facility |
| | Lat: | 30 46.8325' N | 9-10 minutes | 15 minutes from | 912-576-6200 | <input checked="" type="checkbox"/> | |
| Long: | 81.36.8033' W | <input checked="" type="checkbox"/> | | | | <input type="checkbox"/> | |
| VHF: | | <input type="checkbox"/> | | | | <input type="checkbox"/> | |
| Eastwood Georgia Health 2000 Carl Proctor Dr St. Marys, GA | | | | | | | Level 3 |
| Lat: | 30 17.3608' N | 20 minutes | 15 minutes from | 904-702-6111 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Level 2 |
| Long: | 81 36.0895' W | | | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| VHF: | | | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| Memorial Hospital 3025 University Blvd Jacksonville, FL | | | | | | | Level 2 |
| Lat: | 30 20.93100' N | 20 minutes | 15 minutes from | 904-244-0411 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Level 1 |
| Long: | 81 39.9891' W | | | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| VHF: | | | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| UF Health Jacksonville 655 8th St W Jacksonville FL | | | | | | | Level 1 |
| Lat: | 29-38.348050' N | 45 minutes | 2.5 hrs | 352-265-8932 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Level 1 w/burn center |
| Long: | 82 20.722933' W | | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| VHF: | | | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| Shands Burn Center 1600 SW Archer Rd Gainesville, FL | | | | | | | Level 1 w/burn center |
| 6. Division Branch Group | | Area Location Capability | | | | | |
| High Point | EMS Responders & Capability: | | CUIS Rangers (EMT), Camden Country Sherriff (EMT), Life Flight (ALS) | | | | |
| | Equipment Available on Scene: | | Ground could be up to 2:30 hours. Trauma kits, C-Spine Immob, Litter | | | | |
| | Medical Emergency Channel: | | Regional Med 155.340 RX and TX A/G to Trauma One or Life Flight | | | | |
| | ETA for Ambulance to Scene: | | Ground Ambulance will meet patient at Mainland VC in St Marys | | | | |
| | Air: | | 25-35 minutes | | | | |
| | Ground: | | Add 3-4 hrs to ground travel time to hospitals | | | | |
| | Approved Helispot: | | High Point Helispot | | | | |
| | Lat: | | 30° 54' 51.389" | | | | |
| Long: | | -81° 25' 16.074" | | | | | |
| Plum Orchard | EMS Responders & Capability: | | CUIS Rangers (EMT), Camden Country Sherriff (EMT), Life Flight (ALS) | | | | |
| | Equipment Available on Scene: | | Ground could be up to 2:30 hours. Trauma kits, C-Spine Immob, Litter | | | | |
| | Medical Emergency Channel: | | Regional Med 155.340 RX and TX A/G to Trauma One or Life Flight | | | | |
| | ETA for Ambulance to Scene: | | Ground Ambulance will meet patient at Mainland VC in St Marys | | | | |
| | Air: | | 20-30 minutes | | | | |
| | Ground: | | Add 2-3 hrs to ground travel time to hospitals | | | | |
| | Approved Helispot: | | Plum Orchard Helispot | | | | |
| | Lat: | | 30° 51' 18.37" | | | | |
| Long: | | -81° 27' 55.64" | | | | | |

MEDICAL PLAN (ICS 206 WF)

Controlled Unclassified Information//Basic

| 7. Name & Location | Remote Camp Location(s) | | | |
|--------------------------------------|-------------------------------|--|----------------------------------|---------------|
| Stafford | Point of Contact: | CUIS Duty Officer | | |
| | EMS Responders & Capability: | CUIS Rangers (EMT), Camden County Sherriff (EMT), Life Flight (ALS) | | |
| | Equipment Available on Scene: | Ground could be up to 2:00 hours. Trauma kits, C-Spine Immob, Litter | | |
| | Medical Emergency Channel: | Regional Med 155.340 RX and TX A/G to Trauma One or Life Flight | | |
| | ETA for Ambulance to Scene: | Ground Ambulance will meet patient at Mainland VC in St Marys | | |
| | Air: | 20-30 minutes | | |
| | Ground: | Add 2-3 hrs to ground travel time to hospitals | | |
| | Approved Helispot: | Stafford Field Helispot | | |
| | Lat: | 30° 48' 37.56" | | |
| | Long: | -81° 27' 41" | | |
| Dungeness | Point of Contact: | CUIS Duty Officer | | |
| | EMS Responders & Capability: | CUIS Rangers (EMT), Camden County Sherriff (EMT), Life Flight (ALS) | | |
| | Equipment Available on Scene: | Ground could be up to 1:30 hours. Trauma kits, C-Spine Immob, Litter | | |
| | Medical Emergency Channel: | Regional Med 155.340 RX and TX A/G to Trauma One or Life Flight | | |
| | ETA for Ambulance to Scene: | Ground Ambulance will meet patient at Mainland VC in St Marys | | |
| | Air: | 15-25 minutes | | |
| | Ground: | Add 2-3 hrs to ground travel time to hospitals | | |
| | Approved Helispot: | Dungeness Helispot | | |
| | Lat: | 30° 45' 15.27" | | |
| | Long: | -81° 28' 19.71" | | |
| 8. Prepared By (Medical Unit Leader) | | 9. Date/Time | 10. Reviewed By (Safety Officer) | 11. Date/Time |
| Richard Sinkovitz FMO | | 4/30/2020 | Richard Sinkovitz | 4/30/2020 |

MEDICAL PLAN (ICS 206 WF)

