

# Big Cypress National Preserve

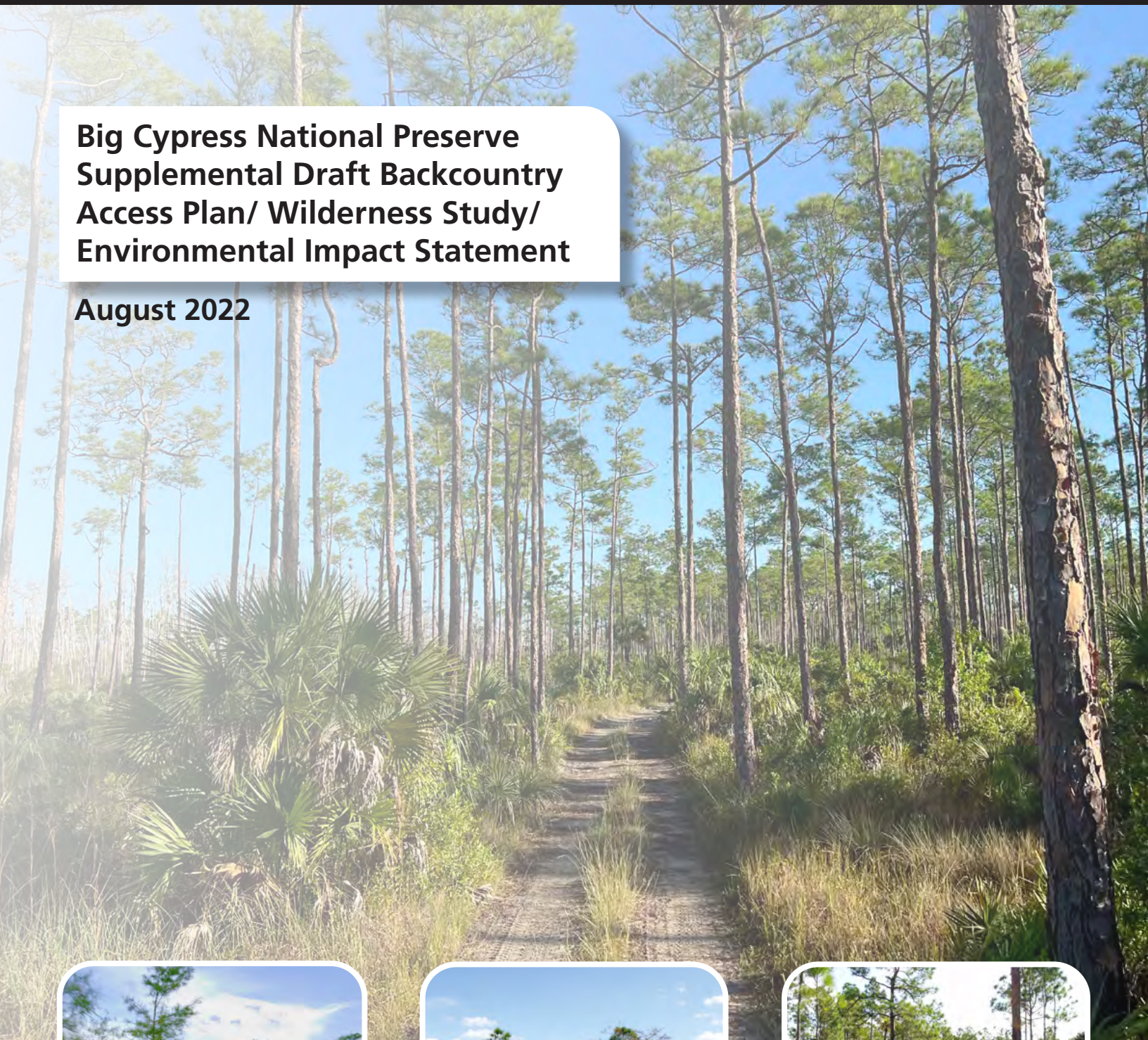
Florida

National Park Service  
U.S. Department of the Interior



## Big Cypress National Preserve Supplemental Draft Backcountry Access Plan/ Wilderness Study/ Environmental Impact Statement

August 2022





The National Park Service has prepared this supplemental draft backcountry access plan/wilderness study/environmental impact statement (Supplemental Draft Plan/EIS) in response to public comments received on the Draft Backcountry Access Plan/Environmental Impact Statement (Draft Plan), which was released to the public on October 30, 2020. This document supersedes the Draft Plan. The purpose of this Supplemental Draft Plan/EIS is to provide management guidelines for backcountry access and use in Big Cypress National Preserve, Florida, and to determine which parts of the original part of the preserve, if any, should be proposed for wilderness designation by Congress. This Supplemental Draft Plan/EIS carries forward alternative 1 (no-action) from the Draft Plan and considers two new action alternatives: (a) a revised version of alternative 2 from the Draft Plan, and (b) an entirely new alternative, referred to as “alternative 3.” The Supplemental Draft Plan differs from the original draft in that each of the action alternatives includes a wilderness proposal. Alternative 3 is the new NPS preferred alternative.

The review period for this document will end 45 days after publication of the US Environmental Protection Agency Notice of Availability in the Federal Register. Comments will be accepted during the comment period through the NPS Planning, Environment, and Public Comment website at <https://parkplanning.nps.gov/bicybap> or in hard copy delivered by the US Postal Service or other mail delivery service or hand-delivered to the address below. Comments will not be accepted by fax, email, or in any other way than those specified above. Bulk comments in any format (hard copy or electronic) submitted on behalf of others will not be accepted. Before including your address, telephone number, electronic mail address, or other personal identifying information in your comments, you should be aware that your entire comment (including your personal identifying information) may be made publicly available at any time. While you can ask us in your comments to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

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Big Cypress Backcountry Access Plan Supplemental DEIS  
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## EXECUTIVE SUMMARY

The United States Department of Interior, National Park Service (National Park Service or NPS) has prepared a supplemental draft backcountry access plan/wilderness study/environmental impact statement (Supplemental Draft Plan/EIS) to provide management guidelines for backcountry access and use in Big Cypress National Preserve, Florida (the preserve) and to determine which parts of the original part of the preserve (original preserve), if any, should be proposed for wilderness designation by Congress. This Supplemental Draft Plan/EIS formally amends previous planning documents at the preserve by (a) providing definitions of certain key terms (specifically, “primary trail,” “secondary trail,” and “backcountry destination”), (b) modifying the nature and purpose of the secondary trail system, and (c) giving supplemental management direction regarding backcountry recreation.

This Supplemental Draft Plan/EIS has been prepared in response to public comments received on the Draft Backcountry Access Plan/Environmental Impact Statement (Draft Plan), which was released to the public on October 30, 2020. This document supersedes the Draft Plan and is intended to be read as a stand-alone document. The Supplemental Draft Plan/EIS was developed in accordance with the preserve’s enabling legislation; management plans; NPS policies; and applicable federal, state, and local laws and regulations. Some parts of the Supplemental Draft Plan/EIS apply solely to the original preserve (established in 1974), while others cover the entire preserve, including lands added to the preserve in 1988 (the Addition).

### PLAN PURPOSE AND NEED

The purpose of this Supplemental Draft Plan/EIS is to provide management guidelines for backcountry access and use while protecting the preserve’s natural and cultural resources. It is also intended to determine which parts of the original part of the preserve (original preserve), if any, should be proposed for wilderness designation by Congress.

The Supplemental Draft Plan/EIS is needed to

- Protect the preserve’s resources (e.g., habitat, plants, wildlife, protected species) while providing for sustainable recreational backcountry use of the preserve in accordance with its enabling legislation.
- Evaluate potential alternatives for a secondary motorized trail network in the original preserve that provides access to backcountry destinations while protecting the natural and cultural resources of the preserve.
- Establish a permanent route for the Florida National Scenic Trail (FNST) and other nonmotorized recreational opportunities.
- Establish a management approach for backcountry camping as it relates to off-road vehicle (ORV) use, hunting, hiking, and other activities.
- Clarify definitions of key terms (i.e., secondary trails and backcountry destinations) within the 2000 Final Big Cypress Recreational Off-Road Vehicle Management Plan (2000 Recreational ORV Management Plan) (NPS 2000a) and the 2010 Final Big Cypress Addition General Management Plan/Off-Road Vehicle Management Plan/Wilderness Study (Addition GMP) (NPS 2010).
- Determine which parts of the original preserve are eligible for wilderness designation and consider which of those lands, if any, should be proposed for designation by Congress.

## ALTERNATIVES

This Supplemental Draft Plan/EIS carries forward alternative 1 (no action) from the Draft Plan and considers two new action alternatives: (a) a revised version of alternative 2 from the Draft Plan, and (b) an entirely new alternative, referred to as “alternative 3” herein. (The former alternative 3, together with alternatives 4 and 5 from the Draft Plan, are dismissed from further consideration.) The Supplemental Draft Plan/EIS differs from the original draft in that each of the action alternatives now includes a wilderness proposal. Alternative 3 is the new NPS preferred alternative.

The alternatives address motorized and nonmotorized trails, backcountry destinations, and backcountry camping. Each alternative evaluates a different management approach for backcountry camping in the preserve as it relates to ORV use, hunting, hiking, and other activities.

The motorized trails described in alternatives 2 and 3 mostly cross resilient to highly resilient substrates. Unlike the Draft Plan, which defined substrate resiliency solely in terms of the vegetation communities crossed by each trail (as shown in digitized map layers), the resiliency determinations in this Supplemental Draft Plan/EIS are based on both remotely sensed vegetation data and conditions in the field as personally observed by preserve staff. For this document, each ORV trail previously identified in the Draft Plan has been newly assessed for substrate resiliency along its entire length. The on-the-ground assessment by preserve staff has revealed that much of the ORV trail mileage in the former preferred alternative is located on least resilient to unsuitable substrates. To protect the preserve’s natural and cultural resources, while establishing an ORV trail system that is sustainable over time, this Supplemental Draft Plan/EIS scales back the ORV trail mileage from the Draft Plan and retains only those trails that mostly cross resilient to highly resilient substrates.

The final plan, when read in conjunction with the 2000 Recreational ORV Management Plan and the 2010 Addition GMP, will provide comprehensive guidance on managing the evolving trail system for the preserve.

### **Alternative 1: No Action (Continue Current Management)**

The no-action alternative would continue current management practices related to backcountry access in the preserve; this alternative provides a baseline for comparison in evaluating the changes and impacts of the other alternatives.

Under this alternative, the current system of primary ORV trails (a total of 278 miles) would remain unchanged and no secondary ORV trails would be opened. Accordingly, ORV backcountry recreation access opportunities would be limited. ORV and non-ORV user groups would continue to share most of the same designated trail network.

There would be no changes to the current system of nonmotorized trails in the preserve, which comprises 63 miles of hiking trails (including the 36-mile FNST) and 15 miles of canoe trails. The FNST would remain in its current alignment. The current annual 60-day ORV closure would remain in place.

Dispersed backcountry camping via foot or nonmotorized vessel would continue to be permitted in most of the preserve, except Bear Island. In Zone 4 of the Stairsteps Unit, airboat users would be required to camp at existing designated campsites. Backcountry camping permits would be required but would be free of charge. Designated backcountry campgrounds would continue to be limited to the two current backcountry campgrounds in the Bear Island Unit and two primitive group camping areas along the FNST. No new designated backcountry camping sites would be proposed over and above the existing 25 backcountry campsites/destinations.

No areas would be proposed for wilderness designation in the original preserve.

## **Alternative 2**

Alternative 2 offers visitors slightly increased access compared to the no-action alternative. The existing primary ORV trail system, 278 miles total, would remain unchanged, as would the ORV permitting system. Fifteen miles of secondary ORV trails would be opened (more than 94% of which would traverse highly resilient to resilient substrate types). The FNST would be realigned to improve the backcountry experience of hikers by separating ORV and non-ORV (e.g., hiking) users. The realigned route would be 44 miles long, up from 36 miles.

Twenty-four new backcountry destinations would be opened to accommodate camping, and one existing site in the Stairsteps Unit would be closed to protect resources. The 24 new destinations would augment 24 existing backcountry campsites across the preserve, as well as the two backcountry campgrounds in the Bear Island Unit and the two primitive group camping areas along the FNST.

The camping stay limit would be 14 consecutive days. Under this alternative, all dispersed camping would be discontinued; camping opportunities would be provided at designated locations. A reservation system would be established for backcountry camping, and limitations on group size would be implemented.

The current annual 60-day ORV closure would remain in place.

Alternative 2 proposes that Congress designate approximately 190,528 acres of land (32% of the original preserve and adjoining Western Addition) as wilderness. The proposal generally covers the areas known as Mullet Slough, Deep Lake, Loop Unit, Stairsteps Zone 2, and the southeast corner of Stairsteps Unit Zone 4.

## **Alternative 3 (Proposed Action)**

Alternative 3 would provide more backcountry access for visitors than alternative 2. It would open 54 additional miles of primary ORV trails on preexisting routes, bringing the total mileage of primary trails in the preserve to 332 miles. Alternative 3 would also open 52 miles of secondary ORV trails. About 93% of the new miles of primary trail and over 90% of the new miles of secondary ORV trail would traverse highly resilient to resilient substrate types. Of the 54 miles of newly opened primary trail, approximately 39 miles would consist of airboat trails in Stairsteps Unit Zones 3 and 4. An additional 10 miles of reopened primary trail would link the Addition to the original preserve at Bear Island and 3 miles of reopened primary trail would link the Addition to the original preserve through Mullet Slough. ORV permits would be capped at 2,000, and of those 2,000, 650 would authorize access to both the original preserve and the Addition.

As in the previous alternative, the FNST would be realigned to improve the backcountry experience of hikers by separating ORV and non-ORV users. The realigned route would be 44 miles long. The rest of the hiking trail system would be expanded by 141 miles as compared to the no-action alternative. Combined, hiking trails in the preserve (including the FNST) would total 185 miles.

Alternative 3 would open 83 new backcountry destinations in the original preserve and close one existing site in the Stairsteps Unit to protect resources. The 83 new sites would be in addition to 24 existing backcountry campsites across the preserve, the two backcountry campgrounds in the Bear Island Unit, and the two primitive group camping areas along the FNST.

This alternative would open a new backcountry campground in the Bear Island Unit on an elevated pad once used for petroleum production. This new campground would complement the two existing backcountry campgrounds in Bear Island. Dispersed backcountry camping via foot or nonmotorized vessel would be permitted throughout the preserve, including Bear Island. Airboat users in Zone 4 of the Stairsteps Unit would still be required to camp at designated campsites. As in alternative 2, the camping



stay limit would be 14 consecutive days. No reservation system would be implemented for backcountry camping.

The annual 60-day ORV closure would be lifted throughout the preserve in favor of targeted closures of specific problem areas identified by staff. The ORV trail system would be closed at night per the 2000 Recreational ORV Management Plan.

Alternative 3 proposes that Congress designate approximately 147,910 acres of land (25% of the original preserve and adjoining Western Addition) as wilderness. The proposal generally covers the areas known as Mullet Slough, Deep Lake, and the Loop Unit.

**NPS Preferred Alternative:** Alternative 3 (proposed action) is the NPS preferred alternative because it achieves the best balance between increased public access and substrate sustainability, while at the same time proposing wilderness protection for the most ecologically intact parts of the original preserve.

# Chapter 1

## Introduction



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# CHAPTER 1: INTRODUCTION

The United States Department of the Interior, National Park Service (National Park Service or NPS) has prepared this supplemental draft backcountry access plan/wilderness study/ environmental impact statement (Supplemental Draft Plan/EIS) to (a) provide management guidelines for backcountry access and use in Big Cypress National Preserve, Florida (the preserve), (b) establish a system of secondary trails and destinations in the original part of the preserve (original preserve), and (c) determine which parts of the original preserve, if any, should be proposed for wilderness designation by Congress.

This Supplemental Draft Plan/EIS has been prepared in response to public comments received on the Draft Backcountry Access Plan/Environmental Impact Statement, which was released to the public on October 30, 2020. The Supplemental Draft Plan supersedes the previous version of the plan and is intended to be read as a stand-alone document. The National Park Service has developed this revision in accordance with the preserve's enabling legislation; management plans; NPS policies; and applicable federal, state, and local laws and regulations. Some parts of the Supplemental Draft Plan apply solely to the original preserve (established in 1974), while others cover the entire preserve, including lands added to the preserve in 1988 (the Addition).

The Supplemental Draft Plan/EIS carries forward alternative 1 from the Draft Plan and considers two new action alternatives: (a) a revised version of alternative 2 from the original Draft Plan, and (b) an entirely new alternative, referred to as "alternative 3" in this document. (The former alternative 3, together with alternatives 4 and 5 from the Draft Plan, are dismissed from further consideration.) The environmental impacts of alternatives 1, 2, and 3 are reviewed and assessed in this document. Notably, this Supplemental Draft Plan/EIS differs from the original in that each of the action alternatives now includes a wilderness proposal. Alternative 3 is the NPS proposed action and the preferred alternative.

This Supplemental Draft Plan/EIS evaluates two alternatives for motorized and nonmotorized trails in the preserve, together with associated backcountry destinations. The document likewise evaluates different management approaches for backcountry camping as it relates to off-road vehicle (ORV) use, hunting, hiking, and other activities. In addition, the Supplemental Draft Plan/EIS formally amends two of the preserve's existing plans by (a) providing definitions of certain key terms (specifically, "primary trail," "secondary trail," and "backcountry destination"), (b) modifying the nature and purpose of the secondary trail system, and (c) giving supplemental management direction regarding backcountry recreation. The plans amended by this document are the 2000 Final Big Cypress Recreational Off-Road Vehicle Management Plan Supplemental Environmental Impact Statement (NPS 2000a) (2000 Recreational ORV Management Plan) and the 2010 Final Big Cypress Addition General Management Plan/Off-Road Vehicle Management Plan/Wilderness Study (NPS 2010) (Addition GMP).

This document is part of the preserve's planning portfolio. It addresses some elements of the preserve's required management plans; additional elements would be addressed in future planning documents. When read in conjunction with the 2000 Recreational ORV Management Plan and the 2010 Addition GMP, this Supplemental Draft Plan/EIS provides comprehensive guidance on managing the evolving trail system for the preserve.

## 1.1 BRIEF DESCRIPTION OF THE PRESERVE

Big Cypress National Preserve is centrally located between Miami and Naples in southern Florida (figure 1-1). It encompasses 727,235 acres of a largely freshwater wetland ecosystem offering refuge to a wide variety of plants and animals. Established in 1974 as one of the first national preserves, the preserve represents a unique management concept where resource protection, public recreation, and specific uses stipulated in its enabling legislation are managed concurrently (figure 1-2).

Water is the unifying force of the preserve, connecting its seven principal habitats: cypress systems, freshwater and forested wetlands, nonforested wetlands (prairies and marshes), hardwood hammocks, pine flatwoods, shrublands, and estuaries. These diverse ecosystems encompass a dynamic mixture of tropical and temperate plant communities and wildlife. The preserve protects nine federally listed and 31 state listed animal species that are threatened and endangered or species of special concern, as well as two federally listed plant taxa, one federally listed plant species, and 120 state listed threatened and endangered plant species.

In the late 1960s, the area that was to become the preserve was threatened by multiple forms of development, including a proposal to construct the “jetport,” which would have been the largest airport in the world at that time. Alarmed by the potential for environmental harm and the threatened loss of a traditional way of life, a coalition of hunters, conservationists, and citizen activists, including Marjory Stoneman Douglas and the newly formed Friends of the Everglades, pressured the then Dade County Port Authority to find another location for the jetport. Everyone saw the importance of protecting the Big Cypress, but many did not want this region merely added to nearby Everglades National Park. Many felt that traditional forms of access to the Big Cypress area would be lost if the area was managed as a national park. The resulting compromise created a new land management concept—a national preserve. Under this concept, the area would be protected but specific activities identified in the preserve’s enabling legislation would be allowed to continue.

Of particular note is that the preserve’s enabling legislation gives the Miccosukee Tribe of Indians of Florida and the Seminole Tribe of Florida usual and customary use and occupancy of lands and waters within the preserve, including subsistence and ceremonial rights.

The preserve is divided into eight management units: Turner River, Bear Island, Corn Dance, Deep Lake, Loop, Stairsteps (further divided into zones 1 through 4), Western Addition, and Northeast Addition (figure 1-2). This Supplemental Draft Plan/EIS addresses alternatives throughout the original preserve (excluding the Northeast and Western Additions), as well as through each individual management unit, as specified.