Controlled Unclassified Information//Basic

| Medical Incident Report | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|--------------|------------|---------------|------------|----------|---------------------|--------------|------------|---------------|------------|---------|--|--|--|--|--|-------------|--|--|--|--|--|----------|--|--|--|--|--|
| <p>FOR A NON-EMERGENCY INCIDENT, WORK THROUGH CHAIN OF COMMAND TO REPORT AND TRANSPORT INJURED PERSONNEL AS NECESSARY.</p> <p>FOR A MEDICAL EMERGENCY: IDENTIFY ON SCENE INCIDENT COMMANDER BY NAME AND POSITION AND ANNOUNCE "MEDICAL EMERGENCY" TO INITIATE RESPONSE FROM IMT COMMUNICATIONS/DISPATCH.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Use the following items to communicate situation to communications/dispatch.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>1. CONTACT COMMUNICATIONS / DISPATCH (Verify correct frequency prior to starting report) Ex: "Communications, Div. Alpha, Stand-by for Emergency Traffic."</p> <p>2. INCIDENT STATUS: Provide incident summary (including number of patients) and command structure. Ex: "Communications, I have a Red priority patient, unconscious, struck by a falling tree. Requesting air ambulance to Forest Road 1 at (Lat./Long.) This will be the Trout Meadow Medical, IC is TFLD Jones. EMT Smith is providing medical care."</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Severity of Emergency / Transport Priority | <input type="checkbox"/> RED / PRIORITY 1 Life or limb threatening injury or illness. Evacuation need is IMMEDIATE Ex: Unconscious, difficulty breathing, bleeding severely, 2 nd - 3 rd burns more than 4 palm sizes, heat stroke, disoriented. <input type="checkbox"/> YELLOW / PRIORITY 2 Serious Injury or illness. Evacuation may be DELAYED if necessary. Ex: Significant trauma, unable to walk, 2 nd - 3 rd burns not more than 1-3 palm sizes. <input type="checkbox"/> GREEN / PRIORITY 3 Minor Injury or illness. Non-Emergency transport Ex: Sprains, strains, minor heat-related illness. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nature of Injury or Illness & Mechanism of Injury | Brief Summary of Injury or Illness (Ex: Unconscious, Struck by Falling Tree) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Transport Request | Air Ambulance / Short Haul/Hoist Ground Ambulance / Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Patient Location | Descriptive Location & Lat. / Long. (WGS84) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Incident Name | Geographic Name + "Medical" (Ex: Trout Meadow Medical) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| On-Scene Incident Commander | Name of on-scene IC of Incident within an Incident (Ex: TFLD Jones) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Patient Care | Name of Care Provider (Ex: EMT Smith) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>3. INITIAL PATIENT ASSESSMENT: Complete this section for each patient as applicable (start with the most severe patient)</p> <p>Patient Assessment: See IRPG page 106</p> <p>Treatment:</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>4. TRANSPORT PLAN:</p> <p>Evacuation Location (if different): (Descriptive Location (drop point, intersection, etc.) or Lat. / Long.) Patient's ETA to Evacuation Location:</p> <p>Helispot / Extraction Site Size and Hazards:</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>5. ADDITIONAL RESOURCES / EQUIPMENT NEEDS:</p> <p>Example: Paramedic/EMT, Crews, Immobilization Devices, AED, Oxygen, Trauma Bag, IV/Fluid(s), Splints, Rope rescue, Wheeled litter, HAZMAT, Extrication</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>6. COMMUNICATIONS: Identify State Air/Ground EMS Frequencies and Hospital Contacts as applicable</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Function</th> <th>Channel Name/Number</th> <th>Receive (RX)</th> <th>Tone/NAC *</th> <th>Transmit (TX)</th> <th>Tone/NAC *</th> </tr> </thead> <tbody> <tr> <td>COMMAND</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>AIR-TO-GRND</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>TACTICAL</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> | | | | | | Function | Channel Name/Number | Receive (RX) | Tone/NAC * | Transmit (TX) | Tone/NAC * | COMMAND | | | | | | AIR-TO-GRND | | | | | | TACTICAL | | | | | |
| Function | Channel Name/Number | Receive (RX) | Tone/NAC * | Transmit (TX) | Tone/NAC * | | | | | | | | | | | | | | | | | | | | | | | | |
| COMMAND | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AIR-TO-GRND | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TACTICAL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>7. CONTINGENCY: Considerations: If primary options fail, what actions can be implemented in conjunction with primary evacuation method? Be thinking ahead.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>8. ADDITIONAL INFORMATION: Updates/Changes, etc.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>REMEMBER: Confirm ETA's of resources ordered. Act according to your level of training. Be Alert. Keep Calm. Think Clearly. Act Decisively.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Appendix K. Standards for MIST, BAER and Rehabilitation

Minimum Impact Suppression Tactics (MIST)

Suppression methods will have an impact on the landscape. Following the Minimum Impact Suppression Tactics (MIST) guidelines outlined below can reduce the degree of long-term impacts associated with wildland fire suppression. It is important that decision makers are aware of the long-term impacts fire suppression tactics can have on the landscape, and very carefully weigh those long-term impacts to fire suppression safety issues related to wildland fire incidents. The following are MIST standards that will be used at the park. Also refer to Exhibit 1 in RM-18, Chapter 2.

Tactical Standards

- Use a confine/contain strategy when possible.
- Confer with Resource Advisor on line location and potential resources of interest.
- Limit the use of heavy equipment for constructing fireline.
- Use existing natural fuel breaks and human-made barriers, wet line, or cold trail the fire edge in lieu of handline construction whenever possible.
- Keep fireline width as narrow as possible to meet objectives.
- Use water or type-A (biodegradable) foam in lieu of fire retardant whenever possible.
- If retardant must be used, bodies of water will be avoided.
- Minimize cutting of trees.
- Scatter or remove debris as prescribed by the Incident Commander.

Post Fire

- The route to the fire from the nearest trail or road will be flagged. The last person to leave the area will remove flagging.
- All equipment and debris will be removed from the area for proper disposal.
- Before leaving the fire, rehabilitation will be completed to eliminate impacts from the suppression effort.

Restoration of Fire Area

- Backfill any cup trenches
- Rehab fire lines to specifications provided by Resource Advisor.
- Place “bone” piled debris in a natural or random arrangement.
- Position cut ends of logs so as to be inconspicuous to visitors and camouflage where possible.
- Flush cut stumps, camouflage with soil and moss.

Post-wildfire management activities

Many fires occur naturally and island ecosystems are adapted to fires, relying on them to maintain their health. However, wildland fires can sometimes leave behind a burned landscape that threatens human safety, property, and ecosystems. Natural and cultural resources may need

to be stabilized to prevent unacceptable degradation resulting from the effects of a wildfire. There may also be damages to resources, lands, and facilities resulting from wildfire suppression actions, in contrast to damages resulting directly from a wildfire. Damages resulting from wildfires are addressed through the four activities outlined in Table 1.

Table 1: Post-Wildfire Program and Funding Components

| | Suppression Rehabilitation | Emergency Stabilization | Rehabilitation | Restoration |
|------------------------|-----------------------------------|--------------------------------|-----------------------|---------------------------------|
| Objective: | Repair Suppression Damages | Protect Life and Property | Repair Damages | Long Term Ecosystem Restoration |
| Damage Due To: | Suppression Activities | Post-Fire Events | Fire | Fire |
| Urgency: | Before Incident 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 |

- **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. Rehabilitation of firelines and other efforts to control erosion will start as soon as possible, even before a fire is declared out. This is especially important while firefighting equipment and personnel are still available. Funding of the direct costs of rehabilitation will be through an emergency fire account. Actions are usually implemented immediately after containment of the wildfire by the Incident Management Team (IMT) before demobilization. The incident management team must document the fire suppression activity repair actions and those still needed to ensure that all planned actions are completed during transition back to the local unit. However, some actions may need to be conducted by the local unit following incident management team demobilization.

Fire managers should ensure that rehabilitation activities do not result in the spread of invasive plant propagates. Vehicles, equipment, and firefighters should be cleaned before entering the rehabilitation area. Any materials brought in to prevent erosion, such as organic mats or lumber should be free of unwanted seeds. Before spreading any cut materials from the fire line check to be sure you will not be introducing invasive plant material to the newly burned area.

- **Emergency Stabilization**

Planned actions to stabilize and prevent unacceptable degradation to natural and cultural resources, to minimize threats to life or property resulting from the effects of a wildfire, or to repair/replace/construct physical improvements necessary to prevent degradation of land or 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. Emergency stabilization actions must be taken within one year following containment of a wildfire and documented in a Burned Area Emergency Response Plan.

- **Rehabilitation**

Efforts taken within three years of containment of a wildfire to repair or improve wildfire damaged lands unlikely to recover naturally to management approved conditions, or to repair or replace minor facilities damaged by wildfire. These efforts are documented in a separate Burned Area Rehabilitation Plan. The objectives of burned area rehabilitation are to (1) 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; (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 the integrity of a stable ecosystem in which native species are well represented; and (3) to repair or replace minor facilities damaged by wildfire.

- **Restoration**

Restoration activities include efforts to continue the recovery beyond the initial three years or the repair or replacement of major facilities damaged by the wildfire. These activities are long-term ecosystem restoration projects that are beyond the funding limitations and time frames of emergency stabilization and burned area rehabilitation. Because fire funds are not available for these projects, the park needs to determine their priority and shift ONPS funding or seek other sources.

Burned Area Emergency Rehabilitation (BAER)

The Burned Area Emergency Response (BAER) program is the NPS post-fire response program that implements Emergency Stabilization (ES) and Rehabilitation 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.

BAER Emergency Stabilization

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. The Park Fire Coordinator and the Resource Management staff will jointly assess and if necessary formulate a BAER emergency stabilization plan. The plan will be submitted to the Regional BAER Coordinator through the Fire Management Officer 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.

Burned areas will not be seeded; residual seed and sprouting from surviving rootstalks will provide natural re-vegetation. This method is superior even to introduction of "native" seeds. Seed-bearing materials cut along the lines can be scattered as mulch to guarantee indigenous seed. Consideration will also be given to the use of organic mats for controlling erosion in locations susceptible to erosion.

BAER Rehabilitation

Post-fire Burned Area Rehabilitation projects are the NPS post-fire response program that implements the types of long-term actions needed to repair or improve resources damaged directly by a wildland fire or threatened with further degradation. Burned area rehabilitation consists 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. The objectives of burned area rehabilitation are to (1) 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; (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 Park Fire Management Committee and Resource Management staff will jointly assess and if necessary formulate a non-emergency Burned Area Rehabilitation plan. BAER 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 Management Officer. 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 BAER funding up to three years after the containment date of the fire.

For detailed direction concerning Burned Area Emergency Rehabilitation refer to the Interagency Burned Area Rehabilitation Guidebook, Oct. 2006; and the Burned Area Emergency Response Treatments Catalog, December 2006.

Appendix L. Serious injury or Death Procedure

Purpose:

The intent of this plan is to list the steps that must be taken in response to fatalities or serious injury; to list the people/agencies with whom coordination must be maintained; where pertinent information is found.

Responsibility:

1. Until delegated, the Line Officer has the responsibility for implementing the appropriate response(s) to address the situation when a fatality or serious injury occurs.
2. DO NOT MOVE THE DECEASED/INJURED INDIVIDUAL(S)
3. In the event of a fatality, notify the County Sheriff, who will in turn notify the County Coroner's Office.
4. In the event of a serious injury, notify 911, who will assist in arranging medical evacuation.
5. Notify Park Superintendent (Agency Administrator).
6. Contact the Unit Public Affairs Officer to coordinate information flow and media contacts.
7. Agency Administrator is to refer to [NPS Loss of Human Life Handbook](#) at this link.

Notification:

Timely delivery of accurate information on fatalities and/or serious injuries to the Superintendent and the families of victims is essential BEFORE the media spreads this information.

1. DO NOT USE THE NAMES OF THE VICTIMS INVOLVED over the radio.
2. Check and see if injured or deceased person has left emergency contact info for how they would like their family members notified of serious injury or death. Both Atlantic Zone Fire Management Employees have these documents housed [here](#). CUIS FMO, Chief Ranger, and Superintendent all have access to link above.
3. Notify the Georgia Interagency Coordination Center (GICC) and Southern Area Coordination Center (SACC), who will coordinate the distribution of information within agency channels.
4. Notify NPS Southeast Regional Office (SERO) Fire Management Officer of incident.
5. Establish a process to ensure proper management of coordination and information activities.
6. Protect the scene of the incident.

Organization and technical assistance:

Addressing this type of situation constitutes 'an incident within an incident'. A separate Incident Management Team should be organized with a formal delegation of authority from the responsible Agency Administrator to the Incident Commander. The following positions should be filled within the Incident Management Team at a minimum:

- Incident Commander - Procurement Unit Leader
- Finance Section Chief - Compensation/Claims Unit Leader

- Logistics Section Chief - Incident Information Officer

Technical assistance should also be sought from Regional OWCP Specialist, Regional Trauma Specialist, Regional Incident Business Management Coordinator, and Regional Procurement staff.

Documentation:

Documentation is critical. The Incident Information Officer is responsible for facilitating and coordinating communications with the home unit and family liaison. Consider organizing a unified command structure with the County Sheriff, jurisdictional agency and possibly the County Coroner's Office.

Information Sources:

1. Interagency Fire Business Management Handbook
2. National Mobilization Guide
3. Employee Benefits Handbook
4. Investigation and Reports Handbook

General Procedures: Fatality/Serious Injury

1. Complete accurate identification in cooperation with local authorities (County Sheriff, Coroner). Ensure accuracy in identifying dead, missing and injured individuals or survivors as applicable.
2. Coordinate notification procedures with local jurisdictions and affected home units. The home unit may identify liaison personnel to coordinate communications with affected family members.
3. Coordinate with incident mortuary and/or hospital for required transportation. The Government is responsible (through OWCP) for costs incurred in preparation, transportation and delivery to the receiving mortuary and/or hospital.
4. Check with the OWCP specialist regarding coverage of funeral/medical expenses.
5. Coordinate with home unit for delivery of remains in the event of a fatality.

General Procedures: Incident/Accident Survivors -

1. Arrange for medical care as appropriate.
2. Consider the need to remove personnel from incident operations.
3. Facilitate a Critical Incident Stress De-briefing.

General Procedures: Family Notification

1. Ensure speedy, accurate information flow through a liaison arranged by the home unit.
2. Identify the agency contact (family liaison) to family members. This is the individual who acts as the focal point for all communication with the family in addition to providing explanations regarding benefits. This position determines family wishes and provides help/assistance as needed and appropriate.