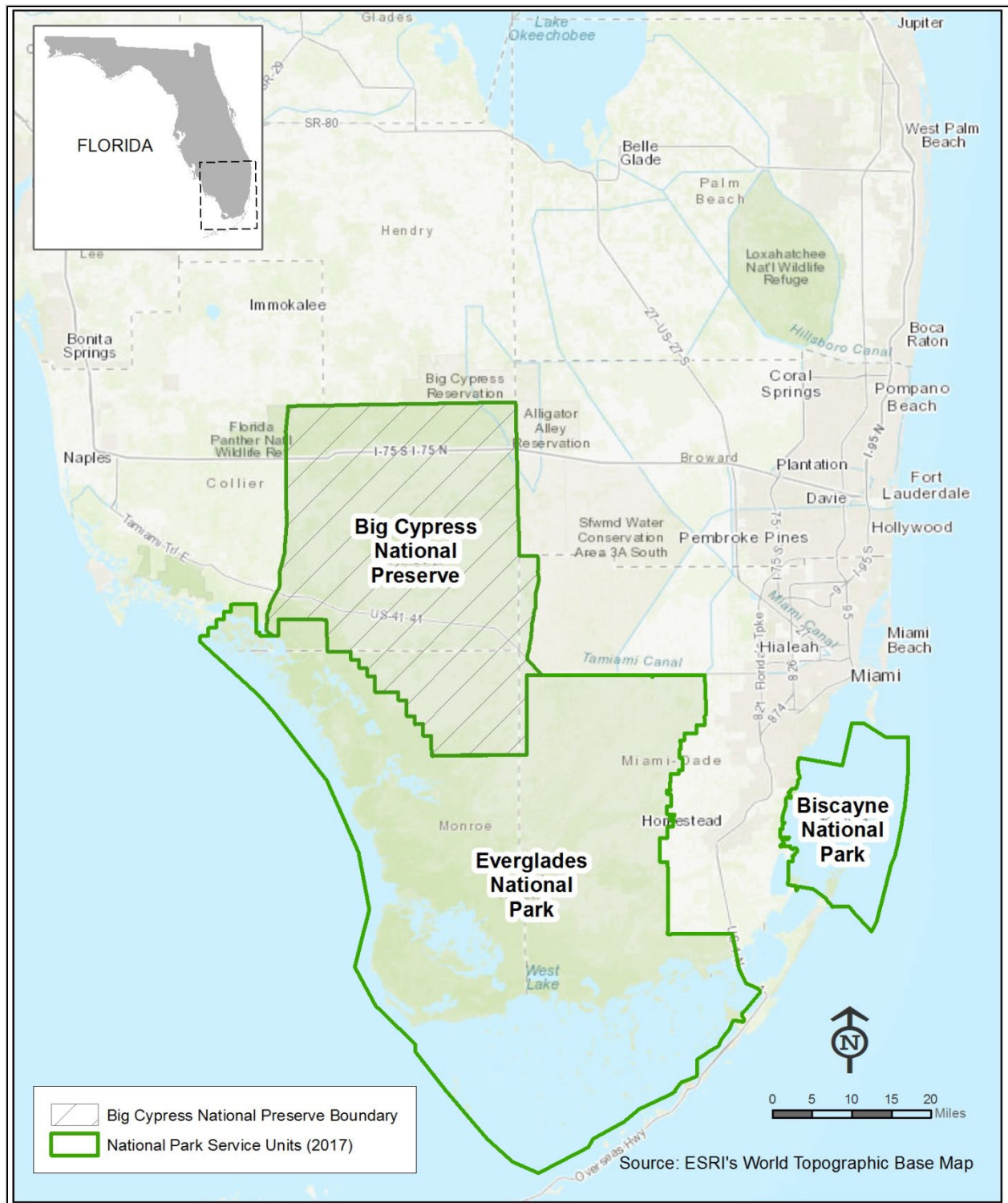


FIGURE 1-1. BIG CYPRESS NATIONAL PRESERVE LOCATION

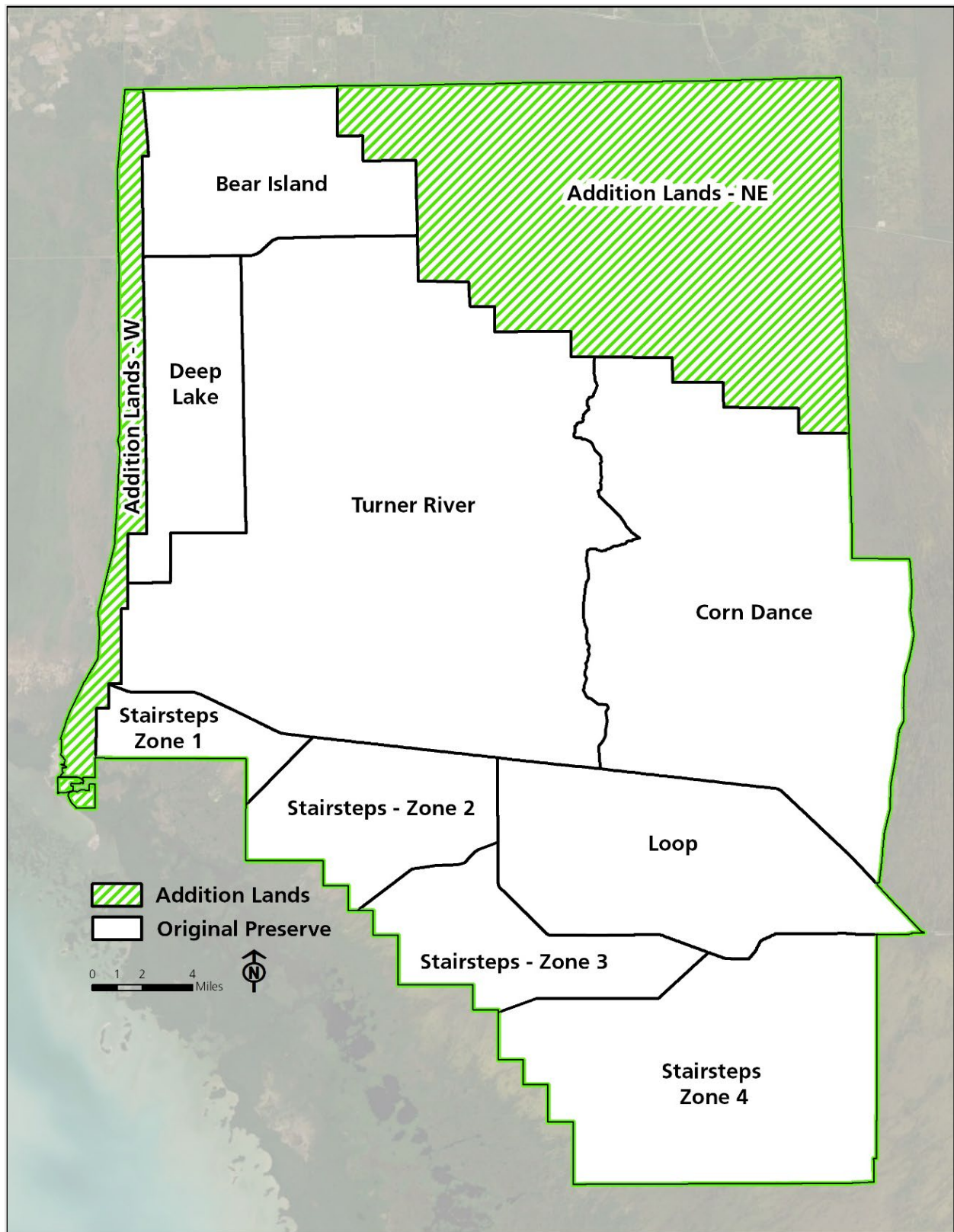


FIGURE 1-2. MANAGEMENT UNITS WITHIN THE PRESERVE

## **1.2 PURPOSE AND SIGNIFICANCE OF THE PRESERVE**

The purpose statement identifies the specific reason(s) for establishment of a particular park unit. The purpose statement for the preserve was drafted through a careful analysis of its enabling legislation and the legislative history that influenced its development. The preserve was authorized by Congress on October 11, 1974 (Public Law [PL] 93-440), to include not more than 570,000 acres of land and water. That law was amended on April 29, 1988, when Congress passed PL 100-301, the Big Cypress National Preserve Addition Act (Addition Act), to expand the preserve by 147,000 acres. This expansion area is referred to as the Addition. With the Addition, the preserve now encompasses 727,235 acres. The purpose statement lays the foundation for understanding what is most important about the preserve.

The purpose of the preserve is to ensure the preservation, conservation, and protection of the natural, scenic, hydrologic, floral and faunal, and recreational values of the Big Cypress watershed in the state of Florida and to provide for the enhancement and public enjoyment thereof.

Significance statements express why a park unit's resources and values are important enough to merit designation as a unit of the national park system. These statements are linked to the purpose of the preserve and are supported by data, research, and consensus. Statements of significance describe the distinctive nature of the park unit and why an area is important within a global, national, regional, and systemwide context. They focus on the most important resources and values that would assist in park unit planning and management.

The following significance statements have been identified for the preserve. (Please note that the sequence of the statements does not reflect the level of significance.)

- The preserve protects the Big Cypress Watershed – an area critical to the survival of the greater Everglades ecosystem.
- The preserve contains the largest expanse of dwarf cypress forest in North America and the largest old-growth south Florida slash pine forest.
- The preserve protects vital habitat for state and federally listed threatened and endangered plant and animal species, including the Florida panther, red-cockaded woodpecker, and ghost orchid.
- The preserve provides opportunities for the public to enjoy outdoor recreation activities in a vast natural area spanning 727,235 acres of south Florida. These opportunities are increasingly rare in a region containing rapidly growing cities with more than 6 million people.
- The preserve contains evidence of approximately 15,000 years of human use and sustains resources that continue to hold importance to traditionally associated cultures, including the Miccosukee and Seminole peoples.

## **1.3 PROJECT BACKGROUND**

### **1.3.1 Backcountry Access Plan Scope**

The National Park Service prepared a general management plan (GMP) for the preserve in 1991. One of the key recommendations of the GMP was to prepare a plan allowing ORV use in the preserve while ensuring the natural and ecological integrity of preserve resources. Thereafter, the 2000 Recreational ORV Management Plan was prepared in accordance with a 1995 settlement agreement between the Florida Biodiversity Project and several federal agencies and bureaus. The 2000 Recreational ORV Management Plan established a framework for a primary and secondary trail system as well as 15 primary access points. The incorporation of the 2000 Recreational ORV Management Plan into preserve policy effectively eliminated dispersed ORV use throughout the preserve. In addition to a designated system of trails, the ORV Management Plan established a framework for instituting temporary closures of the

preserve backcountry when conditions were not compatible with recreational use, as during times of severe high or low water, hurricanes, and fires.

In 2007, the NPS reopened 35 miles of primary ORV trails and 9.4 miles of secondary trails within the Bear Island Unit of the preserve. In that same year, several nongovernmental organizations and individuals brought suit challenging this management decision as a violation of the National Environmental Policy Act (NEPA), the Endangered Species Act, several executive orders, and the 2000 Recreational ORV Management Plan. A July 2012 judicial opinion stated that the NPS's decision violated NEPA requirements because the National Park Service had failed to undertake a supplemental environmental analysis before reopening the trails. The judge ordered these trails in the Bear Island Unit closed, and the National Park Service complied pending completion of further NEPA review. See *Defenders of Wildlife v. Salazar*, 877 F. Supp.2d 1271 (M.D. Fla. 2012).

In 2010, the National Park Service decided to reopen 83 miles of secondary ORV trails within the Turner River Unit. The following year, it decided to open an additional 64 miles of secondary ORV trails within the Corn Dance Unit. ORV users were limited to primary and secondary trails, thereby eliminating dispersed use in these areas. The National Park Service was then sued in 2013 by several environmental organizations and individuals claiming that the opening of this network of trails was in violation of NEPA and the ORV Management Plan. See *Center for Biological Diversity v. Jewell*, No. 2:13-cv-00364-SPC-DNF (M.D. Fla. 2013). When the National Park Service issued its annual 60-day ORV trail closure notice in 2013, a process began whereby these secondary trails were closed until additional NEPA planning efforts could be performed. A settlement agreement, which incorporated the closure notice, was finalized in September 2014.

Controversy surrounding implementation of the 2000 Recreational ORV Management Plan has highlighted a need to better define the meaning of various provisions, including the definitions of "secondary trail" and "destination." Likewise, the Bear Island and secondary trails litigation has created a need for the National Park Service to determine which of the preserve's closed trails should be reopened. The present Supplemental Draft Plan/EIS has been prepared, in part, to reevaluate the preserve's trail network, establish a system of secondary ORV trails, and define a set of destinations for the original preserve. It also addresses the management of other backcountry activities in the preserve as a whole, including hiking and camping. This Supplemental Draft Plan/EIS does not specifically address the management of fishing, frogging, hunting, trapping, or tribal customary use and occupancy.

### **1.3.2 Wilderness Study**

A wilderness study was conducted to determine which parts of the preserve, if any, should be proposed to Congress for inclusion in the National Wilderness Preservation System. Only Congress can formally designate lands as wilderness. Under the Wilderness Act of 1964:

A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions.

The National Park Service completed a wilderness study of the original preserve in 1979. The resulting wilderness recommendation (1980) found that no part of the original preserve was suitable for wilderness designation due to ongoing uses inconsistent with the Wilderness Act, such as dispersed ORV use and active oil and gas exploration/extraction. Today, however, dispersed use of ORVs has been discontinued, numerous private inholdings have been acquired, and other nonconforming uses have been eliminated or dramatically reduced. In addition, NPS management policies have changed so that existing mineral rights

and privileges do not necessarily exclude lands from consideration as wilderness (see NPS 2006a). Furthermore, NPS *Management Policies 2006* specifically provide that “lands that have been logged, farmed, grazed, mined, or otherwise used in ways not involving extensive development or alteration of the landscape may also be considered eligible for wilderness designation, if, at the time of assessment, the effects of these activities are substantially unnoticeable or their wilderness character could be maintained or restored through appropriate management actions” (NPS 2006a).

Given the dramatic improvement to wilderness character over large parts of the preserve since 1980 and based on comments received from the public during public scoping for the backcountry access plan/wilderness study, the National Park Service decided in 2014 to prepare an updated wilderness eligibility assessment, which was completed in 2015.

(Note: a separate wilderness eligibility assessment and follow-up wilderness study were completed for the Addition in 2010 as part of developing the Addition GMP. The 2010 Addition wilderness study proposed that 47,182 acres of the Addition be designated as wilderness. The proposed acreage comprises land in the Northeast Addition lying south of Interstate 75.)

In 2016, the National Park Service initiated a formal wilderness study of the original preserve, as summarized herein. The purpose of the wilderness study is to determine which of the eligible lands in the original preserve, if any, should be proposed for wilderness designation. As part of the more formal and in-depth wilderness study process, the National Park Service revised and refined the 2015 wilderness eligibility assessment (see appendix E). Using this revised assessment, the National Park Service then reviewed all eligible lands in the original preserve to develop alternatives for proposed wilderness. Differing alternatives were developed based on management considerations and the results of the Addition wilderness study.

## **1.4 PURPOSE, NEED, AND OBJECTIVES**

### **1.4.1 Purpose**

The purpose of this project is to develop a backcountry access plan for the preserve that provides management guidelines for backcountry access, use, and enjoyment by the public while protecting the preserve’s natural and cultural resources. More specifically, the purpose of this project is to develop a plan for backcountry access that meets the objectives outlined in section 1.4.3 below. This Supplemental Draft Plan/EIS formally amends the 2000 Recreational ORV Management Plan and the 2010 Addition GMP by defining the terms “primary ORV trail,” “secondary ORV trail,” and “backcountry destination.” It also amends the 2000 Recreational ORV Management Plan by establishing a system of secondary ORV trails for the original preserve and designating a set of associated destinations. Finally, the Supplemental Draft Plan/EIS includes a wilderness study to determine which parts of the original preserve, if any, should be proposed for wilderness designation.

Included in this document is a supplemental environmental impact statement that analyzes impacts to the human environment from a new set of project alternatives, which are described in chapter 2. This Supplemental Draft Plan/EIS was developed in accordance with the preserve’s enabling legislation; management plans; NPS policy; and applicable federal, state, and local laws and regulations.

### **1.4.2 Need**

The Supplemental Draft Plan/EIS is needed to

- Protect the preserve’s resources (e.g., habitat, plants, wildlife, and protected species) while providing for safe and sustainable recreational backcountry use of the preserve in accordance with its enabling legislation.



- Evaluate potential alternatives for a secondary motorized trail network in the original preserve that provides safe and sustainable access to backcountry destinations while protecting the natural and cultural resources of the preserve.
- Establish a permanent route for the Florida National Scenic Trail (FNST) and other nonmotorized recreational opportunities.
- Establish a management approach for backcountry camping as it relates to ORV use, hunting, hiking, and other activities.
- Clarify definitions of key terms (e.g., primary trail, secondary trail, backcountry destination) within the 2000 Recreational ORV Management Plan and the 2010 Addition GMP.
- Determine which parts of the original preserve are eligible for wilderness designation and if any of those eligible lands should be proposed for designation by Congress.

### **1.4.3 Objectives**

Objectives are specific statements of purpose that describe what must be accomplished for the proposal to be considered a success. The following primary objectives were developed for the Supplemental Draft Plan/EIS:

- Evaluate the suitability of secondary trails and nonmotorized trails in the original preserve.
- Evaluate the potential for additional primary trails in the original preserve, in accordance with the total maximum allowable primary trail mileage set forth in previous planning efforts.
- Evaluate the potential for a primary trail connection between the original preserve and the Addition.
- Ensure visitor safety by creating an ORV trail system that adequately disperses public use during hunting seasons.
- Study all areas determined eligible for wilderness designation to develop a wilderness proposal.
- Establish a permanent route for the FNST in collaboration with the US Forest Service.
- Evaluate and establish guidance to manage backcountry camping, specifically as it relates to motorized use, hiking, and other recreational uses.
- Clarify definitions of key terms related to backcountry use to create more certainty in planning and management efforts.
- With respect to backcountry uses, evaluate and refine indicators and thresholds from previous plans to ensure that monitoring and other commitments are informative, feasible to manage, and financially sustainable.
- Complete NEPA analysis on a range of alternatives for wilderness designation, secondary trails, non-motorized trails, and backcountry recreational uses, including camping.

## **1.5 RELATIONSHIP TO OTHER PLANS, POLICIES, AND ACTIONS**

### **1.5.1 National Park Service Plans, Policies, and Actions**

#### **1.5.1.1 General Management Plan/Environmental Impact Statement (1991)**

The General Management Plan completed in 1991 for the original preserve was mandated by the National Parks and Recreation Act of 1978. This document guides visitor use, natural and cultural resource management, and general development for a period of 10 to 15 years. It provides a clearly defined direction for resource management and preservation, as well as appropriate visitor use and interpretation

of the resources within the original preserve boundaries. This document also articulates the need to manage ORV use within the preserve. The Supplemental Draft Plan/EIS updates portions of the General Management Plan, modifies guidance for visitor use, and changes management of ORV use within the original preserve.

#### **1.5.1.2 Recreational Off-Road Vehicle Management Plan/Environmental Impact Statement (2000)**

ORV use is allowed in the original preserve by the enabling legislation in a manner that is compatible with resource preservation. The ORV Management Plan was called for and directed by the 1991 GMP. It was also prepared to comply with a 1995 settlement agreement negotiated to resolve a lawsuit between a number of individuals and conservation organizations and several agencies and bureaus (*Florida Biodiversity Project v. Kennedy*, No. 95-50-CIV-FTM-24D (M.D. Fla. Oct. 25, 1995)). The ORV plan outlines the management of recreational ORV use in the original preserve. It requires that ORV travel be facilitated by a system of designated access points and trails, that sensitive areas be closed, temporal and seasonal closures be instituted, and that permits and education be required to operate ORVs in the original preserve. Significantly, the ORV plan required the elimination of dispersed ORV use in most units and placed an upper limit of 400 miles on the number of miles of primary trails in the original preserve. The ORV plan also instituted an annual 60-day closure (implemented in June and July) to allow resources a time free from any pressures related to ORV use. The present Supplemental Draft Plan/EIS is rooted in part in the ORV plan, but it also addresses the need to further clarify the preserve's management approach as related to secondary trails, camping, and other backcountry opportunities.

#### **1.5.1.3 Resource Management Plan (2001)**

The original preserve was established “to assure the preservation, conservation, and protection of the natural, scenic, hydrologic, floral and faunal, and recreational values of the Big Cypress Watershed.” The boundary of the preserve was expanded in 1988 to include approximately 147,000 acres of adjacent tracts. The Resource Management Plan, completed in 2001, directs initial planning and resource inventorying for the preserve. Resource conditions in the preserve vary from nearly pristine to areas where natural function no longer exists. The Resource Management Plan outlines issues within the preserve, including natural resources, cultural resources, nonnative plants and wildlife, and the hydrologic environment. The plan emphasizes that conservation, restoration, and preservation must take place on an ecosystem scale. This Supplemental Draft Plan/EIS expands on the goals for preserving natural resources and those management objectives used to obtain the goals identified in the Resource Management Plan. This Supplemental Draft Plan/EIS also expands on and outlines the various issues within the preserve, including natural resources, cultural resources, nonnative plants and wildlife, and the hydrologic environment.

#### **1.5.1.4 Addition Final General Management Plan/Wilderness Study/Off-Road Vehicle Management Plan/ Environmental Impact Statement (2010) (Addition GMP)**

The purpose of the Addition GMP, completed in 2010, is “to provide a comprehensive direction for resource preservation and visitor use and a basic foundation for decision-making for the Addition for the next 15 to 20 years” (NPS 2010). The Addition GMP outlines diverse frontcountry and backcountry recreational opportunities, enhanced day use and interpretive opportunities along road corridors, and enhanced recreational opportunities with new facilities and services. ORV access and riding opportunities are authorized in the Addition GMP and 47,182 acres of wilderness is proposed. While this Supplemental Draft Plan/EIS is rooted in the Addition GMP, it also addresses the need to clarify the preserve's management approach as related to secondary trails, camping, and other backcountry opportunities.

### **1.5.1.5 Hydrologic Restoration Management Plan/Environmental Assessment (in Progress)**

The purpose of the Hydrologic Restoration Management Plan/Environmental Assessment (Hydroplan) is to provide an overall framework for reengineering the water management infrastructure within the preserve to improve the quantity, timing, and distribution of water throughout the preserve's watershed, including discharge into downstream environments. Projects in the plan would repair and modify the preserve's aged water management infrastructure system to facilitate hydrologic restoration. Hydrologic restoration would enhance the interrelationship between surface and groundwater, maintain the hydrologic integrity of natural firebreaks such as domes, strands, and marshes (especially during the spring when the swamp ecosystem is most vulnerable to large wildfires), and reduce the severity and duration of ecosystem-damaging drought, flooding, and wildfire. The plan was released for public review and comment in November 2021.