Miscellaneous:

Travel - Questions which arise regarding travel for family members or escorts for injured personnel or escorts for remains should be referred to the Regional financial or OWCP Specialist.

Benefits - In the event of a fatality, the Incident Commander or designee is responsible for coordinating with the incident mortuary to initiate requests for Death Certificates. Benefits information and related paperwork requirements should be coordinated through the OWCP Specialist for the Administrative Agency or Regional Office. The home unit OWCP Staff will initiate all actions related to payments of benefits due the victim(s).



ARTHUR CARHART NATIONAL WILDERNESS TRAINING CENTER

MINIMUM REQUIREMENTS DECISION GUIDE

WORKSHEETS

“ . . . except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act...”

– the Wilderness Act, 1964

CUMBERLAND ISLAND NATIONAL SEASHORE

Fire Management Plan

September 2014

NOTE: This Minimum Requirements Analysis (MRA) is intended to be programmatic in nature and is included as an appendix to the final Fire Management Plan for Cumberland Island National Seashore. This programmatic MRA is to be supplemented in individual burn plans by a site specific method and tool analysis. The method and tool analysis will take the measures approved in this document and adapt them to the conditions of particular burn areas in ways that minimize impacts to wilderness character, thereby establishing the minimum tool.

Step 1: Determine if any administrative action is necessary.

| |
|--|
| Description: Briefly describe the situation that may prompt action. |
|--|

Cumberland Island National Seashore is updating its Fire Management Plan (FMP). A revised FMP is needed to (a) better protect island structures, facilities, and values; (b) restore fire to its natural role in the ecology of Cumberland Island; (c) address the discontinued use of the Healthy Forest Initiative Categorical Exclusion; and (d) incorporate updated National Fire Policy changes in terminology.

To determine if administrative action is necessary, answer the questions listed in A - F on the following pages.

A. Describe Options Outside of Wilderness

Is action necessary within wilderness?

Yes: No:

Explain: Yes. Historically, wildfire has played a role in shaping and maintaining the ecological systems in the Cumberland Island Wilderness. These ecological systems have been disrupted by fire suppression and other human activities going back many decades. However, research science and published literature suggest that these systems can be restored over time with careful reintroduction of wildland fire using both prescribed fire (planned ignitions) and wildfire (unplanned ignitions) managed to achieve resource objectives, supplemented with the limited use of non-fire vegetation treatments.

Since Cumberland Island contains numerous fire-adapted vegetation complexes, the NPS considers wildland fire an important ecological process that needs to be utilized and properly managed within the Seashore wilderness area. The primary resource objective of managed fires in wilderness is to restore and maintain natural fire regimes and ecosystem stability by altering vegetative fuel conditions to within the range of natural variability. While some amount (usually small) of stand replacing fire is natural, a goal is to reduce long-term ecosystem impacts from widespread high severity or extensive crown fire. Natural ecological processes such as fire would be allowed to continue in Wilderness when possible to help restore and maintain wilderness ecosystems and natural habitat.

B. Describe Valid Existing Rights or Special Provisions of Wilderness Legislation

Is action necessary to satisfy valid existing rights or a special provision in wilderness legislation (the Wilderness Act of 1964 or subsequent wilderness laws) that allows consideration of the Section 4(c) prohibited uses? Cite law and section.

Yes: No: Not Applicable:

Explain:

C. Describe Requirements of Other Legislation

Is action necessary to meet the requirements of other laws?

Yes: No: Not Applicable:

Explain:

D. Describe Other Guidance

Is action necessary to conform to direction contained in agency policy, unit and wilderness management plans, species recovery plans, or agreements with tribal, state and local governments or other federal agencies?

Yes: No: Not Applicable:

Explain: Action is necessary to comply with NPS management policies, which direct park units to preserve and restore the natural abundances, diversities, dynamics, distributions, habitats, and behaviors of native plant and animal populations, and the communities and ecosystems in which they occur. *Management Policies* provide that active intervention in wilderness may be undertaken in limited circumstances, i.e., where necessary to correct past mistakes and the impacts of human use. See *NPS Management Policies* (2006), Section 6.3.7. In particular, Section 6.3.9 of *NPS Management Policies* (2006) and Director's Order 41, Section 6.7 authorize the use of wildland fire (including prescribed fire) in wilderness to reach desired future resource conditions, as established in park planning documents.

E. Wilderness Character

Is action necessary to preserve one or more of the qualities of wilderness character including: untrammeled, undeveloped, natural, outstanding opportunities for solitude or a primitive and unconfined type of recreation, or unique components that reflect the character of this wilderness area?

Untrammeled: Yes: No: Not Applicable:

Explain:

Undeveloped: Yes: No: Not Applicable:

Explain:

Natural: Yes: No: Not Applicable:

Explain: One purpose of the CUIS FMP is to compensate for the impacts of past land use in areas that are now wilderness. The proposed action is necessary to restore a fire regime that more closely approximates what would occur naturally on the island but for the impact of past human activities, such as logging, agriculture, and fire suppression. To do this, active manipulation is necessary in the short run to enhance the natural quality of wilderness in the long run. While some level of manipulation would always be required to ensure that fire does not threaten human safety, property, or resource integrity, the degree of manipulation should decrease over time as island communities are restored to a more natural condition.

Outstanding opportunities for solitude or a primitive and unconfined type of recreation:

Yes: No: Not Applicable:

Explain:

Other unique components that reflect the character of this wilderness:

Yes: No: Not Applicable:

Explain

F. Describe Effects to the Public Purposes of Wilderness

Is action necessary to support one or more of the public purposes for wilderness (as stated in Section 4(b) of the Wilderness Act) of recreation, scenic, scientific, education, conservation, and historical use?

Recreation: Yes: No: Not Applicable:

Explain:

Scenic: Yes: No: Not Applicable:

Explain:

Scientific: Yes: No: Not Applicable:

Explain: The actions in the updated FMP are necessary to restore habitats in wilderness to a more natural condition, as identified by previous scientific research at the Seashore.

Education: Yes: No: Not Applicable:

Explain: The actions in the updated FMP are necessary to inform and demonstrate to visitors and the public the natural role of fire in the island ecology, including the wilderness.

Conservation: Yes: No: Not Applicable:

Explain: The actions in the updated FMP are necessary to enhance conditions for fire-adapted communities and species. Conditions at the Seashore are currently degraded due to past fire suppression activities.

Historical use: Yes: No: Not Applicable:

Explain:

Step 1 Decision: Is any administrative action necessary in wilderness?

Yes: No: More information needed:

Explain: For the reasons noted above, action in wilderness is necessary to restore fire to a level more closely approximating its natural role in the landscape. Over time, the action will result in enhancement of the natural quality of wilderness.

If action is necessary, proceed to Step 2 to determine the minimum activity.

Step 2: Determine the minimum activity.

Please refer to the accompanying MRDG [Instructions](#) for an explanation of the effects criteria displayed below.

Description of Alternatives

For each alternative, describe what methods and techniques will be used, when the activity will take place, where the activity will take place, what mitigation measures are necessary, and the general effects to the wilderness resource and character.

| |
|----------------------------|
| Alternative # <u> 1 </u> |
|----------------------------|

Description: Full Suppression

This alternative would limit Seashore fire management activities in wilderness to full wildfire suppression and management options allowed under National Fire Policy. The approved fire program at the Seashore would continue; fuels management activities would consist of only minor and emergency actions unless separate, project specific NEPA processes occurred.

Under this alternative, no introduced fire or other fuels management techniques would be used to maintain unique ecosystems. Fire would not be used in fire dependent ecosystems except in uncontrolled wildfire incidents, where it may often be high severity events, more difficult to control, and require more firefighting resources.

Major activities of this program that would continue under this alternative include:

- Wildfire suppression utilizing the appropriate response, (includes both direct and indirect attack, the use of foam and retardant, and helicopter water bucket dropping activities, using river or brackish water);
- Minimum Impact Suppression Techniques (MIST) on all wilderness fires
- Utilization of wildland fire Resource Advisors;
- Post-fire activities would consider emergency stabilization and BAER;
- Monitoring of field activities and ecosystem components would occur by the NPS and its partners; and
- Interagency coordination, cooperation and related program activities would continue.

Wilderness Character

“Untrammeled”

Wilderness would remain untrammeled. Under this alternative, there would be beneficial impacts to the untrammeled quality of wilderness character because there would be no active manipulation of the landscape except during fire events.

“Undeveloped”

Wilderness would remain undeveloped because no permanent structures would be built. However, fire suppression actions would be focused on stopping wildfires in a manner that would ensure the safety of ground crews. This work could adversely affect the undeveloped quality of wilderness

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character by requiring a large human presence and extensive use of aircraft, and use of mechanical tools and equipment.

“Natural”

The natural quality of wilderness would continue to degrade from natural conditions due to fire suppression in fire-adapted vegetation communities. Hazardous fuels would continue to build up due to a lack of natural or active vegetation management, increasing the potential for more intense and larger wildfires than would otherwise occur. There would also be reduced resilience of Seashore fire-adapted ecosystems to continued stress from hurricanes, drought and climate change, pest outbreaks, and wildfire. In addition, wilderness would possibly lose some of its natural character under this alternative because response would be slow and limited in geographic extent, thus increasing the likelihood of resource damage and the overall area affected.

Impacts of this alternative on the natural quality would vary, depending on the length of time between fires, the size and intensity of wildfires, and the level of suppression efforts required. Due to fuel buildup, fires could burn intensely and be stand replacing to a much greater degree than would occur under natural conditions.

“Outstanding opportunities for solitude or a primitive and unconfined type of recreation”

Aircraft use associated with fire suppression activities may temporarily detract from visitor experience of solitude.

Other unique components that reflect the character of this wilderness

Heritage and Cultural Resources

The potential for large and intense wildfires poses a potential threat to cultural resources. Intense heat could potentially damage archeological resources, and the rapid spread of uncontrolled fires could threaten areas with historical significance.

Maintaining Traditional Skills

N/A

Special Provisions

N/A

Economic and Time Constraints

N/A

Additional Wilderness-specific Comparison Criteria

N/A

Safety of Visitors, Personnel, and Contractors

This alternative would result in continued retention and buildup of hazardous vegetative fuels. The buildup of fuels would require an increased human presence for fire suppression, posing a higher level of risk to firefighters. Increased potential for future severe wildfires would also increase risk to park visitors and residents.

| |
|----------------------------|
| Alternative # <u> 2 </u> |
|----------------------------|

Description: Utilize prescribed burning, limited mechanical and herbicide use, and wildfire utilizing resource objectives as treatment tools.

Under this alternative, the Seashore’s fire management program would utilize a range of fire management methodologies or “tools” in wilderness, where and when appropriate. These tools would include prescribed burning, as well as wildfires resulting from natural lightning ignitions. The latter would be managed using selected strategies and identified incident objectives, which would include resource objectives.

This alternative would allow some limited mechanical actions and herbicide use in wilderness. Use of mechanized tools would be determined based on the outcome of a site-specific minimum requirements analysis and would be limited to existing trails and roads. Mechanical equipment would be used to create/maintain fuel breaks using existing trail and road systems. All mechanical equipment would be utilized under carefully prescribed conditions, plans, and objectives to restore and protect wilderness values to the maximum extent possible, considering and balancing all risk factors. Management mitigation measures would be listed in burn plans to prescribe how and when to use each of these measures. Adaptive management would allow updating these techniques or using improved methods as they are developed and evolve over the years, as long as they are within the scope of this programmatic MRA analysis.

Mechanical equipment such as masticators (brush cutters), chainsaws, and similar hand-held equipment would be used along selected abandoned roads, (most are now considered trails, but some still have private vehicle use rights that pre-date wilderness designation). Trails that could have limited mechanical actions and herbicide treatments include Bunkley Trail, Roller Coaster Trail, Oyster Pond Trail, Tar Kiln Trail, and Table Point Road, power line cut, and Willow Pond Trail. After hazardous fuels are reduced, and ecosystem restoration by fire is underway, expectations are that mechanical work in the wilderness would be minimized.

Targeted herbicide applications could be used as a follow-up treatment to maintain fuel breaks established by mechanical or manual vegetation cutting treatments. Such applications would improve the longevity of the fuel reduction, and facilitate maintenance of these treatment areas. Herbicide use would only involve EPA approved herbicides under their specified conditions. Treatment methods would include foliar spray applications using a boom sprayer and/or low-volume spot treatments of individual plants with a backpack sprayer or a sprayer mounted on an all-terrain vehicle. All treatments would be done with NPS approved herbicides and as specified on the label and precautions would be taken to avoid areas of standing water. Additional targeted herbicide treatments might occur after vegetation re-growth to suppress re-sprouts within the fuel break. Note that herbicide application in NPS areas may only be utilized by following NPS Management Policy 4.4.5 and 4.4.5.2, and Director's Order 77-7, which outline the NPS approval process.

Under Alternative 2, the expected acreage that would be treated using prescribed fire could vary in size from 10 to 1,500 acres treated annually, much of it in wilderness. The acreage for wildfires managed for resource objectives would be highly variable, depending on ignition location, time of year, presence or absence of drought, availability of resources, weather and fire behavior, and a host of other factors. For mechanical treatments, 0-10 acres might be treated annually in wilderness. The expected Seashore acreage that could be treated with herbicide as a

follow-up treatment to mechanical treatments is 0–5 acres per year in wilderness. There is no way to predict the acreage that could be treated annually by managing wildfire for resource objectives, as this acreage would depend on the randomness of lightning ignitions, weather, vegetative fuel conditions, firefighting resource availability, and other factors.