## **1.6 ISSUES TO BE ADRESSED AND IMPACT TOPICS RETAINED FOR ANALYSIS**

Implementation of the Supplemental Draft Plan/EIS may result in several environmental issues. The differences in the impacts associated with the various issues are analyzed in this document. NPS guidance states that analysis in an environmental impact statement should focus on significant issues (meaning pivotal issues, or issues of critical importance) and only discuss insignificant issues briefly (40 *Code of Federal Regulations* [CFR] 1502.2(b)).

The following issues were identified by the NPS interdisciplinary team, during public scoping for the overall planning effort, and through public comment on the 2015 wilderness eligibility assessment:

- The opening of motorized trails could degrade animal habitat.
- Changes in use patterns could adversely affect threatened and endangered species.
- Motorized use in habitats with unsuitable soils could lead to erosion, rutting, and other harmful impacts on the landscape.
- Cultural resources could be impacted by an expansion in visitor use.
- Factors such as visitor convenience and high-quality visitor experiences should be a key consideration in any management strategies considered for the preserve backcountry.
- The designation of wilderness could make access to the preserve backcountry areas more challenging but could also offer opportunities for improved visitor experiences and resource conditions.
- Based on the environmental issues described above, impact topics were identified. Appendix B outlines impact topics both retained for and dismissed from detailed analysis.

# Chapter 2

## Alternatives



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## CHAPTER 2: ALTERNATIVES

### 2.1 INTRODUCTION AND DEFINITIONS

This section describes the range of alternatives, consisting of a no-action alternative and two action alternatives, one of which, alternative 3, is the proposed action and the preferred alternative. The preferred alternative is the NPS management preference. For brevity in this chapter, the phrases “expansion of the trail system” and “additions to the trail system” are used frequently. In the case of ORVs, the words “expansion” and “addition” do not refer to new trail or new trailhead construction. All ORV trails proposed in these alternatives follow previously used trails on already disturbed ground. Opening and maintaining these trails is not an activity expected to involve significant ground disturbance, but generally would entail (1) clearing the route of hazards such as fallen trees, (2) clearly marking the route and destination, (3) stabilizing sections of reopened primary trail, (4) trimming vegetation, and (5) monitoring and treating invasive plant species. In contrast, many of the hiking trails in the preferred alternative are new trails.

Appendix C presents a comparison of the alternatives. Key terms relevant to all alternatives are defined below.

**Backcountry:** Backcountry comprises the parts of the preserve that have not been intensively developed for large-scale visitor or administrative use. It is the opposite of frontcountry, where these large-scale visitor and administrative uses occur. Backcountry excludes visitor-use facilities along the Tamiami Trail and Interstate-75 corridors, the Bear Island Campground, the preserve welcome center, as well as the preserve headquarters, maintenance facility, and related administrative structures. Many frontcountry areas provide access to backcountry destinations.

**Primary ORV trail:** Primary ORV trails are those trails emanating from the designated access points and providing recreational access within the preserve. These trails are the principal ORV routes. Primary trails are actively maintained with heavy equipment, as necessary, and stabilization measures, including fill, are implemented where necessary to ensure visitor safety and to protect resources.

**Secondary ORV trail:** A secondary ORV trail branches off a primary trail and leads to one or more backcountry destinations. Secondary trails are out-and-back trails. They do not connect one trail with another, and they are not laid out as loop trails or form any part of a loop trail. Conditions on secondary trails are monitored and use levels are managed to minimize impacts to resources. NPS maintenance actions would generally be limited to removal of obstacles (such as downed trees and branches), hand and mechanical trimming of vegetation obstructing the trail corridor, treatment of invasive plant species, and sign installation.

**Backcountry destination:** A backcountry destination is a specific campsite or geographic point of interest in the backcountry of the preserve. A *campsite* is a specific point that provides features desirable for camping such as shade and high, dry ground. A *geographic point of interest* is a location that attracts—or could be anticipated to attract—a broad spectrum of visitors, such as a scenic vista, a viewing area for wildlife, a place with distinctive flora, a lake, or a feature of cultural or historic interest. Some destinations may feature both campsites and geographic points of interest.

### 2.2 HOW THE ALTERNATIVES WERE DEVELOPED

In accordance with NEPA, the National Park Service is required to examine a range of alternatives when preparing an environmental impact statement. Alternatives developed for analysis are those alternatives

that meet the purpose and need for action and are technically and economically feasible (43 CFR 46.420(b)).

In preparing this Supplemental Draft Plan/EIS, the National Park Service altered its methodology for including motorized trails and trail destinations in plan alternatives. In the earlier Draft Plan, the National Park Service relied on a suitable-substrate analysis to develop a range of alternative layouts for motorized trails. This analysis worked on the assumption that substrate resiliency corresponds to vegetation types/habitat communities, with some vegetation types/habitat communities having more resilient substrates than others. Applying this assumption to digitized vegetation and trail data, the National Park Service developed four alternative trail systems ranging in size from relatively small, on highly resilient and resilient substrates, to quite large, extending to areas of least resilient to unsuitable substrates.

Upon further consideration, the National Park Service has concluded that the analytical methodology outlined above, used in isolation, is not adequate to yield a sustainable trail system, i.e., one that can be maintained over time and that avoids unacceptable impacts and possible impairment of preserve resources. See NPS *Management Policies* 2006 Section 1.4.7. In particular, vegetation categories are too broad, on their own, to allow definitive conclusions regarding substrate suitability, because some of the preserve's predominant vegetation communities/habitat types can occur on substrates of varying resiliency. Therefore, knowing the broad vegetation community through which a trail passes is often not enough to determine the resilience of the underlying substrate. More information is needed.

Furthermore, the vegetation data used in preparing the original Draft Plan has been superseded by new, more detailed data collected by the NPS Inventory and Monitoring program (Ruiz 2019, Prats et al. 2020). These new data yield more accurate information about the location of vegetative communities and the substrates typically associated with them.

Accordingly, when evaluating trails and destinations for this Supplemental Draft Plan/EIS, the National Park Service used the latest remotely sensed vegetation data to categorize habitat types and identify the likely substrates underlying routes and destinations. See table 3-1 below. In addition, the National Park Service chose to supplement the remotely sensed data with a new, on-the-ground assessment of all primary and secondary ORV trails included in the preferred alternative (alternative 5) of the Draft Plan. This in-person assessment was particularly important because it revealed that the number of sustainable ORV trails and destinations is far smaller than previously thought, as discussed below.

For the in-person assessment, all previously proposed trails were traveled by foot, swamp buggy, or utility terrain vehicle and the true route established to an accuracy of +/- 16 feet using global positioning software (GPS). Preserve personnel and volunteers assessed the substrate suitability of the actual trail track rather than the general area through which it passed. In so doing, they observed that in areas of deep soils, ORV trails typically stayed close to areas where caprock was close to or on the soil surface. Because they follow caprock, such trail segments would be considered suitable even though a trail sited just a few yards away, in the same soil type, might run through an area of deep soils and be considered unsuitable.

After all trails were surveyed and the provisionally suitable trails identified, preserve staff used Google Earth and its historic photography to assess the previous disturbance caused by ORV use of each of the trails still under consideration. This involved going back in time to examine the trails during those periods when they were being used and those periods when they were closed. This review allowed preserve staff to determine the amount of braiding that could be expected along a given route, and, to a lesser extent, the amount of likely rutting. Routes were also compared against digital elevation modeling data to identify trail segments that had experienced braiding and deep rutting in the past. Provisional trail routes expected to cause unacceptable resource impacts due to braiding and rutting were excluded from the action alternatives presented in this Supplemental Draft Plan/EIS.

The following additional factors were considered when deciding whether to include an ORV route in the action alternatives:

- **Distance to endangered red-cockaded woodpecker clusters.** In all but two cases, trails were ended before entering a red-cockaded woodpecker cavity cluster. This avoids any new human activity in a nesting area and should reduce or eliminate adverse effects on the woodpeckers. One exception occurs on a trail that is currently being used by a landowner for access to private property. Access by the landowner will continue to cause some disturbance to a cluster; extending the secondary trail and destination past the cluster boundary will add only minor additional adverse effects to that red-cockaded woodpecker group. The other exception involves a trail that passes just outside a cluster but in discrete sites is within 200 feet of individual trees and in another location is less than 100 feet from an active tree. Use of this trail will cause minor adverse effects to the cluster.
- **Impacts to other special-status species (flora and fauna).** Unlike the red-cockaded woodpeckers, which have relatively permanent nesting/roosting clusters, most other listed fauna are somewhat cryptic and more difficult to find. Available information was used in assessing the suitability of trail routes.
- **Cultural resources.** Over time, NPS staff have developed detailed knowledge about the types of preserve environments likely to hold cultural resources of value to associated tribes and others. The planning team decided to exclude all trail routes that pass through these environments.
- **Florida Trail.** As suggested by commenters during the previous public comment period, secondary trails were excluded if they crossed the Florida Trail.
- **Private camps.** Again, in response to public comments, every effort was made to exclude any secondary trail that passes within 1,000 feet of a private landowner's camp.

The motorized trails carried forward in this Supplemental Draft Plan/EIS are those that provide access for public recreation while ensuring long-term protection of preserve resources. About 85–90% of the trails in each action alternative crosses resilient to highly resilient substrates. The remaining 10–15% cross less resilient substrates where such crossings cannot be avoided. Unsuitable substrates, such as most prairies, are avoided entirely for secondary trails and, if included for a primary trail, are proposed for stabilization.

Confining the motorized trail system to mostly highly resilient and resilient substrates reduces motorized trail mileage by about 112 miles from what was proposed in the Draft Plan (alternative 5, the NPS's former preferred alternative). While this is a large reduction, it must be emphasized that all of the trails dropped from further consideration were eliminated because they cross large areas of least-resilient to unsuitable substrates. For each of these trails, the adaptive management provisions in the Draft Plan ultimately would have prevented these trails from being reopened to the public because of unsuitable substrates (see table 2-6). <sup>1</sup> Under the approach taken in this Supplemental Draft Plan/EIS, the planning team has ground-truthed all ORV trails in advance to identify those that can be opened and sustained over the long term.

As noted above, this Supplemental Draft Plan/EIS includes a no-action alternative and two action alternatives, specifically, alternatives 2 and 3. The new alternative 2 revises the original alternative 2 by reducing ORV trail mileage and the number of available destinations. These revisions are based on the updated vegetation data and in-person fieldwork described above. Alternative 3 is an entirely new alternative.

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<sup>1</sup> Table 2-6 has been revised to clarify that not reopening a trail is among the adaptive management actions available to the preserve management team.

During ground-truthing of the ORV trails, the preserve's resource management staff identified a number of new possibilities for nonmotorized trails. These new trails are included in the new alternative 3.

Each of the action alternatives has been expanded to include a wilderness proposal as part of the wilderness study component of this Supplemental Draft Plan/EIS. Alternative 2 proposes that 190,528 acres in the original preserve be designated as wilderness, while alternative 3 proposes designation for 147,910 acres.

## 2.2.1 Alternatives Considered but Dismissed from Detailed Analysis

While developing alternatives, it became evident that certain alternative concepts or strategies were not appropriate to analyze fully in this Supplemental Draft Plan/EIS. The NPS Director's Order 12 Handbook gives the following reasons for eliminating alternatives:

- Technical or economic infeasibility
- Inability to meet project objectives or resolve need
- Duplication with other, less environmentally damaging or less expensive alternatives
- Conflict with an up-to-date and valid park plan, statement of purpose and significance, or other policy, such that a major change in the plan or policy would need to be implemented
- Too great an environmental impact

Table 2-1 provides a brief description of alternative strategies that were considered but dismissed from detailed analysis, along with the applicable Director's Order 12 criteria and rationale.

**Table 2-1. Alternatives and Concepts Considered but Dismissed**

Description of Alternative or Action	Applicable Director's Order 12 Criteria	Rationale for Dismissal
Dispersed ORV use in certain areas	Conflicts with an up-to-date and valid plan (1991 GMP, 2000 Recreational ORV Management Plan, 2010 Addition GMP)	Dispersed ORV use, even in small areas, conflicts with the preserve's purpose and significance, existing management plans, and recent court rulings.
Looping Secondary Trails	Inability to meet project objectives or resolve need	Looping secondary trails do not meet the definition of secondary trails, and therefore do not fit with the project purpose and need.
Connecting trails from private camp to private camp	Too great an environmental impact	Trails designated for the sole purpose of connecting one private camp to another would require a larger footprint of disturbance and would serve specific landowners rather than the public as a whole.
Smaller trail system (from what exists at present) to eliminate all trail segments on unsuitable substrates	Inability to meet project objectives or resolve need	As part of this planning process, all current, closed, and proposed primary and secondary ORV trails were reevaluated to identify workable alternatives for a trail system that would meet the project purpose and need. The planning team considered a reduction in trail mileage from the current system of primary trails, but ultimately determined that an alternative incorporating reduced trail mileage would not support the project purpose and need. To the contrary, to achieve desired levels of safety, especially during high-use periods (e.g., the beginning of hunting season), additions to the current trails system are necessary. Furthermore, a reduction in size of the trail system would not meet the preserve's administrative needs and recreational objectives.

Description of Alternative or Action	Applicable Director's Order 12 Criteria	Rationale for Dismissal
Retain existing trail system (i.e., no new trails)	Inability to meet project objectives or resolve need	As noted above, to achieve desired levels of safety, especially during high-use periods (e.g., the beginning of hunting season), additions to the current trails system are necessary.
Alternatives 3, 4, and 5 from the Draft Plan.	Too great an environmental impact	Ground-truthing has revealed that many of the trail segments in these alternatives cross unsuitable/unsustainable substrates that would lead to unacceptable impacts if these segments were reopened.

## 2.3 ELEMENTS COMMON TO ALL ACTION ALTERNATIVES

While the action alternatives represent unique approaches to managing the preserve, there are many strategies that do not vary among the action alternatives. These strategies are considered “common to all” of the action alternatives and ultimately serve to protect the resources and values of the preserve. They are considered practical approaches to preserve management and are grounded in NPS policy, mandates, and previously approved management plans. These strategies are as follows:

- Segments of the FNST would be rerouted to a previously used trail and would separate motorized and nonmotorized users and thereby improve the hiking experience in the preserve. The new alignment for the trail would have little overlap with motorized trails. The total mileage of the realigned trail is 44 miles.
- The recent closure and reroute of a portion of the North Raccoon Point Trail would be made permanent.
- All ORVs would be required to abide by rules governing vehicle specifications and operation, designated trails, and permitting and licensing requirements.
- ORV users violating regulations would be subject to punishment, including fines and/or imprisonment.
- All backcountry overnight campers (including ORV users, hikers, campers, and boaters) would be required to obtain a backcountry permit for each trip, which is free and available online, from preserve staff, or at designated locations throughout the preserve.
- Temporal and spatial closures would be implemented as deemed necessary for visitor safety and protection of preserve resources. If a trail is closed for any reason, the preserve would not necessarily open a new trail of similar character to bring the system mileage back to levels described in this environmental impact statement. Any new trails would be evaluated on a case-by-case basis through separate compliance efforts.
- Education of and communication to all visitors, including ORV operators and hikers, would be ongoing and adaptable to changing management strategies.
- Leave No Trace and Tread Lightly educational materials would be provided to visitors as they obtain backcountry or camping permits.
- The preserve would develop a signage plan to improve trail markings and way finding.
- No changes to the existing canoe trails in the Western Addition and Stairsteps Unit Zone 1 are proposed. As a result, canoe trail mileage (15 miles) is common to all alternatives and is not included in the nonmotorized trail mileage.
- No changes to the existing conceptual primary trail network in the Northeast and Western Additions are proposed in any of the alternatives.

- Bicycles <sup>2</sup> and e-bikes would be allowed on primary and secondary ORV trails, to the extent authorized by the superintendent's compendium. Trail routes are shown in figures 2-1, 2-2, and 2-3 below. Because primary and secondary trails surfaces (composed of natural soils and soils stabilized with lime-rock) can sustain use by heavy ORVs, they can also sustain use by bicycles and e-bikes. Soil conditions are suitable for the same reason (see section 2.2 above). All maintenance, minor rehabilitation, or armoring necessary to maintain primary trails in a sustainable condition for ORV use would likewise be adequate to sustain use by bicycles and e-bikes. Lifecycle maintenance costs for bicycle and e-bike use would be subsumed in the costs for maintaining trails for ORV use. See section 2.10. Because of the difficult and often wet nature of the terrain, it is expected that bicycle and e-bike use would be confined principally to primary trails, with minimal environmental impacts as compared to ORVs. Mitigation measures are discussed in section 2.9; impacts to resources are analyzed in chapter 4. Because most users of the ORV trail system are in wheeled vehicles and traveling at slow speeds, safety issues and visitor conflicts involving bicycles and e-bikes are expected to be minimal.

## 2.4 ALTERNATIVE 1: NO ACTION

The no-action alternative (figure 2-1) represents the continuation of current management practices related to backcountry recreational access in the preserve. In the original preserve, the primary guiding management policies for backcountry recreational access were established in the General Management Plan/Final Environmental Impact Statement (1991) and the Final Recreational ORV Management Plan/Supplemental Environmental Impact Statement (2000). The policies in these documents, accompanying NPS policy documents (such as *NPS Management Policies 2006*), and any superseding policies enacted since approval of these documents, would continue to serve as management guidance.

Under this alternative, ORV trails would continue along existing primary trails and no new primary or secondary ORV trails would be opened. (Note: A portion of the North Raccoon Point Trail was recently closed temporarily and rerouted. Under all alternatives, this temporary closure and reroute would be made permanent.) Accordingly, existing ORV backcountry recreation access opportunities would continue. ORV and non-ORV user groups would share the same trail network. Dispersed camping would continue to be permitted in most of the preserve, with free backcountry camping permits required. Designated backcountry campgrounds would be limited to the two current backcountry campgrounds in the Bear Island Unit. Additional backcountry camping opportunities would be available at the 25 existing backcountry campsites located along the FNST and the Loop Unit Trail and in Zone 4 of the Stairsteps Unit. No additional designated backcountry camping sites would be provided (table 2-2).

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<sup>2</sup> Both action alternatives must comply with 36 CFR § 4.30 (the "Bicycle Rule"), which contains regulations governing bicycle use in units of the national park system. In 1987 and 2012, the National Park Service promulgated regulations establishing a management framework for the use of bicycles in park areas. See 77 Fed. Reg. 39927 (2012). The National Park Service acknowledges that the use of bicycles on ORV trails in the preserve has not been authorized in accordance with the Bicycle Rule, and continuation of the use described in the no-action alternative without complying with the Bicycle Rule is not legally tenable in the long term. Before the superintendent can authorize the use of bicycles, the National Park Service must prepare a planning document that evaluates the effects of bicycle use on the specific trails where bicycles would be allowed. The planning document must evaluate the suitability of trail surfaces and soil conditions for accommodating bicycle use, including any maintenance, minor rehabilitation, or armoring that would be necessary to upgrade the trail to a sustainable condition. Lifecycle maintenance costs, safety considerations, strategies to prevent or minimize user conflict, and methods to protect natural and cultural resources and mitigate impacts also must be analyzed. At the end of the planning process, the superintendent must complete a written determination stating that the addition of bicycle use on the trails is consistent with the protection of the park area's natural, scenic, and aesthetic values; safety considerations; and management objectives and would not disturb wildlife or park resources. The superintendent must obtain written approval from the NPS regional director of such determination.