Major fire management program activities included in Alternative 1 would also occur under this alternative. These are:

- Wildfire suppression utilizing the appropriate response, (includes both direct and indirect attack, the use of foam and retardant, and helicopter water bucket dropping activities, using river or brackish water);
- Minimum Impact Suppression Techniques (MIST) on all wilderness fires
- Utilization of wildland fire Resource Advisors;
- Post-fire activities would consider emergency stabilization and BAER;
- Monitoring of field activities and ecosystem components would occur by the NPS and its partners; and
- Interagency coordination, cooperation and related program activities

Under this alternative, site specific analyses of minimum methods and tools would be developed in conjunction with specific plans for fuels management actions in wilderness. This would be done to determine the minimum action necessary to achieve fire management objectives in wilderness. The site specific method and tool analysis would provide direction on the techniques and/or types of tools and equipment (minimum tool) needed to ensure that overall impacts to wilderness resources and character are minimized.

Wilderness Character

“Untrammled”

Alternative 2 would have varying effects on the untrammled quality, depending on the action taken. Allowing naturally occurring wildfires to achieve resource objectives would have a beneficial effect on the untrammled quality of wilderness by lessening human suppression and manipulation of fire. In contrast, conducting fuels treatments would have adverse effects on the untrammled quality of wilderness because these activities require modern human manipulation in isolated portions of the landscape, including the use of mechanized equipment and herbicides. On balance, since management action would be taken to circumscribe even naturally occurring ignitions, the overall impact on the untrammled quality would be adverse.

“Undeveloped”

The presence of small work crews, fuels reduction activities (such as thinning and clearing vegetation), and the use of power tools (such as chainsaws and brush cutters) would have short-term impacts to the undeveloped quality of wilderness character. Use of mechanized tools would be determined based on the outcome of a site specific minimum tool analysis and would be limited to existing trails and roads. Impacts would be relatively minor because work crews would only be present for a brief period of time, affected areas would be small, and implementation of mitigation measures and the semi-tropical environment would help ensure rapid recovery of the areas’ soils and vegetation.

“Natural”

The short-term effects of trammeling and the use of mechanized tools would increase the long-term natural quality of the wilderness by applying fire management activities in fire-adapted areas and protecting sensitive natural resources. Wildland fires managed over time under this

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alternative, including both prescribed fires and wildfires, would decrease the potential for intense, large wildfires and would move toward having impacts within the range of naturally occurring wildfires. Successfully completing more prescribed burns and/or wildfires managed for resource objectives would diversify the vegetation age class and species mix in the park, providing a more natural variety of habitats and increased habitat resilience. These conditions would in turn give the park more opportunities to use wildfires managed for resource objectives as the primary natural change and maintenance agent. Fire would be restored and maintained as a natural ecological process, thus increasing the ecological integrity of fire-adapted habitats and associated wildlife species and the scenic diversity of vegetation in the wilderness.

Use of fuel breaks would help with confinement of wildland fires for resource objectives while restoration is occurring, thus promoting the re-establishment of fire to former fire adapted ecosystems. Monitoring activities and fuels management would support the implementation of fire as a natural ecological process and allow managers to use fire to enhance and maintain the natural quality of the wilderness.

“Outstanding opportunities for solitude or a primitive and unconfined type of recreation”

The presence of prescribed-fire crews using mechanized equipment for thinning and clearing vegetation would have short-term but recurring impacts to opportunities for solitude and unconfined recreation. These impacts would be on top of the suppression impacts common to this alternative and Alternative 1 (e.g., use of helicopters).

Other unique components that reflect the character of this wilderness

N/A

Heritage and Cultural Resources

The proposed fire management actions would have a beneficial effect on protecting cultural resources, an ancillary attribute and quality of wilderness character. Fire management activities are designed to protect cultural resource values within wilderness and would be expected to have little to no negative impact on cultural resources. Through fire management activities, sites of historical or cultural significance would have increased level of protection from the effects of unwanted fire spread.

Maintaining Traditional Skills

N/A

Special Provisions

N/A

Economic and Time Constraints

Additional Wilderness-specific Comparison Criteria

N/A

Safety of Visitors, Personnel, and Contractors

This alternative would help to return vegetation communities to the range of natural variation and reduce the likelihood of catastrophic wildfires, and their attendant risks to firefighters. Being able to more successfully create and maintain fuel breaks removes a significant fuel hazard in

prescribed burns, or for wildfires. This would make prescribed burning safer for employees and aid in the control of wildfires. It would also improve egress in the event of evacuation.

Alternative # 3

Description: Utilize all above tools in Alternative 2, except that mechanical would not be utilized in the Seashore Wilderness.

This Alternative is similar to Alternative 2, except that mechanical treatments would not be used in the Seashore wilderness. Fuels adjacent to selected existing (abandoned) roads and trails would not be reduced with mechanical equipment. The wilderness trails listed under Alternative 2 would not receive any mechanical treatment under this Alternative. Due to the lack of safe and effective areas in the wilderness to stop wildfire on the ground, ground suppression activities would often be limited in scope in order to minimize unacceptable risk to firefighters. Thus, suppression actions would usually be outside the wilderness boundary, where more roads and future fuel breaks are located. However, conditions surrounding a wildfire (weather, fuel conditions, fire behavior, proximity to property, etc.) may require suppression actions within the wilderness similar to those associated with Alternative 1 (e.g. use of helicopters, engines, chainsaws, and other mechanized equipment).

Manual hand-held equipment such as cross cutters, pruners, and axes, would be used along existing roads and trails, including those listed in Alternative 2. However, use of these tools would mean that the wilderness could not be effectively broken into smaller “burn” blocks for prescribed burns, and wildfires would be less likely to be stopped at a smaller size. Mechanical work and thinning around and outside the boundary of the wilderness would have to be more substantial in order to create effective fuel breaks that have an increased probability of containing larger wildfires that could escape the wilderness.

In short, prescribed fire would be more difficult to utilize effectively in the wilderness, so hazard fuel reduction by burning would be more limited. If prescribed burns were to occur, they might have to be larger in size, utilizing roads outside the wilderness and natural barriers.

Wilderness Character
“Untrammeled”

Impacts to the untrammeled quality of wilderness character would be beneficial due to a lack of mechanical treatment.

“Undeveloped”

The absence of mechanical treatments in wilderness to create and/or maintain fuel breaks would eliminate the impacts to the undeveloped quality from mechanical equipment.