**Big Cypress National Preserve**  
Alternative 1, No Action

National Park Service  
Department of the Interior

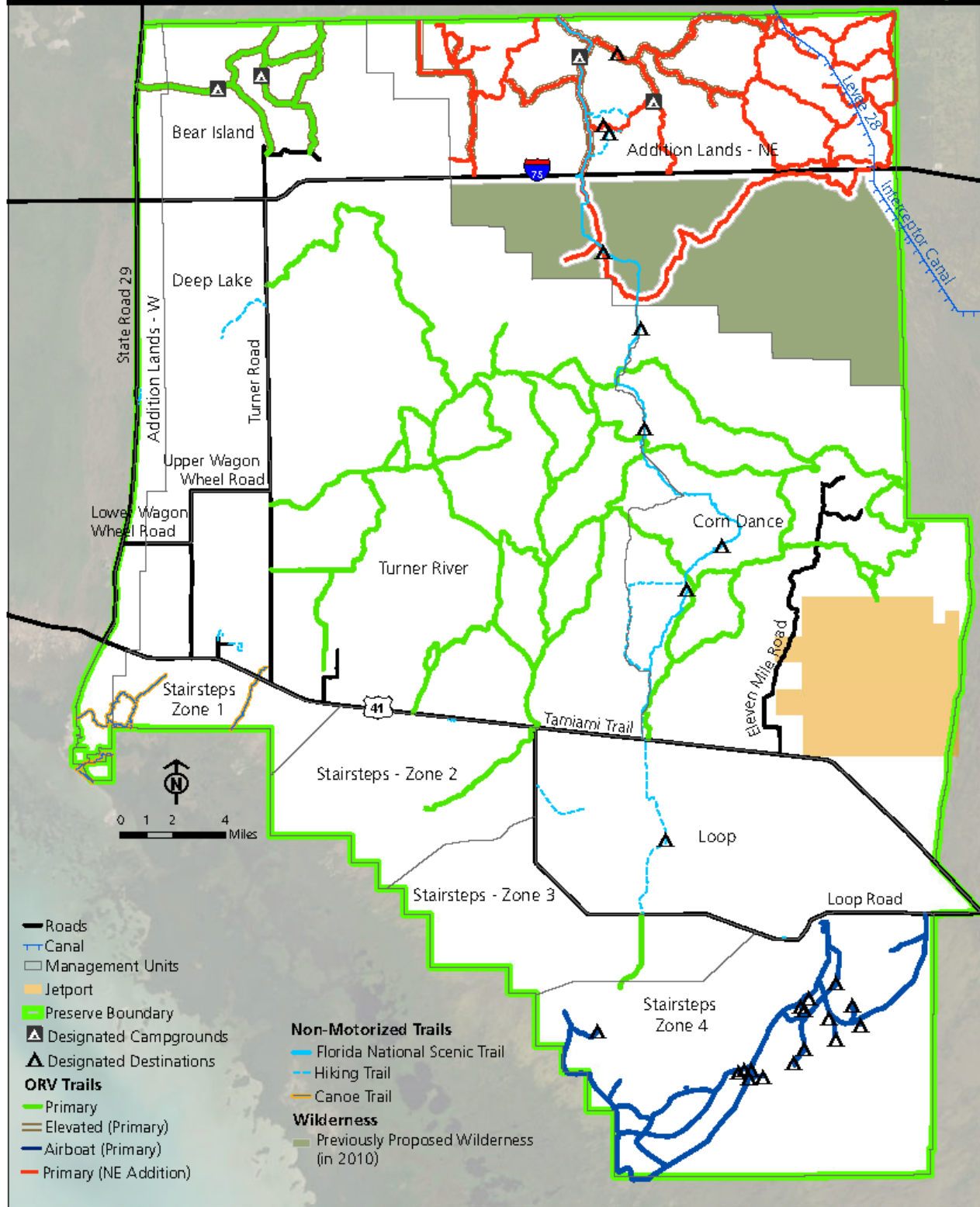


FIGURE 2-1. NO-ACTION ALTERNATIVE

### 2.4.1 ORV Trails

Of the 278 currently existing miles of primary ORV trails, 124 miles are in the Turner River Unit, 21 miles in the Bear Island Unit, 65 miles in the Corn Dance Unit, 6 miles in Stairsteps Unit Zone 2, 3 miles in Stairsteps Unit Zone 3, 57 miles in Stairsteps Unit Zone 4, and 1 mile in the Western Addition (table 2-2). The 278 miles of existing primary trail comprise 221 miles of earthen/dirt trails and 57 miles of airboat (water) trails. This primary ORV trail system would remain unchanged and no secondary ORV trails would be opened.

Approximately 238 miles of the primary ORV trails (including all 57 miles of airboat trail) traverse highly resilient to resilient substrate; approximately 40 miles traverse least resilient to unsuitable substrates (see table 3-1 (Substrate Suitability) and table 4-1 (Summary of Soil Substrate Suitability of Trails and Destinations). Airboat trails are deemed to traverse highly resilient to resilient substrate because they are water trails and are open only when water levels reach gauge heights prescribed by the preserve (see section 3.6.7 (Motorboat Use) below). Under alternative 1, primary trails would continue to serve as multiuse trails, allowing a variety of user groups (ORV and non-ORV) to share trail use. Bicycles and e-bikes would continue to be allowed on nonairboat primary trails.

**Table 2-2. Alternative 1 Summary**

Unit	Primary ORV Trail (miles)	Secondary ORV Trail (miles)	Backcountry Campgrounds (number of)	Backcountry Campsites/ Destinations (number of)
Turner River	124	—	—	—
Bear Island	21	—	2	—
Deep Lake	—	—	—	—
Loop	—	—	—	1
Corn Dance	65	—	—	4
Stairsteps Zone 1	—	—	—	—
Stairsteps Zone 2	6	—	—	—
Stairsteps Zone 3	3	—	—	—
Stairsteps Zone 4	58	—	—	16
Original preserve subtotal	277	—	2	21
Northeast Addition	—	—	2*	4
Western Addition	1	—	—	—
Addition subtotal	1	—	—	4
TOTAL	278	0	4	25

\* Proposed in the Addition GMP (NPS 2010). Not yet fully developed.

### 2.4.2 Nonmotorized Trails

There would be no changes to the current system of nonmotorized trails in the preserve, which comprises 63 miles of hiking trails and 15 miles of canoe trails. The hiking trail system includes the 36-mile FNST and 27 miles of other trails. Under this alternative, the FNST would remain in its current alignment. No reroute of the FNST would occur; therefore, sections of the FNST would continue to be closely aligned with the primary ORV trail network.



### **2.4.3 Camping**

Dispersed backcountry camping via foot or nonmotorized vessel would continue to be permitted in most of the preserve, except the Bear Island Unit. In Zone 4 of the Stairsteps Unit, airboat users would continue to be required to camp at existing designated campsites. Additionally, there would continue to be no group size limits for dispersed camping. The two backcountry campgrounds in the Bear Island Unit, the nine hike-in campsites along the FNST and Loop Unit Trail, and the 16 airboat campsites in the Stairsteps Unit would continue to be open (unless closed for resource protection reasons.) All backcountry camping would continue to require a permit.

### **2.4.4 Stay Limits**

This alternative would retain the current backcountry stay limits of 10 consecutive days (January 1 through April 30) and 14 consecutive days (May 1 through December 31). The backcountry camping annual limit would remain at the maximum number of days per year specified in the superintendent's compendium. Camping equipment could be left at backcountry campsites for the duration of the hunting season.

### **2.4.5 ORV Permitting**

The existing permitting system for ORVs would remain unchanged. Up to 2,000 permits per year would be available for ORV use in the original preserve. For the Addition, a 650 permit per year limit would be phased in over time.

### **2.4.6 Street-Legal Vehicles**

Street legal vehicles would continue to be allowed on existing primary ORV trails (above grade) in the Bear Island Unit.

### **2.4.7 Closures and Adaptive Strategies**

The current annual 60-day ORV closure would remain in place. The annual 60-day closure is intended to allow resources time to recover from any pressures related to recreational ORV use (this does not apply to landowners who hold special use permits to access their private properties via a designated route through the preserve).

The preserve is closed to ORV use between the hours of 10:00 p.m. and 5:00 a.m. to ensure resource protection, visitor safety, and visitor comfort. The nightly closure minimizes disturbance to foraging wildlife, including the endangered Florida Panther and the Florida bonneted bat, and reduces disturbance to roosting birds, such as the endangered red-cockaded woodpecker. The closure reduces the possibility of illegal night-time hunting and of ORV users getting lost by accidentally getting off the designated trail system. It also minimizes campground noise from returning and departing ORVs.

The foregoing seasonal and nightly closures were a part of the 2000 Recreational ORV Management Plan and have been used by the National Park Service in the original preserve since that time. The temporal and spatial closures minimize impacts on wildlife by reducing the potential for direct mortality, increased legal harvest, disturbance, and habitat loss.

Contractors for the Florida Fish and Wildlife Conservation Commission (FWC) and the South Florida Water Management District (SFWMD), together with NPS-authorized agents (volunteers), would continue to remove nonnative pythons from the preserve.

#### **2.4.8 Wilderness**

No part of the preserve would be proposed for wilderness designation under this alternative. However, as required by NPS *Management Policies 2006*, all lands in the original preserve and Addition that have been found eligible for designation would be managed to preserve their wilderness character until such time as Congress makes a determination regarding wilderness at the preserve.

### **2.5 ALTERNATIVE 2**

Alternative 2 offers visitors slightly increased access compared to the no-action alternative. It also proposes that Congress confer wilderness designation on 190,528 acres in the original preserve and Western Addition (figure 2-2).

#### **2.5.1 ORV Trails**

The primary ORV trail system would be the same as that in the no-action alternative. A 15-mile designated ORV secondary trail system would be established, of which over 94% of trails would traverse highly resilient to resilient substrate types (see table 3-1, Substrate Suitability). Allowing trails in these resilient substrate types would limit the number of habitat types visitors could experience by ORV but would ensure a more sustainable trail system and thus better conditions for ORV travel (table 2-3).

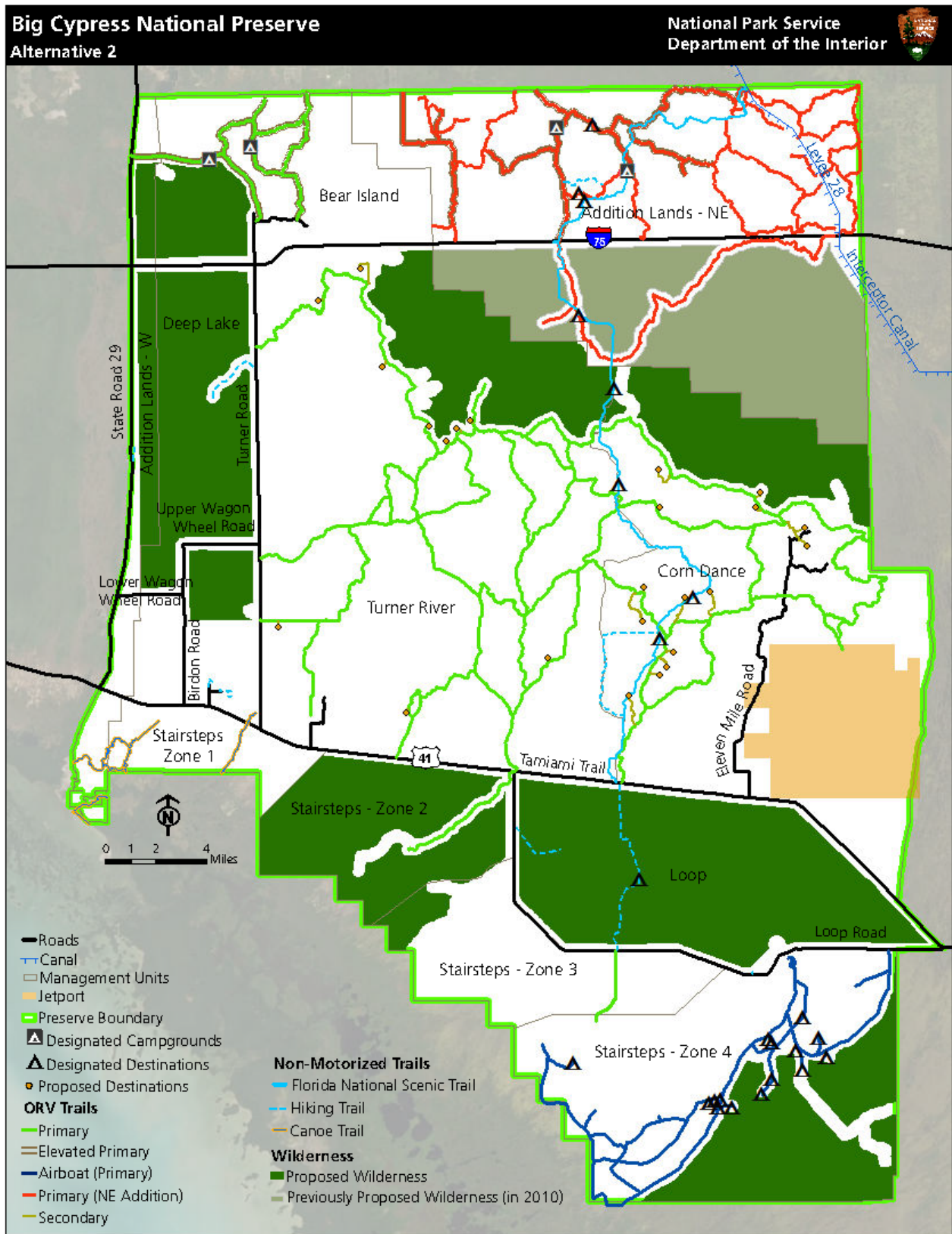


FIGURE 2-2. ALTERNATIVE 2

**Table 2-3. Alternative 2 Summary**

Unit	Primary ORV Trail (miles)	Secondary ORV Trail (miles)	Backcountry Campgrounds (number of)	Backcountry Campgrounds (number of)	Backcountry Campsites/ Destinations (number of)	Backcountry Campsites/ Destinations (number of)
	Designated	Proposed	Designated	Proposed	Designated	Proposed
—	Designated	Proposed	Designated	Proposed	Designated	Proposed
Turner River	124	3.0	—	—	—	10
Bear Island	21	0	2	—	—	—
Deep Lake	—	0	—	—	—	—
Loop	—	0	—	—	1	—
Corn Dance	65	12	—	—	4	14
Stairsteps Zone 1	—	0	—	—	—	—
Stairsteps Zone 2	6	0	—	—	—	—
Stairsteps Zone 3	3	0	—	—	—	—
Stairsteps Zone 4	58	0	—	—	15	—
Original preserve subtotal	277	15	2	0	20	24
Northeast Addition	—	—	—	2*	4	—
Western Addition	1	—	—	—	—	—
Addition subtotal	1	—	—	2	4	—
TOTAL	278	15	2	2	24	24

\* Proposed in the Addition GMP (NPS 2010).

### 2.5.2 Nonmotorized Trails

The FNST would be realigned to a previously used trail and thus would improve the backcountry experience of hikers by separating ORV and hiking use. The realignment would increase the total number of miles of the FNST to 44. All other hiking/canoeing opportunities would be the same as in the no-action alternative, i.e., 27 miles of hiking trail and 15 miles of canoe trails.

### 2.5.3 Camping

Under this alternative all dispersed camping would be discontinued. Camping would continue to be available at the two existing backcountry campgrounds in the Bear Island Unit, at two primitive group camping areas along the FNST, and at 24 existing backcountry campsites across the preserve, specifically, at 9 hike-in campsites along the FNST and Loop Unit Trail, and at 15 airboat campsites in Stairsteps Unit Zone 4. (Note: one of the existing campsites in the Stairsteps Unit would be closed to protect resources.) Additional camping opportunities would be provided at 24 newly designated destinations at the ends of secondary trails. The new camping destination opportunities would avoid sensitive resources, including but not limited to rare and protected plants, wetlands, special status species habitat, and ethnographic and archeological resources.

Visitors would be required to reserve a campsite at destinations, designated backcountry campsites, and backcountry campgrounds through a new online or in-person reservation system. The details of the reservation system would be developed separately from this planning effort, with input from the public.

Limitations on group size would be established.

#### **2.5.4 Stay Limits**

Stay limits would be established to help increase the campsite turnover rate and provide opportunities for enjoyment by a greater number of visitors. Camping or occupancy of a designated backcountry campsite or backcountry campground would be limited to 14 consecutive days. This stay limit would also apply to camping and hunting equipment. Backcountry camping in the preserve by the same person, party, or organization would be limited to no more than 14 days in a 30-day period, and no more than 120 days in a calendar year. (Bear Island Campground is not considered a backcountry campground.)

#### **2.5.5 ORV Permitting**

The existing permitting system for ORVs would remain unchanged. Up to 2,000 permits per year would be available for ORV use in the original preserve. For the Addition, a 650 permit per year limit would be phased in over time.

#### **2.5.6 Street-Legal Vehicles**

Street legal vehicles would continue to be allowed on above-grade primary ORV trails in the Bear Island Unit but would be prohibited on at-grade primary trails and all secondary trails. Street-legal vehicles would be subject to the same ORV permitting system described in section 2.5.5 above.

#### **2.5.7 Closures and Adaptive Strategies**

The current annual 60-day closure would remain in place. The preserve would remain closed to ORV use between the hours of 10:00 p.m. and 5:00 a.m. to ensure visitor safety and protect resources.

Adaptive strategies would be the same as in alternative 1.

#### **2.5.8 Wilderness**

Approximately 190,528 acres of land (32% of the original preserve and adjoining Western Addition) would be proposed under alternative 2. (See discussion of the wilderness alternative development process at section 2.13 below.)

### **2.6 ALTERNATIVE 3 (PROPOSED ACTION/PREFERRED ALTERNATIVE)**

Alternative 3 offers visitors more motorized and nonmotorized trails and more backcountry destinations compared to alternative 2 (figure 2-3). It would connect the original preserve and the Addition via two primary trails and create a new ORV permitting system that treats the preserve as a single unit. The area of proposed wilderness (147,910 acres) would be smaller than in alternative 2.

#### **2.6.1 ORV Trails**

Alternative 3 would add around 54 miles of primary trail to the existing system, bringing the total mileage of primary trails in the preserve to 332 miles. In addition, alternative 3 would designate a system of secondary ORV trails encompassing 52 total miles.

All new primary trails would be reopened along preexisting routes. About 39 miles of the 54 miles of new primary trail would consist of airboat trails in Stairsteps Unit Zones 3 and 4. Of the remaining 15 miles of new primary trail, about 10 miles would connect Bear Island with the Northeast Addition and 3 miles would connect the original preserve (Mullet Slough area) with the Northeast Addition to the north.

Most of the 332 miles of primary ORV trail in alternative 3 (including all 96 miles of airboat trail) would traverse highly resilient to resilient substrate types.<sup>3</sup> See table 3-1 (Substrate Suitability) and table 4-1 (Summary of Soil Substrate Suitability of Trails and Destinations). Specifically, approximately 288 miles (87% of the total) would traverse highly resilient to resilient substrate, with the remaining 44 miles traversing least resilient to unsuitable substrates. Of the 54 miles of proposed new primary trail, over 50 miles (93%) would be located in highly resilient to resilient substrate and about 4 miles in least resilient to unsuitable substrate, requiring stabilization. All primary trails would continue to serve as multiuse trails, allowing a variety of user groups (ORV and non-ORV) to share trail use. Bicycles and e-bikes would continue to be allowed on nonairboat primary trails.

This system of secondary trails would include all preexisting trails that primarily traverse resilient to highly resilient substrate types (table 2-4). Of the 52 miles in the secondary trail system, about 47 miles (90%) would be located in areas of highly resilient to resilient substrate and about five miles would be located in areas of least resilient to unsuitable substrate.

The proposed increase in primary trail mileage is part of continued implementation of the 2000 Recreational ORV Management Plan, which calls for up to 400 miles of primary trails. The additional 54 miles of primary trail would be located in the Bear Island Unit (10 miles), the Corn Dance Unit and Northeast Addition (3 miles), the Corn Dance Unit east of Raccoon Point (1 mile), the Turner River Unit (1 mile), and in Stairsteps Unit Zones 3 and 4 (39 miles).

This alternative amends the 2010 Addition GMP by relocating the ORV connecting route between Bear Island Grade (original preserve) and Bundschu Grade (Northeast Addition). The Addition GMP connected the original preserve to the Addition at a point near the north end of Bundschu Grade. Alternative 3 moves the connecting point farther south, to a point near the southern end of Bundschu Grade (see map of alternative 3). The southern route crosses pineland habitat and avoids prairies.

This alternative calls for public ORV access to the northwestern part of the preserve from State Road 29. Note, however, that access will only be made available after the National Park Service has secured legal access to the ORV trail system from the highway. Note also that safety issues (entering, leaving the highway) must be addressed before ORV access can be established at State Road 29.

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<sup>3</sup> Airboat trails are deemed to traverse highly resilient to resilient substrate because they are only open when water levels exceed gauge heights prescribed by the preserve. See section 3.6.7 (Motorboat Use).

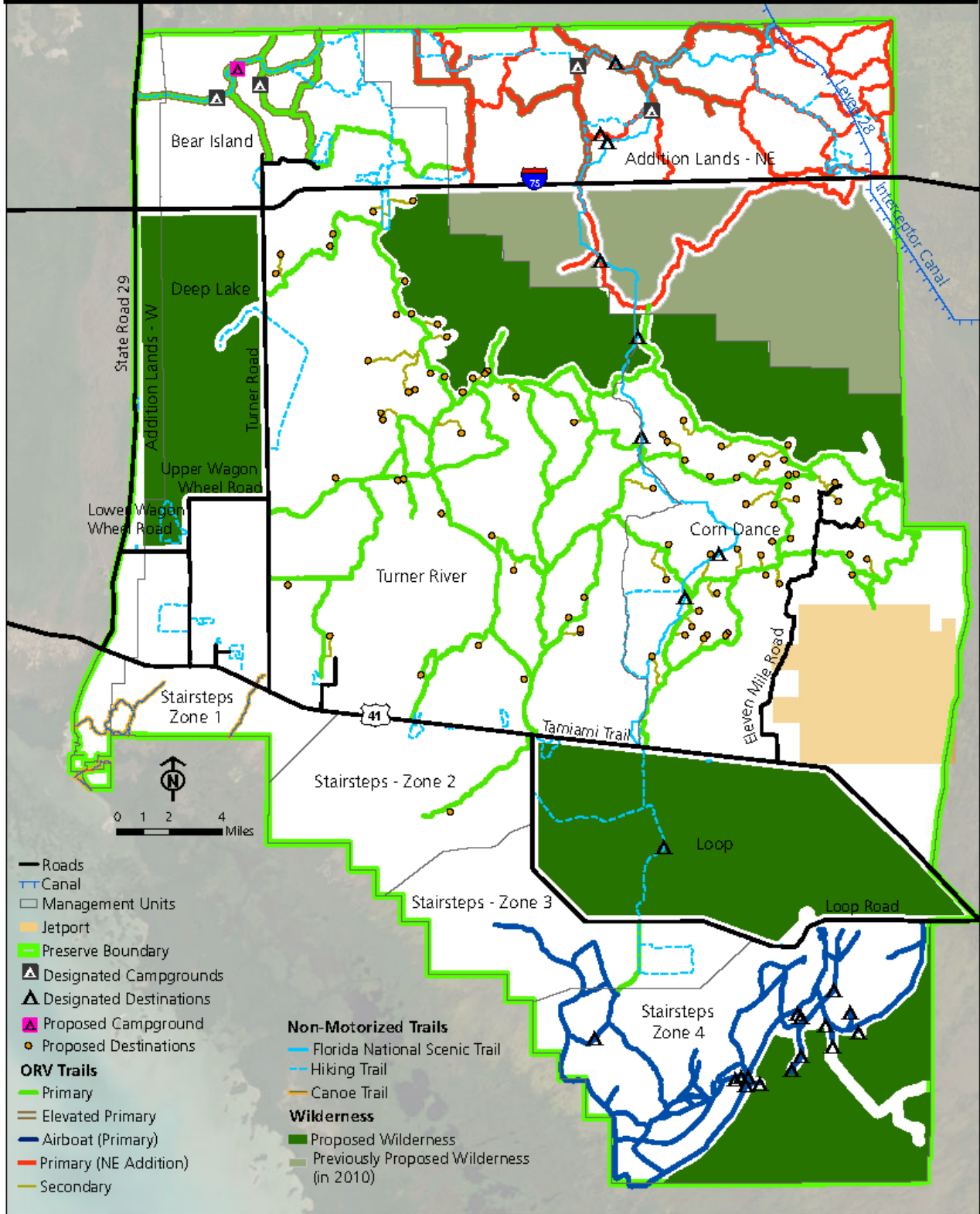


FIGURE 2-3. ALTERNATIVE 3



**Table 2-4. Alternative 3 Summary**

Unit	Primary ORV Trail (miles)	Primary ORV Trail (miles)	Secondary ORV Trail (miles)	Backcountry Campgrounds (number of)	Backcountry Campgrounds (number of)	Backcountry Campsites/ Destinations (number of)	Backcountry Campsites/ Destinations (number of)
—	Designated	Proposed	Proposed	Designated	Proposed	Designated	Proposed
Turner River	124	1	25	—	—	—	41
Bear Island	21	10	—	2	1	—	—
Deep Lake	—	—	—	—	—	—	—
Loop	—	—	—	—	—	1	—
Corn Dance	65	3	26	—	—	4	41
Stairsteps Zone 1	—	—	—	—	—	—	—
Stairsteps Zone 2	6	-	1	—	—	—	1
Stairsteps Zone 3	3	8	—	—	—	—	—
Stairsteps Zone 4	58	31	—	—	—	15	—
Original preserve subtotal	277	53	52	2	1	20	83
Northeast Addition	—	1	—	—	2*	4	—
Western Addition	1	—	—	—	—	—	—
Addition subtotal	1	1	—	—	2	4	—
<b>TOTAL</b>	<b>278</b>	<b>54</b>	<b>52</b>	<b>2</b>	<b>3</b>	<b>24</b>	<b>83</b>

\*Proposed in the Addition GMP (NPS 2010).