“Natural”

Alternative 3 would have an increased potential for wildfires and associated fire-suppression activities. Unnatural fuel loads would continue to accumulate, and fires would tend to be more severe than under a more natural fire regime. The absence of mechanical treatments in wilderness would limit using prescribed burns and wildfire managed for resource objectives, likely leading to larger and more intense wildfires that are harder to manage/suppress within and adjacent to the wilderness due to a lack of fuel breaks and barriers. The lack of mechanical treatments would also

hinder restoration and maintenance of fire-adapted systems and other unique vegetation areas, potentially decreasing vegetation quality and composition and distribution of wildlife species. As a result, Alternative 3 would have adverse impacts on the natural quality of wilderness character.

“Outstanding opportunities for solitude or a primitive and unconfined type of recreation”

Firefighter presence in the wilderness would be less noticeable under this alternative than under Alternative 2 and thus have fewer impacts on opportunities for solitude.

Other unique components that reflect the character of this wilderness

Heritage and Cultural Resources

The increased likelihood of severe wildfires, together with the reduced opportunities for prescribed fires, could damage archeological resources and other cultural resources.

Maintaining Traditional Skills

N/A

Special Provisions

N/A

Economic and Time Constraints

Additional Wilderness-specific Comparison Criteria

N/A

Safety of Visitors, Personnel, and Contractors

This alternative would do less to return vegetation communities to the range of natural variation than Alternative 2, and would increase the likelihood of catastrophic wildfires. As a result, risks to firefighters would be greater. Not being able to create and maintain interior fuel breaks would make prescribed burning less safe for employees and could increase the danger of wildfires to personnel, visitors, and residents.

Comparison of Alternatives

The table below is included to clarify actions, components, and some expectations that might result from each alternative.

Comparison of Alternatives and Fire Management Activities and Components

| <i>Fire Management Activities and Components</i> | <i>Alternative 1 No Action Alternative after April 2015</i> | <i>Alternative 2 Maximize Fire Mgmt. Tools</i> | <i>Alternative 3 No Mechanical in Wilderness</i> |
|--|---|--|--|
| Suppression actions would occur utilizing the appropriate response per National Fire Management policy | X | X | X |
| -direct and indirect attack would be utilized, depending on conditions | X | X | X |
| -aerial retardant and aerial foam could be utilized with Superintendent's | X | X | X |

| <i>Fire Management Activities and Components</i> | <i>Alternative 1 No Action Alternative after April 2015</i> | <i>Alternative 2 Maximize Fire Mgmt. Tools</i> | <i>Alternative 3 No Mechanical in Wilderness</i> |
|---|--|---|---|
| approval | | | |
| -helicopter bucket drops could be used on fires using brackish river water | X | X | X |
| -mechanical equipment could be used to suppress wildfires with Superintendent's approval | X | X | X |
| -wilderness values would be an objective considered in wilderness suppression actions, (example: utilize Wilderness Minimum Tool Analysis, MIST tactics) | X | X | X |
| -Minimum Requirements Analysis (MRA) would be utilized before non-emergency actions in wilderness | X | X | X |
| -Resource Advisors would be involved in wildfires | X | X | X |
| -Burned Area Emergency Actions (BAER) and emergency stabilization could occur after wildfires | X | X | X |
| -Interagency and community cooperation and coordination would occur | X | X | X |
| Prescribed Burning utilized with approved burn plans in all FMU's | | X | X |
| Mechanical methods (such as masticators) utilized for fuel breaks and defensible space work in non-wilderness areas of the Seashore | | X | X |
| -Limited mechanical equipment (such as masticators along abandoned roads) would be utilized in Wilderness to create fuel breaks to limit size/growth of prescribed fire and wildfires during ecological restoration | | X | |
| Expected larger wildfires, due to lack of practical fuel breaks or natural boundaries in wilderness, and buildup of hazardous fuels. Estimate more stand replacing fires. | X | | X |
| Some manual (hand) methods utilized for fuel breaks and defensible space work in all areas of the Seashore | | X | X |

| <i>Fire Management Activities and Components</i> | <i>Alternative 1 No Action Alternative after April 2015</i> | <i>Alternative 2 Maximize Fire Mgmt. Tools</i> | <i>Alternative 3 No Mechanical in Wilderness</i> |
|---|--|---|---|
| Spot herbicide application may be utilized to follow up on vegetation reduction techniques to slow brush regrowth response in all areas of the Seashore | | X | X |
| Wildfire natural ignitions could be utilized under appropriate conditions to meet resource objectives, only in Natural Zone FMU. | | X | X |
| Pro-active vegetation manipulation actions would occur to protect private property regardless of FMU | | X | X |
| Effective pro-active ecological restoration actions could occur to protect or maintain unique Seashore habitats and values | | X | X |
| FMU's would be developed to help manage Seashore areas, based on management actions that are approved from this EA. | X | X | X |

Comparison of Alternatives

It may be useful to compare each alternative's positive and negative effects to each of the criteria in tabular form, keeping in mind the law's mandate to "preserve wilderness character."

| | Alternative 1 | Alternative 2 | Alternative 3 |
|----------------------------------|---------------|---------------|---------------|
| Untrammeled | + | - | + |
| Undeveloped | + | - | + |
| Natural | - | + | - |
| Solitude or Primitive Recreation | + | - | + |
| Unique components | | | |
| WILDERNESS CHARACTER | + | - | + |

| | Alternative 1 | Alternative 2 | Alternative 3 |
|--|---------------|---------------|---------------|
| Heritage & Cultural Resources | - | + | - |
| Maintaining Traditional Skills | | | |
| Special Provisions | | | |
| Economics & Time | | | |
| Additional Wilderness Criteria | | | |
| OTHER CRITERIA SUMMARY | - | + | - |

| | Alternative 1 | Alternative 2 | Alternative 3 |
|---------------|---------------|---------------|---------------|
| SAFETY | - | + | - |

Safety Criterion

If safety issues override impacts to wilderness character or other criteria, provide documentation that the use of motorized equipment or other prohibited uses is necessary because to do otherwise would cause increased risks to workers or visitors that cannot be satisfactorily mitigated through training, use of personal protective equipment (PPE), or other requirements to alleviate the safety risk. (This documentation can take the form of agency accident-rate data tracking occurrences and severity; a project-specific job hazard analysis; research literature; or other specific agency guidelines.)

Documentation: N/A

Step 2 Decision: What is the Minimum Activity?

Please refer to the accompanying MRDG [Instructions](#) before describing the selected alternative and describing the rationale for selection.

Selected alternative: Alternative 2 is the selected alternative.

Ecological restoration actions are necessary to fulfill direction in the Seashore's enabling legislation and NPS management policies (NPS *Management Policies* (2006), Reference Manual-18). Alternative 2 provides the means by which ecological restoration objectives can be achieved most effectively, while at the same time enhancing wilderness character in the long term.