## 2.6.2 Nonmotorized Trails

Alternative 3 would add 114 miles of hiking trail to the existing system, for a total of 141 miles (not including the FNST, which would be rerouted and cover 44 miles). Among the additional trails included in this alternative are the following:

- The Cross Preserve Trail – 41 miles
- R57 also known as the Gator Hook Extension – 2.59 miles
- R59 also known as the R-T Day Hike to Charlie Cypress Camp – 2.70 miles
- R60 – 0.82 mile
- R61 – 0.92 mile
- Multiple trails in the Bear Island Unit and Northeast Addition

## 2.6.3 Camping

A total of 83 backcountry destinations (compared to the no-action alternative) would be opened to camping (figure 2-3). The new destinations would augment 24 existing backcountry campsites across the preserve, two existing backcountry campgrounds in the Bear Island Unit, and two primitive group camping areas along the FNST. (Note: One of the existing backcountry campsites in the Stairsteps Unit would be closed to protect resources, leaving 24 existing campsites in the preserve.) To expand camping options, a new backcountry campground would be opened in Bear Island on a former oil pad from which

the fill has not been removed. New camping destination opportunities would avoid sensitive resources including but not limited to rare and protected plants, wetlands, special status species habitat, and ethnographic and archeological resources.

Dispersed backcountry camping via foot or nonmotorized vessel would be permitted throughout the preserve, including Bear Island. Dispersed camping would be required to take place at least 0.25 mile from any backcountry campsite or campground or 0.5 mile from any developed area or road. Camping would also be required to take place at least 200 feet from any marked red-cockaded woodpecker cavity tree (trees would be marked with a painted white band). Camping would be permitted anywhere along primary ORV trails as long as ORVs parked next to the designated trail did not block travel.

Airboat users in Zone 4 of the Stairsteps Unit would be required to camp at designated campsites only.

To minimize impacts on preserve resources, backcountry users would be encouraged to camp in backcountry campgrounds, at destinations, and at previously disturbed campsites. Campers would be required to fill out permit forms before entering the backcountry and to identify the areas where they plan to camp, with campsites being available on a first-come, first-served basis. There would be no reservations required for any type of camping.

#### **2.6.4 Stay Limits**

Same as alternative 2.

#### **2.6.5 ORV Permitting**

The ORV permitting system would be changed to allow issuance of a single ORV permit covering the entire preserve. ORV permits would still cost \$100 and would be capped at 2,000, consistent with the permit ceiling established in the 2000 Recreational ORV Management Plan (2,000 permits total for the original preserve). Of this total, 650 permits would also authorize access to the Big Cypress National Preserve Addition, consistent with the permit ceiling established in the 2010 Addition GMP (650 permits total for the Addition). Permits authorizing access to the Addition would be subject to an additional \$50 fee, which would be applied toward management of the trail system. All permittees would also be required to obtain an ORV user's permit and a backcountry access permit, as under the current system.

#### **2.6.6 Street-Legal Vehicles**

Street legal vehicles would be allowed on above-grade primary ORV trails in the Bear Island Unit and Northeast Addition but would be prohibited on at-grade primary trails and all secondary trails. Street-legal vehicles would be subject to the same ORV permitting system described in section 2.6.5 above.

#### **2.6.7 Closures and Adaptive Strategies**

The existing annual 60-day closure would be removed throughout the preserve in favor of targeted closures aimed at specific problem areas identified by preserve staff, such as high or low water levels or extensive trail braiding, etc. The use of targeted closures would increase access while still giving resources the opportunity to recover, as needed, from pressures related to ORV use. Closures would not be made on a defined schedule or limited to a set time but would instead be implemented where resource and trail conditions were observed to be at or near impact thresholds as described in section 2.8 and table 2-6. Removing the annual 60-day closure for ORVs is not expected to adversely affect resources because visits during the summer are typically low anyway because of summer heat and because ORVs would remain on designated trails. Moreover, no data exist to support the supposition that the existing 60-day closure provides a material benefit to wildlife. The annual closure would not be reinstated unless observation of

adverse impacts demonstrated that resumption of the closure would have a beneficial impact on preserve resources.

The preserve would remain closed to ORV use between the hours of 10:00 p.m. and 5:00 a.m. to ensure visitor safety and protect resources.

Adaptive strategies would be the same as in alternative 1.

### **2.6.8 Wilderness**

Approximately 147,910 acres (25% of the original preserve and adjoining Western Addition) would be proposed for wilderness designation in the areas known as Mullet Slough, Deep Lake, the Loop Unit, and the southeast corner of Stairsteps Unit Zone 4. This alternative incorporates the largest polygons of eligible wilderness while excluding eligible areas that are adjacent to multiple private hunt camps. Those areas determined to be eligible for wilderness designation, but that are not proposed, would be managed to preserve their wilderness character until such time as Congress makes a determination regarding wilderness designation at the preserve. (See discussion of the wilderness alternative development process at section 2.13 below.)

## **2.7 ACTIVITIES REQUIRED TO IMPLEMENT THE ACTION ALTERNATIVES**

Implementation of the Actions Common to All Action Alternatives described in section 2.3 and the specific actions identified for the action alternatives in sections 2.5 and 2.6 would be conducted in a similar manner for all alternatives.

### **2.7.1 Reopening of Primary or Secondary ORV Trails, Non-motorized Trails (including the FNST), and Destinations**

Impacts to natural resources would be minimized by siting all primary and secondary ORV trails in the original preserve on preexisting routes that were closed under the 2000 Recreational ORV Management Plan and are proposed to be reopened under this Supplemental Draft Plan/EIS. All ORV trails and destinations in this Supplemental Draft Plan/EIS would be sited on previously disturbed areas. Many of the hiking trails in alternative 3 would be new trails. Trails and destinations would be reestablished by work crews using ORVs. Access would initially be from the existing primary trail network. ORV trail work would commence where access to the proposed reopened trail diverges from the existing primary trail network. Work crews would be required to clear the route of hazards (such as fallen trees), mark the route and destination, and trim vegetation to allow for safe user passage. To protect the threatened Eastern indigo snake, a qualified ecologist would scout the trail area for burrows that may indicate the presence of gopher tortoises, burrowing owls, or Eastern indigo snakes. If a burrow is discovered by the ecologist, no field equipment would be driven within 50 feet of the burrow.

Hazard removal and vegetation trimming would occur within the footprint of the previous trail network. The degree of hazard removal or vegetation trimming necessary to reestablish the trail would vary on a case-by-case basis, where some trails/destinations could be reestablished with relatively little removal or trimming, and others would require extensive removal/trimming. To protect the endangered Florida bonneted bat (*Eumops floridanus*), no trees would be removed that have a visible cavity if at all possible (see section 4.7.2 below for mitigation measures for the Florida bonneted bat). Hazard removal would be conducted by hand or, for vegetation trimming, with the assistance of hand tools, such as tree or shrub loppers or scythes, and mechanized equipment, such as chain saws, weed eaters, and pole saws. In some cases, encroaching vegetation, downed trees, and hazardous trees would be removed using an excavator with a mulching head and/or a skid steer with flail mower. Vegetation would be trimmed from the ground surface to avoid disruption of soils and root systems and up to 10 feet high to provide vertical clearance.

For primary and secondary ORV trails, vegetation would be trimmed within a 12-foot-wide corridor. For nonmotorized trails, vegetation would be trimmed within a 10-foot or less wide corridor. At destinations, NPS personnel and authorized volunteers would endeavor to trim vegetation around likely tent pads, each pad estimated to be 10 feet by 20 feet (0.005 acre). No removal of large trees (4–6 inches in diameter at breast height, or greater) is anticipated unless they pose a hazard. Any clearing of vegetation in wetland areas would constitute loss of wetland function and must be compensated for via mitigation (e.g., revegetation or restoration of disturbed areas) to result in no net loss of wetland function. That is, the destruction or degradation of wetland function in one place must be offset by restoration or enhancement of wetland function in another.

On primary trails, fill material may need to be imported in some instances for trail maintenance, to provide for safe visitor use of the trail, and to minimize potential environmental consequences. Fill material may include soil, lime rock, or gravel; would be free of chemicals in hazardous amounts; and would be from a source deemed free of invasive nonnative vegetation. Fill would be transported to the site by dump truck. Stabilization would typically be done by a crew of two to four equipment operators using graders, tractors, and other assorted heavy equipment. An archeological survey would be conducted before any ground disturbance by heavy equipment and work would be adjusted to avoid or mitigate impacts to any identified sensitive resources. If post-survey construction work were to reveal previously unidentified archeological resources, work would be stopped immediately, and state and tribal authorities would be contacted to develop a coordinated response. See section 2.9.7. Generally, fill material would be placed only to raise ground elevation of a trail to match the elevation of the area immediately adjacent to the trail and would minimize the potential for trail braiding or expansion. Fill in wetlands would be authorized by permit before construction, as would (to the extent required) anticipated future rutting associated with recreational and administrative use of the secondary trail system. As with clearing of vegetation, the filling of wetland areas would constitute loss of wetland function and must be compensated for via mitigation within the preserve to result in no net loss of wetland function.

## **2.7.2 Trail Markers and Signs**

Trails and destinations would be clearly marked with signs. Signs would be installed at trail junctions and destinations as necessary. Work crews would install signs by attaching them to existing vegetation (posting on trees) or by installing a sign on a post into the ground using post hole diggers or hand augers (if necessary). Holes created for signposts placed into the ground would be backfilled with excavated material. The extent of area that would be disturbed by signposts would be less than 1 square yard, or 9 square feet, for each sign.

## **2.7.3 Routine Maintenance and Adaptive Management**

Trail conditions would be monitored, and maintenance activities would routinely be conducted on all trails and destinations, including repair and replacement of trail markers. Some areas may require annual or semiannual maintenance, while other areas may not require maintenance for five or more years. Routine maintenance would largely consist of the same activities required to establish the trail. In addition to the activities described for reopening trails and destinations and for installing trail markers and signs, adaptive management actions would be employed as described in table 2-6. These are largely administrative actions but could also include placing additional signs or closing trails by using materials to construct a barrier or install rope or chain fences to bar users from entering. Similar vegetation management may be conducted for spot trail repairs (typically completed by hand tools or electric or gas chain saws), minor rerouting to more sustainable substrate, and placement of additional signs. In some instances, recontouring of the trail may involve the placement of gravel or other soil material to stabilize the trail. Stabilization would typically be done by a crew of two to four equipment operators using graders, tractors, and other assorted heavy equipment. As noted above, an archeological survey would be conducted before any ground disturbance by heavy equipment and work would be adjusted to avoid or

mitigate impacts to any identified sensitive resources. If postsurvey construction work were to reveal previously unidentified archeological resources, work would be stopped immediately, and state and tribal authorities would be contacted to develop a coordinated response. See section 2.9.7.

#### **2.7.4 Invasive Species Management**

Adaptive management may require the use of herbicides to control the spread and infestations of nonnative vegetation. The actions would include the use of hand tools or mechanized equipment to remove the vegetation and may include the use of herbicide to control a population and prevent the establishment and spread of the species. Herbicide would only be applied under appropriate environmental conditions by a Florida certified pesticide applicator. The herbicide used would vary depending on the target species and would be appropriate for the environmental conditions (i.e., certified aquatic safe when working in wetlands).

### **2.8 MANAGEMENT OBJECTIVES, DESIRED CONDITIONS, INDICATORS, AND THRESHOLDS**

Desired conditions are defined as a description of natural or cultural resource conditions, or social, economic, or ecological characteristics that the preserve aspires to maintain or achieve over time. Desired conditions are aspirational statements that describe specifically what conditions or outcomes are to be maintained or achieved in the future, not what necessarily exists today. Management objectives and desired future conditions for the preserve's backcountry can be found in table 2.5.

Descriptions of desired conditions are translated into measurable variables to monitor progress toward achieving desired conditions and to evaluate acceptable levels of visitor impact. Indicators are defined as a specific resource or social variable that can be measured to track change in conditions caused by public use so that progress toward attaining desired conditions can be assessed.

Thresholds are defined as the minimally acceptable condition associated with each indicator.

Alternative terms, notably "standard" or "standard of quality," have been used in many plans, visitor use frameworks, and scientific publications.

User capacity decision making is a continuous process. Decisions are adjusted based on monitoring the indicators and thresholds (appendix D contains the visitor capacity determination rationale; appendix F contains the monitoring protocol). Management actions are taken to minimize impacts when needed. As monitoring of the preserve's conditions continues, managers might decide to modify, add, or eliminate indicators if better ways are found to measure important changes in resource conditions. Also, if new use-related resource or visitor experience concerns arise in the future, additional indicators and thresholds would be identified as needed to address these concerns. The indicators and thresholds included in table 2-6 would encourage the use of adaptive management to help reduce influences from visitor use on natural resources.

### **2.9 MITIGATION MEASURES**

The following mitigation measures and best management practices would be applied to avoid or minimize potential impacts from implementation of the action alternatives in this Supplemental Draft Plan/EIS. See also the avoidance and minimization measures for special status species set forth in section 4.7.1.

#### **2.9.1 General**

Signs or other means would be used to protect sensitive resources on or adjacent to trails and destinations.

The trail alignments shown on the maps in this Supplemental Draft Plan/EIS are based on a GIS system analysis and extensive field observations. Final alignments are subject to ground-truthing. Trails and destinations would be established in previously disturbed areas to the maximum extent possible. In some areas, reroutes or slightly different trail alignments or destinations may be needed based on local conditions, such as the presence of sensitive resources. Final trail alignments and destinations would be reviewed by the preserve's natural and cultural resources experts in the field to ensure impacts to sensitive resources are avoided or minimized before trails and destinations are opened for public use. If sensitive resources are discovered during trail or destination opening or maintenance events, closure would occur and the area surveyed in more detail so that impacts can be avoided or minimized and/or an alternate route can be established. See sections 2.71 and 2.73 above and 2.9.7 below.

Visitors would be informed of the importance of protecting the preserve's natural resources and leaving these undisturbed for the enjoyment of future generations. Leave No Trace and Tread Lightly materials would be posted at the visitor centers and online and distributed as appropriate.

Impervious surfaces would not be used on trails or at destinations.

## **2.9.2 Vegetation and Habitat**

Areas used by visitors (e.g., trails, destinations) would be monitored for signs of native vegetation disturbance and disturbance of natural hydrological connections due to trail use. Maintenance actions would be taken as necessary to maintain natural surface water flows and thereby protect native vegetation communities (see section 2.94). Public education through development and distribution of pamphlets and signs, erosion control measures, and barriers would be used to control potential impacts on vegetation from erosion.

## **2.9.3 Nonnative and Invasive Species**

Special attention would be devoted to preventing the spread of nonnative and invasive species along trails. For nonnative invasive plants, standard measures could include identifying and treating areas of nonnative plants before trail and camping improvements are made, treatment as part of regular trail and destination maintenance, and revegetation with native species as appropriate.

## **2.9.4 Wetlands**

Mitigation measures would be applied to protect wetland resources. Once an alternative has been selected, a survey would be performed to certify wetlands within the project area and to identify locations of wetlands and open water habitat more accurately. Wetlands would be delineated by qualified NPS staff or certified wetland specialists and marked before any construction starts. All pathway construction facilities would be sited to avoid wetlands, or if that were not feasible, to otherwise comply with EO 11990, the Clean Water Act, and Director's Order 77-1. Additional mitigation measures would include the following, as appropriate:

- Employ standard avoidance, minimization, and mitigation strategies.
- Avoid wetlands during construction, using bridge crossings or retaining walls wherever possible. Increased caution would be exercised to protect these resources from damage caused by construction equipment, erosion, siltation, and other activities with the potential to affect wetlands. Measures would be taken to keep construction materials from escaping work areas, especially near streams or natural drainages.

- Design any footbridges in such a way as to completely span the channel and associated wetland habitat (i.e., no pilings, fill, or other support structures in the wetland/stream habitat). If footbridges could not be designed in such a way as to avoid wetlands, then additional compliance (e.g., a Wetland Statement of Findings) would be performed to assess impacts to wetlands and ensure no net loss of wetland area.

To prevent disruption of natural surface water flows, all trails that would receive ORV, hiking, biking, or riding use (for NPS operations or public use) would be maintained so the trail surface is generally kept at the natural grade of the surrounding landscape. For primary trails, techniques to help mitigate trail rutting could include “at-grade” maintenance, “spot” trail stabilization with aggregate material, the use of culverts, and low-water crossings. These measures would help preserve the natural sheet flow through the preserve at a local and regional level. In addition, if trail conditions eventually became degraded in areas and surface flow became altered, the indicator thresholds and adaptive management actions would be applied, as described in section 2.8 and table 2-6, to remedy the situation and restore surface water flows.

Best management practices for water quality protection would be followed to ensure that effects from trail and camping improvements are minimal and to prevent long-term impacts on water quality, wetlands, and aquatic species.

All clearing or deposition of fill in wetlands resulting in loss of wetland function would be compensated for via mitigation to result in no net loss of wetland function. Deposition of fill would only take place on primary trails.

### **2.9.5 Special Status Animal Species**

Trails and destinations have been sited to avoid sensitive wildlife habitats. The proposed action and the associated activities required to reopen trails and complete maintenance (as described in section 2.7), would be timed to avoid sensitive periods, such as nesting or breeding seasons.

Measures would be taken to reduce the potential for wildlife to obtain food from humans. Wildlife-proof garbage containers would be provided where wildlife-human interactions are documented or observed, as needed. Signs would continue to educate visitors about the need to refrain from feeding wildlife.



**Table 2-5. Management Objectives and Desired Future Conditions**

**Native Plants and Animals/Ecological Integrity**

<b>Resource and Values</b>	<b>Management Objectives</b>	<b>Desired Future Conditions</b>
Native vegetation communities and habitat	<ul style="list-style-type: none"> <li>• Protect vegetation from disturbance outside of access points and designated trails.</li> <li>• Reduce the spread of invasive plants and animals.</li> <li>• Maintain a fire management regime that protects against undesirable wildfire.</li> </ul>	<ul style="list-style-type: none"> <li>• Potential impacts to flora and fauna from backcountry use are minimized.</li> <li>• Campsites and trails are located in areas most resilient to potential adverse impacts.</li> <li>• Natural fire regimes are restored to ecosystems.</li> </ul>
Protected species	<ul style="list-style-type: none"> <li>• Protect and restore federal and state listed species and their habitat.</li> <li>• Maintain the natural abundance and distribution of wildlife populations.</li> <li>• Minimize potential wildlife stressors resulting from backcountry use.</li> </ul>	<ul style="list-style-type: none"> <li>• Trails avoid areas where their construction, maintenance, and use may have a detrimental effect on listed species or their habitat.</li> <li>• Detrimental effects on listed species and their habitat are avoided or minimized.</li> </ul>
Soils	<ul style="list-style-type: none"> <li>• Reduce impacts resulting from backcountry use that adversely affect natural elevation, composition, and integrity of soils.</li> </ul>	<ul style="list-style-type: none"> <li>• Trails and backcountry destinations are designated in areas that offer the most suitable substrate or in areas of previous disturbance.</li> </ul>
Air quality	<ul style="list-style-type: none"> <li>• Maintain air quality in the preserve at a Class II level or better.</li> </ul>	<ul style="list-style-type: none"> <li>• Air quality is not degraded by backcountry use.</li> </ul>
Wilderness character	<ul style="list-style-type: none"> <li>• Ensure the protection of wilderness character within lands eligible for wilderness designation.</li> </ul>	<ul style="list-style-type: none"> <li>• Fundamental physical and biological processes, as well as individual species, features, and plant and animal communities, function at natural levels of diversity and complexity with little human disturbance in lands eligible for wilderness designation.</li> <li>• Lands eligible for wilderness designation are free from nonrecreational or research structures, installations, and developments. Use of motor vehicles, motorized equipment, or mechanical transport is prohibited.</li> <li>• To the extent practicable, components or processes of ecological systems inside lands eligible for wilderness designation are not influenced by human activities or action.</li> <li>• Visitor use levels and agency-provided recreation facilities in lands eligible for wilderness designation are managed to ensure visitors are provided opportunities to experience solitude or primitive and unconfined nature.</li> </ul>

## Water Resources

Resource and Values	Management Objectives	Desired Future Conditions
Water Resources	<ul style="list-style-type: none"> <li>Minimize disruption of natural water flows in the preserve and outflows to the surrounding watershed.</li> <li>Maintain the water quality within the preserve.</li> </ul>	<ul style="list-style-type: none"> <li>Disruptions to natural hydrologic conditions from backcountry uses are avoided or minimized.</li> </ul>

## Cultural Resources

Resource and Values	Management Objectives	Desired Future Conditions
Cultural Resources (Archeological Resources, Prehistoric/Historic Structures, Cultural Landscapes)	<ul style="list-style-type: none"> <li>Protect all known and discovered cultural resources on, eligible for, or potentially eligible for listing on the National Register of Historic Places (NRHP).</li> </ul>	<ul style="list-style-type: none"> <li>Known and discovered historic properties within the preserve are protected from adverse impacts from backcountry uses.</li> </ul>

## Cultural Experiences

Resource and Values	Management Objectives	Desired Future Conditions
Ethnographic Resources	<ul style="list-style-type: none"> <li>Consult with the Miccosukee Tribe of Indians of Florida, the Seminole Tribe of Florida, and the Seminole Nation of Oklahoma regarding usual and customary use and occupancy of preserve lands. Protect Native American sacred sites within the preserve.</li> </ul>	<ul style="list-style-type: none"> <li>Known and discovered Native American sacred sites are protected from impacts related to backcountry use.</li> </ul>

## Visitor and Public Enjoyment

Resource and Values	Management Objectives	Desired Future Conditions
Trails	<ul style="list-style-type: none"> <li>Provide a range of resource-related recreational opportunities for visitors to explore the preserve.</li> <li>Maintain the scenic quality of the preserve.</li> <li>Manage adverse impacts of trails and their use on natural and cultural resources.</li> <li>Provide for public safety and avoid or minimize safety hazards.</li> <li>Maintain a fire management regime that allows for visitor access to backcountry.</li> </ul>	<ul style="list-style-type: none"> <li>The location of trails avoids or minimizes conflicts among backcountry users.</li> <li>Trail use is managed at levels that avoid or minimize impacts to natural and cultural resources.</li> <li>Trails provide visitor access to remote areas of the preserve, which allows visitors to experience unconfined nature.</li> <li>Trails are located to avoid known cultural resources and minimize impacts to natural resources.</li> </ul>

Resource and Values	Management Objectives	Desired Future Conditions
Camping	<ul style="list-style-type: none"> <li>• Provide a range of backcountry camping opportunities and experiences.</li> <li>• Maintain the scenic quality of the preserve.</li> <li>• Avoid and minimize adverse impacts of camping on natural and cultural resources.</li> <li>• Provide for public safety and avoid or minimize safety hazards.</li> </ul>	<ul style="list-style-type: none"> <li>• The location and design of campsites minimizes impacts to natural resources and avoids known cultural resources.</li> <li>• Campsite use is managed at levels that do not cause unacceptable impacts to natural resources and visitor experiences.</li> <li>• Location of campsites protects the scenic qualities of the preserve.</li> <li>• Conflicts between user groups are minimized.</li> </ul>
Noise/Soundscapes	<ul style="list-style-type: none"> <li>• Impacts to the natural soundscape in the backcountry are avoided or minimized.</li> </ul>	<ul style="list-style-type: none"> <li>• Noise conflicts between user groups are minimized.</li> <li>• Preserve visitors are provided opportunities to experience natural quiet.</li> </ul>
Aesthetic/Scenic Resources	<ul style="list-style-type: none"> <li>• Impacts to the aesthetic / scenic quality of the preserve from the placement of trails and campsites are minimized.</li> </ul>	<ul style="list-style-type: none"> <li>• Trails and campsites are designed to protect the natural aesthetic values and scenic resources of the preserve.</li> </ul>
Hunting	<ul style="list-style-type: none"> <li>• Provide access to a range of hunting opportunities and experiences.</li> </ul>	<ul style="list-style-type: none"> <li>• Major game species in the preserve are maintained at a level consistent with natural ecological processes.</li> <li>• A sustainable deer population is maintained in the preserve, which ensures that the effects of hunting in the preserve are beneficial, discountable, or insignificant to the Florida panther population, as specified in the 2014 Final Hunting Management Plan.</li> </ul>

**Table 2-6. Indicators, Thresholds, and Adaptive Management Actions**

Indicator	What does it indicate? What type of impact does the indicator measure?	Threshold	Justification for Threshold	Adaptive Management Actions
Secondary trail braiding/widening (resulting from motorized use)	<ul style="list-style-type: none"> <li>• Off-trail use</li> <li>• Trail condition</li> <li>• Substrate suitability</li> <li>• Disturbance to adjacent habitats (vegetation and soils)</li> <li>• Intensity of visitor use</li> </ul>	Widening and braiding occurring on no more than 20% of any single trail. Widening and braiding is generally defined as trail widths that exceed 20 feet.	To provide adequate access for visitor use, trails may be wide enough to allow passage of two ORVs (8 feet wide each).	<ul style="list-style-type: none"> <li>• Evaluation</li> <li>• Education</li> <li>• Enforcement</li> <li>• Clearer or additional trail markings</li> <li>• Temporary or permanent closure of trail (including not reopening a proposed trail due to excessive unsuitable substrates)<sup>1</sup></li> <li>• Reduction of allowable visitor numbers for the trail and corresponding destinations (reservation system)</li> </ul>

Indicator	What does it indicate? What type of impact does the indicator measure?	Threshold	Justification for Threshold	Adaptive Management Actions
				<ul style="list-style-type: none"> <li>• Adjustment in the type of vehicles allowed on trails or in the number of vehicles of a particular type allowed on trails</li> </ul>
Trail braiding/widening/rutting (resulting from nonmotorized use)	<ul style="list-style-type: none"> <li>• Off-trail use</li> <li>• Trail condition</li> <li>• Substrate suitability</li> <li>• Disturbance to adjacent habitats (vegetation and soils)</li> <li>• Intensity of visitor use</li> </ul>	Widening and braiding occurring on no more than 20% of any single trail. Widening and braiding is generally defined as trail widths that exceed 8 feet.	To provide adequate access for visitor use, trails may be wide enough to allow passage of two people (4 feet wide each).	<ul style="list-style-type: none"> <li>• Evaluation</li> <li>• Education</li> <li>• Enforcement</li> <li>• Spot trail repairs/recontouring (via hand and mechanical tools if approved by regulatory agencies)</li> <li>• Minor rerouting of trail to more sustainable alignment.</li> <li>• Temporary or permanent closure of trail (including not reopening a proposed trail due to excessive unsuitable substrates)<sup>1</sup></li> <li>• Clearer or additional trail markings</li> <li>• Reduction of allowable visitor numbers for the trail and corresponding destinations (reservation system)</li> </ul>
Trail depth/rutting	<ul style="list-style-type: none"> <li>• Off-trail use</li> <li>• Trail condition</li> <li>• Substrate suitability</li> <li>• Disturbance to adjacent habitats (vegetation and soils)</li> <li>• Intensity of visitor use</li> </ul>	<p>Ruts 12 inches deep observed on more than 20% of a secondary trail.</p> <p>Ruts 6 inches deep observed on more than 20% of a nonmotorized trail.</p>	Trail depth, mainly ORV rutting, which can extend up to 2 feet in depth, can act as drainage ditches, channeling water and potentially altering natural water flow patterns (Leung and Marion 1996).	<ul style="list-style-type: none"> <li>• Evaluation</li> <li>• Education</li> <li>• Enforcement</li> <li>• Spot trail repairs/recontouring (via hand and mechanical tools if approved by regulatory agencies)</li> <li>• Minor rerouting of trail to more sustainable alignment</li> <li>• Temporary or permanent closure of trail (including not reopening a proposed trail due to excessive unsuitable substrates)<sup>1</sup></li> <li>• Restrictions on vehicle clearance to limit depth of soil rutting and increase the ability of trails to sustain traffic</li> </ul>

Indicator	What does it indicate? What type of impact does the indicator measure?	Threshold	Justification for Threshold	Adaptive Management Actions
				<ul style="list-style-type: none"> <li>• Reduction of allowable visitor numbers for the trail and corresponding destinations (reservation system)</li> <li>• Adjustment in the type of vehicles allowed on trails or in the number of vehicles of a particular type allowed on trails</li> </ul>
Number of incidences of off-trail travel by motorized vehicles	<ul style="list-style-type: none"> <li>• Vegetation loss, degrading trail conditions, contact with sensitive resources, noncompliance with preserve rules and regulations</li> </ul>	Observed noncompliance.	The threshold is critical to preserve both natural and cultural resources.	<ul style="list-style-type: none"> <li>• Evaluation</li> <li>• Education</li> <li>• Enforcement</li> <li>• Clearer or additional trail/destination markings</li> <li>• Exclusion/closure of secondary trails, destinations, and/or area<sup>1</sup></li> <li>• Adjustment in the type of vehicles allowed on trails or in the number of vehicles of a particular type allowed on trails</li> </ul>
Natural resource impacts at destinations	<ul style="list-style-type: none"> <li>• Vegetation loss, habitat loss</li> </ul>	Failure to adhere to Leave No Trace principles at backcountry destinations.	This threshold would help measure impacts to natural resources resulting from visitor use.	<ul style="list-style-type: none"> <li>• Evaluation</li> <li>• Education</li> <li>• Reservation system for use of destination/area</li> <li>• Exclusion/closure of secondary trails, destinations, and/or area<sup>1</sup></li> <li>• Restoration</li> <li>• Adjustment in the type of vehicles allowed on trails or in the number of vehicles of a particular type allowed on trails</li> </ul>
Impacts to wetlands	<ul style="list-style-type: none"> <li>• Loss or degradation of wetland function and values</li> </ul>	Visual observations or regulatory consultation.	Protection of wetland resources and compliance with laws and policies would be ensured.	<ul style="list-style-type: none"> <li>• Evaluation</li> <li>• Education</li> <li>• Exclusion/closure of secondary trails, destinations, and/or area (including not reopening a proposed trail, destination, or area)<sup>1</sup></li> <li>• Mitigation for fills/stabilization</li> <li>• Restoration of affected area or of similar area by way of mitigation</li> </ul>

Indicator	What does it indicate? What type of impact does the indicator measure?	Threshold	Justification for Threshold	Adaptive Management Actions
Disturbance of special status species (2010 Addition GMP)	<ul style="list-style-type: none"> <li>Avoidance of impacts to special status species from backcountry access and use</li> </ul>	Visual observations or regulatory consultation.	Potential impacts to protected species via human disturbance must be minimized.	<ul style="list-style-type: none"> <li>Temporal or spatial exclusion/closure of secondary trails, destinations, and/or areas (including not reopening a proposed trail or destination)<sup>1</sup></li> <li>Adjustment in the type of vehicles allowed on trails or in the number of vehicles of a particular type allowed on trails</li> </ul>
Invasive plants (2000 Recreational ORV Management Plan)	<ul style="list-style-type: none"> <li>Spread of invasive plants or identification of newly established growth along a trail; % of plant densities, presence of individual nonnative or invasive plants</li> </ul>	Visual observation of any new invasive plants adjacent to designated trails and destinations.	Invasive species can be introduced from motorized vehicle use within the preserve. Disturbance of sites can allow for species to take hold. These species can disrupt ecosystem balance and native species distribution.	<ul style="list-style-type: none"> <li>Education</li> <li>Restoration</li> <li>Area closure (including not reopening a proposed trail or destination)<sup>1</sup></li> <li>Adjustment in the type of vehicles allowed on trails or in the number of vehicles of a particular type allowed on trails</li> </ul>
Documented visitor use related complaints or conflicts per area	<ul style="list-style-type: none"> <li>Visitor conflict, competition, and/or crowding</li> </ul>	Complaints could be written or verbal, or an observation of a conflict by a ranger. One substantive complaint would trigger evaluation of the conflict.	Protection of visitor experiences would be ensured, and conflicts between user groups would be minimized.	<ul style="list-style-type: none"> <li>Evaluation</li> <li>Education</li> <li>Enforcement</li> <li>Reservation system for selected trails and destinations</li> <li>Adjustment in the type of vehicles allowed on trails or in the number of vehicles of a particular type allowed on trails.</li> </ul>
Number of substantive complaints relating to user conflicts between users on trails	<ul style="list-style-type: none"> <li>Visitor conflict, competition, and/or crowding</li> </ul>	Complaints could be written or verbal, or an observation of a conflict by a ranger. One substantive complaint would trigger evaluation of the conflict.	Protection of visitor experiences would be ensured and minimize conflicts between user groups would be minimized.	<ul style="list-style-type: none"> <li>Evaluation</li> <li>Education</li> <li>Enforcement</li> <li>Reservation system for selected trails and destinations</li> <li>Adjustment in the type of vehicles allowed on trails or in the number of vehicles of a particular type allowed on trails</li> </ul>

Indicator	What does it indicate? What type of impact does the indicator measure?	Threshold	Justification for Threshold	Adaptive Management Actions
Visual observation of disturbance to historic properties (2000 Recreational ORV Management Plan)	<ul style="list-style-type: none"> <li>• Visual observation of disturbance (which includes digging, removal of resources, destruction, or social trails leading up to historic properties)</li> <li>• Disturbance for the active cultural site would include documentation of any unauthorized uses, vandalism, camping, creation of a new trail, looting, digging, or any motorized use</li> <li>• Discovery of previously undocumented cultural resources due to visitor activity in the backcountry, or a new trail formation</li> </ul>	<p>No visual observation of disturbance to historic properties</p> <p>No unauthorized use or disturbance to actively used historic properties</p>	Protection of historic properties and compliance with laws and policies would be ensured.	<ul style="list-style-type: none"> <li>• Evaluation</li> <li>• Education</li> <li>• Enforcement</li> <li>• Exclusion/closure of trail, destination, and/or area (including preemptive exclusion/closure)<sup>1</sup></li> <li>• Adjustment in the type of vehicles allowed on trails or in the number of vehicles of a particular type allowed on trails</li> </ul>

<sup>1</sup> If a trail is closed for any reason, the preserve would not necessarily open a new trail to bring the system mileage back to levels described in this Draft Environmental Impact Statement. Any new trails would be evaluated on a case-by-case basis through separate compliance efforts.



Overhanging vegetation would be hand and mechanically trimmed along the trails and destinations, leaving potential suitable habitat for special status species untouched. Removal of trees is not necessary to implement the trails and destinations.

In consultation with the US Fish and Wildlife Service and the Florida Fish and Wildlife Conservation Commission, and in accordance with their guidelines and recommendations, appropriate measures would be taken to protect special status species whether identified through surveys or presumed to occur in areas that contain suitable habitat characteristics.

### **2.9.6 Natural Soundscapes**

Standard noise abatement measures would be followed during trail and destination improvements, reopening, and maintenance. Standard noise abatement measures could include a schedule that minimizes impacts on adjacent noise-sensitive resources, the use of electric power tools, and the use of the best available noise control techniques such as muffled exhaust (wherever feasible).

### **2.9.7 Cultural Resources**

If any actions taken under the Plan are found to have adverse effects on historic properties (as defined in 36 CFR 800.16) the National Park Service will follow the procedures outlined in 36 CFR 800.6 for the resolution of adverse effects (Note that this Supplemental Draft Plan/EIS is not intended to constitute joint NEPA and Section 106 compliance; rather, the preserve is preparing a cultural resources assessment and will consult separately with the state historic preservation office [SHPO] and tribal representatives.) In addition to adhering to the legal and policy requirements for cultural resources protection and preservation, the National Park Service would also undertake the measures listed below to further protect the preserve's resources:

- Areas for any trail improvements would be surveyed to ensure that any previously unidentified cultural resources (i.e., archeological, historic, or ethnographic) in the area of potential effects are adequately identified and protected by avoidance or, if necessary, mitigation.
- If during ground-disturbing activities, previously unidentified cultural or burial resources are discovered, all work along the length of trail in question will be halted, the trail will not be opened or will be temporarily closed, and the preserve superintendent, chief of resource management, and archaeologist will be immediately notified. Additionally, in accordance with Section VI of the 2008 National Park Service Programmatic Agreement the superintendent will notify the SHPO/Tribal Historic Preservation Office (THPO), and federally recognized Native American tribes within 48 hours or as soon as reasonably possible. The Superintendent in consultation with the Section 106 Coordinator and the appropriate members of the CRM Team, will make reasonable efforts to avoid, minimize, or mitigate adverse effects on those cultural or burial resources in consultation with SHPO/THPO, and federally recognized Native American tribes (Section VI 2008 National Park Service Programmatic Agreement). Any archeological documentation would be done in accordance with the Secretary of the Interior's Standards for Archeology and Historic Preservation (1983, as amended).
- In the event that human remains or other cultural material that may fall under the provisions of the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) are discovered during ground-disturbing activities, the Superintendent will comply with NAGPRA and the Archaeological Resources Protection Act of 1979 (ARPA). The Superintendent will ensure that any human remains are left in situ, are not exposed, and remain protected while compliance with NAGPRA, ARPA, or other applicable federal, state, and/or local laws and procedures is undertaken (Section VI 2008 National Park Service Programmatic Agreement).

- Visitors would continue to be educated on the importance of protecting the preserve’s cultural resources and leaving these undisturbed for the enjoyment of future visitors.

## 2.10 COST AND PERSONNEL CONSIDERATIONS

Implementation of the preferred alternative would be subject to available funding and staff and would be done in a phased manner as resources allow. The preserve would create a strategy to guide the phased approach following this planning effort. The preserve would also seek assistance from stakeholder and volunteer groups in opening, marking, monitoring, and maintaining ORV trails, destinations, and hiking trails.

The costs and operation implications of alternatives are an important consideration in comparing them and determining their advantages and disadvantages. The costs and staff needs presented in table 2-7 are estimates for comparison purposes only and are not to be used for budgetary purposes or implementation funding requests. When the actions in this Supplemental Draft Plan/EIS are implemented, actual costs would likely vary from what is presented below.

**Table 2-7. Estimated Costs and Full-Time Employees (FTE) for 25 Years**

<b>FTE/Costs</b>	<b>Alternative 1 (no action)</b>	<b>Alternative 2</b>	<b>Alternative 3</b>
Total FTE	80	82	83
Additional FTE	0	2	3
<b>Annual operating costs</b>			
Current ONPS <sup>1</sup>	\$7,200,000	\$7,200,000	\$7,200,000
Additional FTE cost	\$0.00	\$117,731	\$189,725
Additional maintenance cost	NA	\$6,996	\$43,983
Total annual cost	\$7,200,000	\$7,324,727	\$7,433,708
<b>One-time costs</b>			
One-time facility costs	\$0.00	\$28,750	\$687,650
<b>Total 25-year life cycle cost</b>			
<b>Increase<sup>2</sup></b>	NA	\$3,290,000	\$6,357,000

Notes:

<sup>1</sup> Operation of the national park system

<sup>2</sup> Present value of all one-time and annual operating costs

## 2.11 WILDERNESS

Wilderness, as defined in the Wilderness Act of 1964, is land “protected and managed so as to preserve its natural conditions and which generally appears to have been affected primarily by the forces of nature, with the imprint of man’s work substantially unnoticeable.” Wilderness areas are intended to contrast with lands where human activities dominate the landscape.

A wilderness study was conducted in the preserve to identify which parts of the original preserve, if any, should be proposed for wilderness designation by Congress. The wilderness study serves as the basis for any wilderness recommendation that the President may submit to Congress, should he or she choose to

do so. The wilderness study considered a range of alternatives for wilderness designation, including a “no wilderness” alternative. These wilderness alternatives have been incorporated into the alternatives presented in this Supplemental Draft Plan/EIS. Note that any private inholdings in proposed wilderness, together with their designated access routes, are proposed as *potential* wilderness only. Use and occupancy of these lands would not change from current management unless and until these lands are acquired by the National Park Service. Note also that any eventual wilderness designation by Congress, should it occur, would not extinguish valid existing private rights, including the right to locate and develop privately owned minerals. See *NPS Management Policies 2006* sections 6.4.6 and 6.4.9.

NPS staff would work cooperatively with the State of Florida and the US Fish and Wildlife Service (and other appropriate federal, state, and local agencies) to ensure that any legislative act that formally designates wilderness in the preserve contains language that allows for effective management of nonnative species, wild land and prescribed fire, and law enforcement activities.