Rationale for selecting this alternative (including documentation of safety criterion, if appropriate):

The wilderness vegetation management actions in Alternative 2 are meant to reverse the impacts of two centuries of logging, agriculture, and suppression of naturally occurring wildfire. Once fuels are reduced through a combination of fuel treatments and carefully managed wildfire, the likelihood of high severity and high-intensity fire will decrease. Additionally, the need for (NPS) fuels/vegetation management actions will be less, and human wilderness intrusions/management reduced. Thus, Alternative 2 partially offsets the impacts of prior human land management activities, such that cumulative effects to the natural and undeveloped qualities of wilderness character would be long-term and beneficial.

Implementation of Alternative 2 would have long-term beneficial effects to the natural quality of wilderness character that more than offset the short-term degradation of the untrammelled, undeveloped, and personal experience (solitude and opportunities for unconfined recreation) qualities. The management actions in Alternative 2, while having intermittent and isolated impacts to the latter elements of wilderness character, would substantially enhance the natural quality of wilderness character by restoring fire to a fire-adapted ecosystem. The proposed actions would also provide for long-term, beneficial effects to the natural quality of wilderness character through the reduced potential for large and severe wildfires and associated impacts from fire-suppression activities.

Mitigation

All of the mitigation measures from the approved FMP are incorporated herein by reference, to the extent they are applicable in wilderness. The following mitigation measures are specifically applicable to wilderness:

Wilderness

- Firefighters would utilize MIST to minimize impacts of fire response operations in Seashore Wilderness.
- Applicable MIST tactics would be detailed for firefighters in wildfire and prescribed fire Incident Action Plans, and in incident briefings.

- The necessity for wildfire management and fuels management projects, including prescribed fire, in Wilderness is described in the Minimum Requirements Analysis (Step 1) in this document.
- Typical tools and methods that may be used during the initial response to a Wilderness wildfire are specified in the Minimum Requirements Analysis (Step 2) in this document.
- In the event that the Seashore incurs a long-duration Wilderness wildfire (one that will last for more than a few operational periods), the FMP would recommend that long-term incident planning consider methods and tools that may differ from, and be less intrusive than, those used during the initial response. A new minimum tool analysis may then be used in lieu of the one in this document.
- A method and tools analysis (MRA Step 2) is required for specific fuels projects in Wilderness. Specific conditions and locations of fuels projects have been developed for the purposes of the Fire Management Plan; however, these conditions may be applied to future projects as well. If a future project deviates from the analysis parameters therein, then a separate methods and tools analysis will be completed.
- Whenever possible, Resource Advisors (READ's) would be assigned to all wildfires of significance in Seashore Wilderness, where on the ground actions by firefighters occur.
- Natural, manmade features or vegetation change barriers would be utilized whenever possible for fire control lines to minimize the need for fireline construction, and minimize vegetation cutting in Seashore Wilderness. Indirect/confine type strategies would be the preferred strategy for most wildfires.
- Wildfires that are managed for resource objectives would consider Wilderness values when strategies and planning areas are developed.
- For visitor safety, Wilderness visitors that may be in the path of a wildfire would be located and escorted out of the Wilderness. The Superintendent would establish an appropriate and reasonable closure order that would be enforced by park rangers.
- Herbicide would only be utilized for limited projects in limited areas, after undergoing the NPS national and regional approval process, considering the effects on Wilderness resources, and the Minimum Requirements Analysis.
- Herbicide and application devices would be worked on, filled and mixed only utilizing approved leak prevention and catchment systems.
- No visible leakage of chemicals would be allowed from equipment used for transporting, storing, mixing, or applying chemicals.
- Staff utilizing herbicide would be trained in approved procedures related to proper handling, storage, transportation, mixing, spill prevention, and application procedures.
- The preferred method of fireline rehabilitation would utilize replacement of cut slash or organic debris as the preferred method in Wilderness to limit the potential visual effects of a fireline, and to speed its natural re-vegetation.
- Constructed firelines would be rehabilitated as soon as possible after fires are out to prevent erosion and negative visual effects.
- When planning prescribed fires in Wilderness, the longevity and disturbance effect of control preparations and operations on Wilderness values must be a consideration.
- Prescribed fire may be used in Wilderness to re-introduce fire to an area due to the buildup of hazardous fuels; utilizing wildfire for resource objectives as the first entry would likely lead to more stand replacing fire and destruction of remnants of unique habitats. The eventual goal would be to utilize wildfires to maintain the fire adapted and unique habitats in Wilderness.
- Mastication in Wilderness would only be considered after application of the Minimum Requirements Analysis, approved by the Superintendent, as a management tool that is

necessary for the improvement and restoration of Wilderness values and safety of fire fighters.

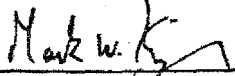
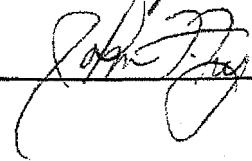
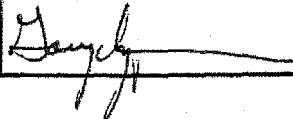
- If mastication is necessary for a Wilderness prescribed burn, timing of the mastication should be such as to complement the prescribed burn window, season and availability of resources so that repeat mastication is not necessary for the same prescribed burn.
- Mastication along Wilderness trails as a pre-identified fireline for wildfire control would be planned to minimize the total number of control lines in Wilderness.
- Equipment operators would be trained to minimize soil and vegetation disturbance, soil compaction, disturbance, and displacement so that visible effects of equipment use in Wilderness are minimal.
- Equipment with fluid leaks would not be utilized. Refueling or filling or mixing of gas and other fluids would be avoided in the field when possible; when necessary, appropriate precautions would be taken to prevent spills.
- Equipment use in or adjacent to Wilderness would be minimized to protect natural Wilderness soundscape.
- Aviation use above or adjacent to Wilderness would be minimized to protect natural Wilderness soundscape.

Monitoring and reporting requirements:

Check any Wilderness Act Section 4(c) uses approved in this alternative:

- | | |
|--|---|
| <input checked="" type="checkbox"/> mechanical transport | <input checked="" type="checkbox"/> landing of aircraft |
| <input checked="" type="checkbox"/> motorized equipment | <input type="checkbox"/> temporary road |
| <input checked="" type="checkbox"/> motor vehicles | <input type="checkbox"/> structure or installation |
| <input type="checkbox"/> motorboats | |

Record and report any authorizations of Wilderness Act Section 4(c) uses according to agency procedures.

| Approvals | Signature | Name | Position | Date |
|--------------|---|-------------|----------------------------|-------------|
| Prepared by: |  | Mark Kinzer | SER Wilderness Coordinator | 9-26-14 |
| Recommended: |  | John F. Fry | CUIS CHIEF, R.M. | 6 NOV 14 |
| Recommended: | | | | |
| Approved: |  | GARY INGRAM | CUIS SUPERINTENDENT | 21 Nov 2014 |