*NPS Management Policies 2006* contains the following provisions related to wilderness planning and management:

- All NPS lands would be evaluated for their eligibility for inclusion in the national wilderness preservation system. (6.2.1).
- Lands would be evaluated according to the provisions outlined in the Wilderness Act of 1964. (6.2.1.1).
- Lands that have previously been used for extractive purposes may be found eligible for wilderness designation so long as their wilderness character could be restored through appropriate management action. Furthermore, lands subject to existing rights (e.g., mineral exploration and development) may be considered for designation as wilderness or potential wilderness so long as they have been found to contain wilderness character. Lands containing aboveground or buried utility lines normally would not be considered eligible for wilderness designation, but they can be considered as eligible for “potential” wilderness if there is a long-term intent to remove the lines. The established use of motorboats does not make an area ineligible for wilderness. (6.2.1.2).
- For lands found to possess wilderness characteristics, no action that would diminish their wilderness eligibility would be taken until the legislative process of wilderness designation has been completed. (6.3.1).
- All decisions concerning management activities in proposed or designated wilderness would be based on the minimum requirements concept. This concept is a process that determines (1) if the proposed action is necessary for administration of the area as wilderness and (2), if so, the techniques and equipment needed to ensure that impacts on wilderness resources and character are minimized. (6.3.5).
- Wilderness considerations would be integrated into all planning documents to guide the preservation, management, and use of a park’s wilderness area and ensure that wilderness is unimpaired for future use and enjoyment as wilderness. (chapter 6, title page).
- The superintendent of each park containing wilderness resources would develop and maintain a wilderness management plan or equivalent planning document. (6.3.4.2).

## **2.12 WILDERNESS ELIGIBILITY ASSESSMENT**

In 2015, an interdisciplinary team comprising NPS staff from the preserve, Denver Service Center, Southeast Regional Office, and agency partners, evaluated the original preserve and published a memorandum to the NPS director presenting the findings of the preserve’s completed wilderness eligibility assessment. The assessment found that of the 557,065 acres assessed, 188,323 acres met the

eligibility criteria in the Wilderness Act of 1964 and NPS *Management Policies 2006* and were determined to be eligible for wilderness designation.

The preserve shared the 2015 eligibility determination and requested review and comment from the public from January 11, 2016, to March 13, 2016. Feedback was also solicited at the Preliminary Alternatives Open Houses held in February 2016.

In accordance with NPS Director's Order 41, Wilderness Stewardship, a more detailed analysis and intensive review of lands found eligible for wilderness designation was carried out by the National Park Service. This took place during the Preferred Alternative Workshop held in June 2016. During the workshop, the interdisciplinary team updated the eligibility determination. This update built upon the information gathered during the 2015 wilderness eligibility assessment and relied heavily on information from the following sources:

- Aerial imagery
- Trail assessments conducted by the Student Conservation Association work crews during summer 2015
- Public feedback on the 2015 Wilderness Eligibility Assessment
- Preserve staff with on-the-ground knowledge and extensive experience in the preserve
- Three helicopter surveys of targeted areas during June 2016

The updated assessment was further refined in 2021 based on the following:

- Ground truthing of selected areas in 2021
- One helicopter survey of targeted areas in September 2021

After analysis using the sources and methods described above, several additional polygons (multisided areas) were determined to be eligible wilderness. In addition, some previously identified wilderness-eligible polygons decreased in size, because of more detailed analysis, but the majority of them increased in size. Specifically, some trails depicted on maps and in geospatial files were carved out of polygons in the 2015 Wilderness Eligibility Assessment, but further review showed either no obvious signs of a trail on the ground or the trail track could recover with appropriate management action. In the Wilderness Eligibility Assessment completed in 2021, those trails are no longer carved out of the wilderness-eligible polygons. Similarly, some access trails to private camps are no longer carved out of wilderness-eligible polygons because the trail tracks were found to be capable of recovering should the National Park Service ever acquire the camps to which they lead. In some instances, the removed trails and/or destinations enabled polygons to be joined together. In addition, some areas in the Western Addition were found to be eligible due to wilderness qualities and a change in the eligibility of adjacent areas in the original preserve.

Based on the updated assessment, a total of 257,762 acres of the 599,691 acres assessed meet the eligibility criteria in the Wilderness Act. The full 2021 Wilderness Eligibility Assessment is included in this Supplemental Draft Plan/EIS as appendix E.

## **2.13 DEVELOPING WILDERNESS ALTERNATIVES**

After examining eligible wilderness areas in the preserve, the National Park Service considered different wilderness alternatives using a variety of considerations, including

- elements of wilderness character (untrammelled, natural, undeveloped, opportunities for solitude and primitive and unconfined recreation)
- ongoing and expected management actions in each area
- operational impacts of a wilderness designation

- public comments
- visitor use patterns
- The wilderness alternatives were then combined with the alternatives in the backcountry access plan based on the overarching concept of each alternative.

## **2.14 THE NATIONAL PARK SERVICE PREFERRED ALTERNATIVE**

Alternative 3 is the preferred alternative of the National Park Service because it: (a) calls for increased visitor access for both motorized and nonmotorized uses, (b) achieves the best balance between increased public access and substrate sustainability, and (c) proposes wilderness protection for the most primitive parts of the original preserve. The trail system in this alternative is large enough to provide access to those parts of the preserve traditionally used by people in the past, and sufficiently spread out to distribute users safely over a large area during hunting season. At the same time, it concentrates use on resilient and highly resilient substrate types and minimizes impacts to least resilient to unsuitable substrates. This alternative proposes wilderness designation for 147,910 acres in the original preserve. This proposal comprises the least disturbed areas of wild land in the preserve, which range from 18,468 acres (Mullet Slough East) to 50,707 acres (Loop Unit). Of all the alternatives, alternative 3 achieves the best combination of increased visitor access and long-term resource protection.

# Chapter 3

## Affected Environment



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## CHAPTER 3: AFFECTED ENVIRONMENT

This chapter describes the characteristics of the various environmental resources that could be affected as a result of implementation of any of the alternatives. The topics presented in this chapter are those related to the key issues described in chapter 1 (“Introduction”) that inform the NPS decision. The descriptions of the resources provide the baseline conditions against which the potential effects of the various alternatives considered are compared. The effects on these baseline conditions are described in chapter 4 (“Environmental Consequences”). Descriptions of the following resources are included in this chapter: soils, vegetation and habitat, wetlands, special status species, wilderness character, visitor use and experience, natural soundscapes, and ethnographic and archeological resource. A vegetation reference map for this section is provided in appendix G, Affected Environment Reference Map.

### 3.1 SOILS

The preserve spans three Florida counties: Collier, Miami-Dade, and Monroe. Several different sources were consulted to obtain a comprehensive depiction of soil resources within the preserve. For preserve lands within Collier County, the 1954 Soil Survey of Collier County, published by the US Department of Agriculture, is the most current resource available for this area. Although more recent soil surveys produced by the Natural Resource Conservation Service (1995 and updated in 2005) exist, they do not include areas east of State Road 29 to the Miami-Dade County line. Therefore, soils mapping through historical (1954) studies was used for this document because this is the most complete dataset available.

#### 3.1.1 Soils at the Preserve

Duever et al. (1986a) conducted extensive research related to the geology of the preserve before completion of the 1991 GMP. They reported that most of the soils in the preserve are simple geological and biological products that have not had sufficient time or environmental conditions for evolution into true soils. Marl, sand, organic matter, and rock are the four substrate types in the preserve. Sand deposits within the preserve are thin, infrequent, and likely derived from old shoreline deposits. Peats derived from partially decayed plant material are also present within the preserve and are identified by their major plant components.

Carbonate marls are the most widespread, unconsolidated soil type in the preserve. Marls are mixtures of calcareous clays with calcite particles, sand, and/or shell fragments and may have periphyton precipitates at the surface. Marl soils support few trees and provide poor traction when wet.

A hard limestone substrate, commonly called cap rock, is usually only a few inches beneath the surface. In some instances, limestone outcrops are present at the land surface, particularly within hardwood hammocks. The shallow limestone rock is typically pitted with solution holes of many sizes. Cypress forests typically occur in the areas of the solution holes. The breaks in the limestone allow plant root systems to penetrate well below the soil surface, so trees can become established. As cypress and other trees become established, the leaves and branches that are shed from the trees collect in the depression. These areas are typically inundated and the organic material settles underwater. As a result, organic materials in the soils of these communities decompose slowly and often become a thick mantle on the substrate surface.

This slow decomposition and buildup of organic material tends to increase the acidity of the water in these communities. Limestone (calcium carbonate), which is common in the substrate surrounding the cypress forests, is soluble in acidic solutions and neutralizes acidity as it dissolves. The dissolution of limestone results in a surface water solution that is saturated with calcium. This is important in the formation of marl, a soil component of prairies.

### 3.1.2 Soil Suitability for ORV Use

Marl soils are the most fragile and can be found within the large contiguous prairies present in many areas of the preserve. These areas are considered unsuitable for motorized recreation and are avoided completely for wheeled vehicles within the action alternatives. Smaller prairies and marshes both contain fragile substrates, marshes being generally considered least resilient due to their inundation and soft, organic soils. These two habitats are largely, but not completely, avoided within the action alternatives. Prairies are generally unsuitable for wheeled ORV use; however, exceptions can be made in cases where the cap rock is at or near the surface. Areas of scrub or dwarf cypress and hardwood swamps can have much more resilient substrates. Areas with these substrates are considered suitable for ORV and recreational use where caprock is present near the surface. Pine flatwoods, cypress systems, hardwood hammocks, and disturbed areas can each contain areas of the most compact, resilient substrates. The areas that tend to have the most highly resilient substrates are located largely within pine flatwoods and hammocks where cap rock is close to the surface and there is less frequent inundation and organic buildups. However, while hardwood hammock soils can be highly resilient, they are generally avoided in the action alternatives to protect cultural resources (discussed in section 3.8).

The range of habitat types present in the preserve is listed in table 3-1 below. Note that most habitat types contain a wide range of substrate types, with some areas being unsuitable for motorized recreation and other areas being more resilient (the latter areas can range from least resilient to highly resilient). The key to having a sustainable system of motorized and nonmotorized trails is to locate trails as much as possible on resilient and highly resilient substrates. Locating such substrates requires a combination of field reconnaissance and study of aerial imagery.

**Table 3-1. Substrate Suitability in the Preserve**

Habitat Type	Range of Substrate Suitability
Cypress (including cypress forest (strands, domes, mixed cypress) and cypress scrub)	Unsuitable to highly resilient
Prairie	Unsuitable–least resilient to resilient–highly resilient
Pine flatwoods (including slash pine forests and pine rocklands)	Highly resilient
Shrubland	Unsuitable to resilient–highly resilient
Hardwood hammocks	Unsuitable to highly resilient
Freshwater and nonforested wetlands (including prairie and marsh)	Unsuitable to resilient–highly resilient
Freshwater forested wetlands	Unsuitable to resilient–highly resilient
Marine and estuarine vegetated wetlands (including mangrove)	Unsuitable
Disturbed	Unsuitable to highly resilient
Water	Unsuitable (resilient–highly resilient for airboats*)

\* On designated trails, at prescribed water levels. See section 3.6.7 below.

## 3.2 VEGETATION AND HABITAT

### 3.2.1 Native Vegetation Communities and Habitat

The preserve hosts a variety of plant communities, including pine flatwoods, prairies, marshes, mangroves, hammocks, cypress systems (including cypress forest and cypress scrub), and freshwater forested wetlands. Variability within the preserve results from differences in elevation, water, fire, and soil conditions. Given the limited range of elevation in the preserve, minor changes in elevation (i.e., just a few

inches) bring about vastly different plant communities. Marshes, mangroves, and cypress systems are found at the lowest elevations. Prairies typically are found in the middle elevations, while the higher elevations are characterized by pine flatwoods and hammocks (Ewel 1990, Kushlan 1990).

Seven major vegetation communities can be found in the preserve: (1) cypress systems, (2) freshwater forested wetlands, (3) pine flatwoods, (4) shrublands, (5) hardwood hammocks, (6) freshwater and nonforested wetlands (including prairies and marshes), and (7) marine and estuarine vegetated wetlands (including mangroves). Disturbed areas and water can also be found throughout the preserve and are intermixed within these vegetation communities. Numerous protected plant species can be found within these vegetation communities as well as species that serve as habitat for the protected animal species that use the preserve. Table 3-2 summarizes the native vegetation communities, the typical dominant vegetation species in each vegetation community, and the overall percentage of cover of each vegetation community within the preserve.

Both temperate and tropical plants are present in the preserve. Prairies and cypress systems are the most prevalent vegetation types and are dominated by temperate species. Tropical species primarily occur in hardwood hammocks, but are also found in pine flatwoods, freshwater forested wetlands, and cypress systems. All cypress systems contain tropical orchids and *Tillandsias*. Endemic plants, native only to the preserve area, comprise 10% of the vegetation found in the preserve (Long 1974). NPS staff members are active in the NPS Inventory and Monitoring Program and have completed a thorough inventory of the preserve's vascular plants, which include some that are afforded special protection.

**Table 3-2. Vegetation Communities in the Preserve**

<b>Vegetation Community</b>	<b>Typical Vegetation/Community Type</b>	<b>Percentage of Cover within the Preserve</b>
Cypress <sup>1</sup>	Cypress forest (strands, domes, mixed cypress) and cypress scrub	53.13
Pine flatwoods	Slash pine forests and pine rocklands	13.07
Shrubland	Cabbage palm, saw palmetto, willow, wax myrtle	4.81
Hardwood hammocks	Hardwoods (gumbo limbo, mastic, live oak, and laurel oak) mixed with sabal palms, shrubs and saw palmetto, ferns, and epiphytes	4.65
Freshwater and nonforested wetlands	Prairie (18.21% of cover within preserve): cordgrass, graminoid prairie, sawgrass, muhly grass, broom, and white-top sedge Marsh (2.49% of cover within preserve): broadleaf emergent marsh, sawgrass, cattail marsh	20.70
Freshwater forested wetlands <sup>1</sup>	Cypress, red bay, sabal palm, pond apple, laurel oak	1.44
Marine and estuarine vegetated wetlands <sup>1</sup>	Mangroves	1.41
Disturbed	Brazilian pepper, melaleuca, Java plum, other nonnatives, spoil area, roadway	.66
Water	Water	.13
TOTAL	—	100

Note:

<sup>1</sup> These vegetation communities are described in more detail below in section 3.3, Wetlands.

The proposed alternatives include existing and proposed trails and destinations throughout the myriad of vegetation communities in the preserve. Vegetation types associated with marsh, prairie, mangrove, and cypress wetland communities are described in detail in the wetlands impact topic section of this

Supplemental Environmental Impact Statement. The remainder of the preserve comprises a mosaic of habitats, including pine flatwoods, hammocks, and disturbed areas (appendix G).

### **3.2.2 Pine Flatwoods**

Pine flatwoods in the preserve are dominated almost exclusively by south Florida slash pine (*Pinus elliottii* var. *densa*) in the canopy. Subcanopy vegetation varies depending on soils and hydrology. Pine flatwoods are scattered across wide areas of the preserve, particularly north of US 41, and comprise 16% of the total vegetation cover. Pine flatwoods occur in areas that are higher than most wetlands, so their substrates are inundated less frequently.

Two major types of pine flatwoods occur with the preserve: Slash pine forest and pine rocklands. These communities are most prevalent in the preserve within the western portion of Zone 4 of the Stairsteps Unit, across a central band of the Deep Lake, Turner River, and Corn Dance Units, and scattered across the Bear Island Unit and Northeast Addition.

Slash pine forests are woodland communities with scattered pine trees that form an infrequent canopy. Depending on substrate, some of these woodlands contain pine and palmetto communities, where scattered pine trees form an open canopy with a dense understory mostly consisting of saw palmetto (*Serenoa repens*). The saw palmetto shrub layer is usually dense so that groundcover does not become well established.

Pine rocklands are slash pine-dominated communities that occur on limestone outcrops. These areas also develop a saw palmetto shrub layer; however, this shrub layer is usually less dense than that same layer in the pine and palmetto communities. This allows the establishment of other types of groundcover and shrub species. Because of this, pine rocklands are often more diverse than pine and palmetto communities living on sandy substrates. Pineland communities often contain plants that are associated with the Atlantic coastal ridge communities.

The pine and palmetto and pine rockland communities are typically mesic communities, but frequently include extensive ecotonal areas that are adjacent to wetlands. These ecotonal communities have brief or infrequent hydroperiods and contain elements of the adjacent wetlands. Saw palmetto does not typically survive in hydric conditions and is not common in areas that are saturated or inundated often. Slash pines are able to tolerate hydric conditions, so that in areas with short hydroperiods, slash pines commonly live without the saw palmetto understory. In these areas, the open pine canopy allows sunlight to penetrate, and grass-like cover is commonly found.

Pine needles, grasses, and other combustible materials accumulate relatively quickly in pine flatwoods, which burn at frequent intervals. Pine flatwoods are fire-dependent, and prescribed fires by NPS staff maintain the habitat viability by preventing hardwood succession. If fires are suppressed, pine flatwoods eventually succeed to hardwood-dominated stands.

Pine flatwoods provide habitat for the federally listed red-cockaded woodpecker (*Picoides borealis*). Red-cockaded woodpeckers form clusters in this habitat, where they construct cavities in living pines.

### **3.2.3 Hardwood Hammocks**

Hardwood hammocks are dense and diverse forests of hardwood trees mixed with sabal palms, shrubs and saw palmetto, ferns, and epiphytes that are relatively small in area (2.5 acres or less). They comprise about 5% of the total vegetation cover. These communities are typically found on slightly elevated bedrock areas overlain with sandy peat soils that are slightly drier than those in the surrounding swamps (wetlands dominated by trees) and herbaceous wetlands. Hardwood hammocks are scattered throughout the preserve and often appear as tree islands, which function as refuges for wildlife during periods of high

water. Many hardwood hammocks are located on slightly elevated shell mounds that were left by the Calusa Indians. These shell mounds support tropical hardwoods including gumbo limbo (*Bursera simaruba*), mastic (*Mastichodendron foetidissimum*), and poisonwood (*Metopium toxiferum*).

Hammocks that occur inland are usually surrounded by freshwater wetlands. Inland hammocks are usually dominated by live oak or laurel oak trees with understories made up of coco plum (*Chrysobalanus icaco*), snowberry (*Chiococca alba*), and beautyberry (*Callicarpa americana*). Ground cover is sparse, usually consisting of tufted grasses such as bluestem (*Andropogon virginicus*). Epiphytes are common, especially on the branches of oak trees, where resurrection fern (*Polypodium polypodioides*), many bromeliads, and several uncommon orchids grow. Many epiphytes also occur on the trunks of sabal palms; vines such as poison ivy (*Toxicodendron radicans*), grapes (*Vitis* spp.), and pepper vine (*Ampelopsis arborea*) are common.

Trees that dominate these hardwood hammock communities are often large, such as oaks and sabal palms. As a result of the numerous large trees, ORV riders usually avoid hardwood hammocks, although the substrate in these areas would support ORV use. Hardwood hammocks are susceptible to invasion by unwanted nonnative species, especially Brazilian pepper, when their soils and tree canopies are disturbed.

### **3.2.4 Disturbed Areas**

Disturbed areas, found throughout the preserve, are intermixed within native vegetation communities. They compose less than 1% of the total vegetation cover. These areas have been affected by nature (fire, freeze, storms, extreme tides, etc.) or by human activities such as logging, canal, and road construction, farming and grazing, oil extraction, ORV use, fire, introducing nonnative species, earth moving, altering drainage, altering the chemistry of water or soils, or facility construction. Community succession has been altered in disturbed areas. Soils in disturbed areas differ with locations and original substrates. The result is a change in the ecosystem that usually allows colonization and recruitment of ruderal (weedy) species. These weeds are often nonnative plants that outcompete native plants and quickly dominate the disturbed area.

### **3.2.5 Special Status Plant Species**

Special status plant species include those species that are listed under the federal Endangered Species Act of 1973, as amended (16 United States Code [USC] 1531-1544; Endangered Species Act), and those species identified by the State of Florida as endangered, threatened, or commercially exploited. The list of State of Florida listed plant species is maintained by the Florida Department of Agriculture and Consumer Services under rule 5B-40.0055, Florida Administrative Code.

Two plant taxa and one species known to occur in the preserve are federally listed. A final rule published in the Federal Register on October 6, 2017 (82 Federal Register 46691), listed the Florida prairie-clover (*Dalea carthagenensis* var. *floridana*) as endangered and the Everglades bully (*Sideroxylon reclinatum* ssp. *austrofloridense*) and Florida pineland crabgrass (*Digitaria pauciflora*) as threatened. These plants are also listed by the State of Florida as endangered.

In addition, the State of Florida lists 37 additional species that occur in the preserve as threatened or endangered, along with two more that are listed as commercially exploited. Collectively, these species warrant attention because they have had long-term population declines and are vulnerable to exploitation or environmental changes. Table 3-3 displays the current status of special status plant species occurring in the preserve.

Table 3-3. Listed Plant Species in the Preserve

Common Name	Scientific Name	Designated Status <sup>1</sup> Federal	Designated Status <sup>1</sup> State
<b>Federally Listed Species</b>	—	—	—
Florida prairie-clover	<i>Dalea carthagenensis</i> var. <i>floridana</i>	E	E
Florida pineland crabgrass/twospike crabgrass/ Everglades grass	<i>Digitaria pauciflora</i>	T	E
Everglades bully	<i>Sideroxylon reclinatum</i> ssp. <i>austrofloridense</i>	T	E
State Listed Species	—	—	—
Everglades palm, paurotis palm	<i>Acoelorrhaphe wrightii</i>	—	T
Meadow jointvetch	<i>Aeschynomene pratensis</i>	—	E
Wild birdnest fern	<i>Asplenium serratum</i>	—	E
Fahkahatchee bluethead	<i>Burmanna flava</i>	—	E
Manyflower grasspink	<i>Calopogon multiflorus</i>	—	T
Leafless bentspur orchid	<i>Campylocentrum pachyrrhizum</i>	—	E
powdery strap airplant	<i>Catopsis berteroniana</i>	—	E
Florida strap airplant	<i>Catopsis floribunda</i>	—	E
Coffee colubrina, greenheart	<i>Colubrina arborescens</i>	—	E
Pepperbush	<i>Croton humilis</i>	—	E
Cowhorn orchid	<i>Cyrtopodium punctatum</i>	—	E
Clamshell orchid	<i>Encyclia cochleata</i>	—	E
Tampa butterfly orchid	<i>Encyclia tampensis</i>	—	CE
Brown-flowered butterfly orchid	<i>Epidendrum anceps</i>	—	E
Night scented orchid	<i>Epidendrum nocturnum</i>	—	E
stiff flower star orchid	<i>Epidendrum rigidum</i>	—	E
West Indian tufted airplant	<i>Guzmania monostachia</i>	—	E
Needleroot airplant orchid	<i>Harrisella porrecta</i>	—	T
Poeppig's rosemallow	<i>Hibiscus poeppigii</i>	—	E
delicate violet orchid	<i>Ionopsis utricularioides</i>	—	E
Pineland clustervine	<i>Jacquemontia curtissii</i>	—	T
Skyblue clustervine	<i>Jacquemontia pentanthos</i>	—	E
Pine lily	<i>Lilium catesbaei</i>	—	T
Hidden orchid	<i>Maxillaria crassifolia</i>	—	E
Giant swordfern	<i>Nephrolepis biserrata</i>	—	T
Erect pricklypear	<i>Opuntia stricta</i>	—	T
Royal fern	<i>Osmunda regalis</i> var. <i>spectabilis</i>	—	CE
Baby rubberplant	<i>Peperomia obtusifolia</i>	—	E
Yerba linda	<i>Peperomia rotundifolia</i>	—	E
Greater yellowspike orchid	<i>Polystachya concreta</i>	—	E
Bahama brake	<i>Pteris bahamensis</i>	—	T
Lacelip ladiestresses	<i>Spiranthes laciniata</i>	—	T

Common Name	Scientific Name	Designated Status <sup>1</sup> Federal	Designated Status <sup>1</sup> State
Giant spiral ladiestresses	<i>Spiranthes longilabris</i>	—	T
Latticevein fern	<i>Thelypteris reticulata</i>	—	E
Northern needleleaf	<i>Tillandsia balbisiana</i>	—	T
Giant air plant	<i>Tillandsia fasciculata</i> var. <i>densispica</i>	—	E
Twisted air plant	<i>Tillandsia flexuosa</i>	—	T
Fuzzywuzzy air plant	<i>Tillandsia pruinosa</i>	—	E
Spreading air plant	<i>Tillandsia utriculata</i>	—	E
Leatherleaf air plant	<i>Tillandsia variabilis</i>	—	T

Source: Personal communication, Pernas 2016

— Not listed      <sup>1</sup>E = endangered    T = threatened    CE = commercially exploited

**Everglades Bully.** On October 6, 2017, the Everglades bully (*Sideroxylon reclinatum* ssp. *austrofloridense*) was listed by the US Fish and Wildlife Service under the Endangered Species Act as threatened. It is also a species protected by the State of Florida. Critical habitat has not been proposed or designated for this species. A designation of critical habitat is currently under consideration.

Everglades bully is found in pine flatwoods, prairies, and in the ecotone between them. This species also grows on the sunny edges of hammock habitat (Federal Register 2016). These plants can tolerate inundation of freshwater for a portion of the year, but do not tolerate saline water. Hydrology within pine rocklands largely depends on the porosity of the limestone substrates; however, most sites are only wet following heavy events. In contrast, prairie is typically inundated for up to 6 months of the year (USFWS 1999a).

Historically, the range of the Everglades bully was limited to Everglades National Park (Miami-Dade County). Recently, it has been found in Monroe and Collier Counties. Everglades bully is currently known to occur in the Long Pine Key region of Everglades National Park and in pine rockland adjacent to the park. In the preserve, surveys conducted in the Gum Slough region of Zones 3 and 4 of the Stairsteps Unit in 2013 identified 17 plants within pine flatwood habitats.

The plant currently has limited distribution within the preserve. As part of the final rule for listing, the US Fish and Wildlife Service identified several threats to the continued existence and risks to the species viability, including ORV use. The National Park Service would avoid and/or minimize potential impact on this species by siting proposed trails and destinations in areas that do not contain this plant species.

**Florida Prairie-Clover.** Florida prairie-clover (*Dalea carthagenensis* var. *floridana*) was listed under the Endangered Species Act as an endangered species on October 6, 2017. It is also protected as an endangered species by the State of Florida. Critical habitat has not been proposed or designated for this species. Designation of critical habitat is currently under consideration.

Florida prairie-clover is restricted to south and southwest Florida with small, scattered populations found within the preserve (in Monroe and Collier Counties), Everglades National Park, three Miami-Dade County conservation areas, and three unprotected lands within the Cutler Bay region of Miami-Dade County (Federal Register 2016). Three populations were known to exist in the preserve at one time (i.e., north of Oasis Visitor Center, 11-Mile Road, and Pinecrest); however, the 11-Mile Road population appears to have been extirpated in 2014 and no individuals were found at the Pinecrest site in 2018 or 2021.

The population north of the Oasis Visitor Center is one of the largest known populations, consisting of 35 plants of various age groups. The Oasis primary ORV trail passes through this population of Florida prairie-clover north of the Oasis Visitor Center. Plants have been observed on the edges of the trail and within adjacent pine flatwoods that the trail passes through. No other known occurrences are found on existing primary ORV trails and no secondary trails would be sited in areas where this species occurs.

Florida prairie-clover is typically found in pine rocklands, edges of rockland hammocks, coastal uplands, prairie, and ecotones between these habitats. This species may also occur along roadsides, where there is regular mowing, other native herbs and grasses are present, and nonnative lawn grasses have naturally recruited or naturalized (Gann et al. 2006, Federal Register 2016). Fire is probably an important component to the livelihood of this plant and the habitats in which it resides. Historical declines have been partially attributed to fire suppression or an inadequate fire regimen. Florida prairie-clover occurs in association with south Florida slash pine, live oak, gumbo limbo, bluestem grasses (*Schizachyrium* spp.), and paspalum grasses (*Paspalum* spp.).

As part of the listing, the US Fish and Wildlife Service identified several threats to the continued existence and risks to the species viability. One of the identified threats includes ORV use, particularly when operators travel off established trails (Federal Register 2016). The National Park Service would avoid and/or minimize potential impact on this species by siting proposed trails and destinations in areas that do not contain this plant species.

**Florida Pineland Crabgrass.** Florida pineland crabgrass (*Digitaria pauciflora*) was listed as a threatened species under the Endangered Species Act on October 6, 2017, and is protected as an endangered species by the State of Florida (Federal Register 2017). Critical habitat has not been proposed or designated for the Florida pineland crabgrass. Designation of critical habitat is expected to occur soon.

Florida pineland crabgrass was historically found in central and southern Miami-Dade County, along the Miami Rock Ridge, from south Miami to the Long Pine Key region of the Everglades National Park (Federal Register 2016). The current range includes Everglades National Park, where it is much wider ranging than previously known, and the preserve, where it was discovered in 2002 in Zones 3 and 4 of the Stairsteps Unit, which are the first known occurrences outside Miami-Dade County. Subsequent survey efforts have identified up to nine separate occurrences within the preserve, with a total population estimated in 2007 of greater than 10,000 individuals (Federal Register 2016).

Florida pineland crabgrass most commonly occurs along the ecotone between pine rockland and prairie, with some overlap into the two ecosystems. These habitats occasionally flood during the wet season, especially within the prairie habitat. These preferred habitats indicate that this species is associated with low-elevation pine flatwoods and pine flatwood/prairie ecotones that flood for several months each year during the wet season. These habitats are maintained by periodic fires, which are important for maintaining healthy populations of Florida pineland crabgrass for both the removal of overstory hardwoods and the removal of accumulated litter. Dominant vegetation types associated with this species include gulf muhly grass and little bluestems (grasses); rushes and sedges like sawgrass and (*Rhynchospora* spp.) (sedges); saw palmetto and cabbage palm (palms); and coco plum (*Chrysobalanus icaco*), and white indigoberry (mixed shrubs); and it has been found to be most abundant with grasses and sedges.

Habitats within the preserve that may potentially contain this species include pine flatwoods and prairie. This species has been found along the airboat trail to Gum Slough in Stairsteps Zone 3 and along the Pace's Dike primary trail in Stairsteps Zone 3. It may also be located along the hiking trail east of Pace's Dike.

Similar to the other two species discussed above, the US Fish and Wildlife Service identified a number of threats to the continued existence and risks to the species viability, including ORV use. The National Park



Service would avoid and/or minimize potential impact on this species by routing proposed trails and destinations through areas that do not contain this plant species.

### 3.2.6 Nonnative and Invasive Species

Thousands of nonnative plant species have been introduced to south Florida for ornamental plantings, agriculture, and other human uses. Due to the relatively young age of the south Florida landmass and the subtropical climate, it is theorized that the region is particularly susceptible to invasion by nonnative invasive plant species (Duever et al. 1986a). The Florida Invasive Species Council keeps an updated list of the category I and category II invasive plants in Florida, which represents about 11% of the more than 1,400 nonnative plant species that have been introduced into Florida and subsequently established outside cultivation (Florida Exotic Pest Council 2019).

Category I invasive plants are those invasive nonnatives that are altering native plant communities by displacing native species, changing community structures or ecological functions, or hybridizing with natives (Florida Exotic Pest Council 2019). Category II invasive plants are those invasive nonnatives that have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by category I species; these species may become ranked category I if ecological damage is demonstrated (Florida Exotic Pest Council 2019).

Many of these nonnative plants are reported in the preserve, but most are restricted to early successional stages on disturbed sites, and only a few pose a long-term threat to native communities. Of these, five species—melaleuca (*Melaleuca quinquenervia*), Brazilian pepper (*Schinus terebinthifolius*), water hyacinth (*Eichhornia crassipes*), hydrilla (*Hydrilla verticillata*), and old-world climbing fern (*Lygodium microphyllum*)—are fairly common in the preserve and are invasive. Control efforts have been concentrated on melaleuca, Brazilian pepper, and old-world climbing fern, as these species are capable of displacing native plant communities.

Australian pine (*Casuarina equisetifolia*) was identified as an invasive species of concern; in the last two decades it has been largely eradicated in the preserve. All known large stands of Australian pine trees have been eliminated from the preserve except for those on private property (NPS 2012a). Crested floating heart (*Nymphoides cristata*), a relatively new nonnative for south Florida, was discovered in the preserve in August 2006. Infestations are restricted to about 4 miles of canal along Tamiami Trail and two strand swamps south of the trail (NPS 2006b). Evidence suggests that this species was introduced to the preserve through the transfer of propagules attached to a net or other fishing gear, with the invasion of the adjacent swamps likely occurring from water flowing through culverts in the area. Water-lettuce (*Pistia stratiotes*) and common air-potato (*Dioscorea bulbifera*) are also known to be present.

The invasive plant control program is carried out by NPS contractors and resource management staff. NPS staff members are active participants in the Florida Invasive Species Council and the Everglades Cooperative Invasive Species Management Area, two interagency task forces organized to share technical information on the control of nonnatives, monitor the distribution of invasives in south Florida, and collaborate on comprehensive control strategies.

### 3.3 WETLANDS

South Florida lies within the Atlantic Coastal Plain physiographic province. This province is divided into several subprovinces in the region: Big Cypress Swamp, Everglades, Southern Atlantic Coastal Strip, Ten Thousand Islands, Florida Keys, and Southwestern Flatwoods. The rocks underlying this area are among the oldest in south Florida and are composed of silt, sand, and carbonate materials (NPS 2008). Coral-rich limestone is exposed in vast expanses of the preserve because the elevation is slightly higher than the neighboring Everglades basin. The land surface of the swamp appears flat, except for numerous, low-

mounded limestone outcrops and small, circular, elongated depressions in the limestone. In actuality, the land surface angles slightly to the south, creating constant movement of water through the swamp and toward the coast. Within the swamp, water drains slowly through a number of cypress strands into the coastal mangrove forest.

Wetlands compose approximately 85% of the preserve (see appendix G). The 1991 GMP/Environmental Impact Statement includes a comprehensive description of the vegetation resources within the preserve (Welch et al. 1999). Specifically, proposed trails and destinations occur in or near cypress, freshwater forested wetlands, prairie, marsh, and mangrove habitats. These community types are described below.

### 3.3.1 Cypress Systems

Two cypress species are the dominant trees throughout the preserve – bald cypress (*Taxodium distichum*) and pond cypress (*T. ascendens*). Cypress are deciduous trees that can grow to 130 feet tall and reach diameters of 7 to 10 feet. Most of the larger cypress trees have been removed by logging, and only a few large cypress trees remain. Cypress trees are highly resistant to fire and thrive in saturated soils. Cypress systems in the preserve primarily occur as cypress forest (including cypress domes and cypress strands) and cypress scrub. The nature of the cypress system in a specific location is determined by the underlying soils and hydrology. Cypress systems are the most dominant vegetation communities, making up 45% of the preserve.

**Cypress Domes.** Cypress domes are characterized by a cypress overstory, which grows tallest in the center of a depression and tapers off toward the fringes, forming a dome-like feature. This depression in the limestone bedrock fills with organic soils, and eventually peat forms due to constant saturation and slow decomposition. The largest cypress trees are found in these wetter, deeper peat deposits. Trees toward the dome edge are thought to be smaller because of soils that are more marginal, lower water levels, and more frequent susceptibility to fires (Duever et al. 1986b). Flooding for most of the year is essential for maintaining cypress domes; average maximum water levels reach about 2 feet (Duever et al. 1986a). Periodic fires play an important role because they limit hardwood invasion, remove peat, and generally leave the cypress unharmed. Ponds often form in the center of cypress domes and are important habitat for alligators and aquatic wildlife. Because of tree density and topographical variations in cypress domes, ORV use is largely constrained to the margins of these systems.

**Cypress Strands.** Cypress strands are distinct from cypress domes because they form along major drainages and generally retain a north-south orientation. Tall cypress trees dominate the overstory. Unlike cypress domes, understory vegetation is diverse and includes shade-tolerant hardwoods, ferns, and epiphytes. Cypress strands are also associated with relatively deep water and are flooded for the majority of the year (Duever et al. 1986a). The interiors of cypress domes and strands serve as important refuges for water-dependent wildlife during the dry season.

Historically, the preserve's cypress strands have been logged and now many sites are more characteristic of mixed-hardwood swamps. Generally, these communities are natural barriers to ORVs. Because these wetlands are associated with topographic depressions, water depth increases substantially from their edges to the center. Most of the areas covered by these wetlands have unstable substrate, water that is too deep, or too many trees to support ORV use.

**Cypress Scrub.** Cypress scrub is a community type that transitions between shortgrass prairies and cypress-dominated swamp communities. Pond cypress (*T. ascendens*) trees are common but typically small partly because the limestone cap rock can inhibit the trees' growth. These trees are called dwarf or "hatrack" cypress. This community type is inundated (usually less than 1 foot of water depth) through much of the wet season. Cypress scrub is typically dominated by grass-like ground cover common in prairies, such as muhly grass (*Muhlenbergia capillaris*) or sawgrass.

### 3.3.2 Freshwater Forested Wetlands

Freshwater forested wetlands contain sabal palm as well as hardwood trees such as red bay (*Persea borbonia*), pond apple (*Annona glabra*), or laurel oak that co-dominate the tree canopy with bald cypress trees. Greater tree diversity leads to greater epiphyte diversity. Several bromeliads (*Tillandsia* spp., *Guzmania monostachia*) and orchids, such as epidendrums (*Epidendrum* spp.) and ghost orchids (*Dendrophylax lindenii*), are found on the trunks and branches of these trees. (All of these are state-listed special status species.) Epiphytic ferns, such as shoestring fern (*Vittaria lineata*) and golden serpent fern (*Phlebodium aureum*), are common on the trunks of sabal palms. Vines, including poison ivy (*Toxicodendron radicans*), several grapes (*Vitis* spp.), and rattan vine (*Berchemia scandens*), are also common components of the tree canopy. Similar to the cypress strand communities, the interiors of freshwater forested wetlands serve as refuges for water-dependent wildlife during the dry season and also provide a natural barrier to ORVs.

### 3.3.3 Freshwater and Nonforested Wetlands: Prairie

Prairies are treeless areas dominated by an herbaceous understory and groundcover. Prairies occur extensively throughout the preserve, particularly in the western and southern portions. Wet prairies in the preserve are characterized by muhly grass (*Muhlenbergia capillaris*), love grass (*Eragrostis* sp.), and sand cordgrass (*Spartina bakeri*); tend to have sandier soils than the wetter marsh systems; and are inundated up to around 8 inches during the wet season. Prairie communities are often found on frequently flooded fine sands or calcium carbonate marls. Limestone is commonly found near the soil surface. These areas are inundated for part of the year, and they receive considerable sunlight. Prairies burn during periods of drought; fires maintain the prairie by eliminating trees and shrubs.

### 3.3.4 Freshwater and Nonforested Wetlands: Marsh

Since the preparation of the 1991 GMP, the classification of marshes in the preserve has been changed to be consistent with vegetation classification throughout south Florida. Under the new classification of Welch et al. (1999), marshes now include many of the areas previously identified as prairies (appendix G denotes the current vegetation classes and their areal extent within the preserve).

Marshes are open communities with few trees or shrubs; ground cover is dominated by emergent herbs. Inundation is year-round or nearly year-round. The preserve supports both freshwater and saline marshes. Freshwater marshes are wetland communities that are typically inundated nearly year-round and have substrates with a thick organic surface layer. Freshwater marshes are commonly dominated by broad-leaved plants, such as pickerel weed (*Pontederia cordata*), cattail (*Typha domingensis* or *T. latifolia*), and duck potato (*Sagittaria* spp.). These wetlands have comparatively deep water during the wet season, which then provide refuge for fish and other aquatic animals during the dry season. Wading birds, such as wood storks (*Mycteria americana*) and American egrets (*Casmerodius albus*), depend on these concentrated prey populations to find sufficient food. Saline marshes occur in coastal areas, are often affected by tidal marine systems, and have higher soil salinity than inland freshwater systems. These communities are usually populated with freshwater marsh plants that are able to tolerate small increases in salinity, including cattail (*T. domingensis*), pond apple (*Annona glabra*), and cordgrass (*Spartina* spp.).

### 3.3.5 Marine and Estuarine Vegetated Wetlands: Mangrove Forests

Mangrove forests (aka mangrove swamps) are intertidal wetlands dominated by hardwood trees that are tolerant of coastal, saline conditions. Three trees commonly occupy these areas—red mangrove (*Rhizophora mangle*), black mangrove (*Avicennia germinans*), and white mangrove (*Laguncularia racemosa*)—and are closely associated with buttonwood (*Conocarpus erectus*) in south Florida mangrove communities along much of the coastline. Florida law prohibits destruction of mangrove trees.

The mangrove communities in the preserve are found primarily in the Stairsteps Unit Zone 1 and along the southern edge of Zone 2. Per the 2000 Recreational ORV Management Plan, Zone 1 is currently closed to ORV use and only wheeled ORVs are allowed to travel in Zone 2. In contrast to wheeled vehicles, airboats can navigate the mangrove forests but have been known to cause damage when wind generated by propellers damage mangrove leaves and small branches. The alternatives presented in this environmental impact statement do not include ORV trails or destinations that extend into the mangrove forest.

### 3.4 SPECIAL STATUS ANIMAL SPECIES

Special status species are species listed under federal and state statutes and species considered sensitive by the preserve that are protected to prevent further population decline. The Endangered Species Act of 1973, as amended (16 USC 1531 et seq.), seeks to conserve threatened and endangered species and the ecosystems upon which they depend. It is NPS policy to survey, protect, and strive to recover all Endangered Species Act-listed species that are native to national park system units (NPS 2006a). The National Park Service strives to meet fully its obligations under the Organic Act of 1916 and the Endangered Species Act to both proactively conserve federally listed species and prevent detrimental impacts on these species.

All native birds within the preserve are protected under the Migratory Bird Treaty Act (16 USC 701 et seq.) (MBTA). The MBTA makes it illegal to take migratory birds or their eggs, feathers, or nests. “Take” is defined in the MBTA as hunting, pursuing, wounding, killing, possessing, or transporting any migratory bird, nest, egg, or part thereof by any means or in any manner. The MBTA allows legal hunting of certain species, as do the hunting regulations established by the State of Florida.

The preserve is noted for its diversity of rare and endangered animal species that are protected by state and federal law. Occurrences of rare and/or protected animal species have been mapped for the preserve. The preserve is known to contain, be adjacent to, or occur near the following:

- US Fish and Wildlife Service (USFWS) Consultation Areas for
  - Everglade snail kite (*Rostrhamus sociabilis plumbeus*) – Federally endangered (FE) species with mapped critical habitat
  - Red-cockaded woodpecker – FE species
  - Florida panther (*Puma concolor coryi*) – FE species with primary zone habitat in the preserve
  - Audubon’s crested caracara (*Polyborus plancus audubonii*) – Federally Threatened (FT) species
  - Florida scrub-jay (*Aphelocoma coerulescens*) – FT
  - Florida bonneted bat (*Eumops floridanus*) – FE
  - Cape Sable seaside sparrow (*Ammodramus maritimus mirabilis*) – FE
- Within the Core Foraging Area of one or more wood stork (*Mycteria americana*, FT) nesting colonies
  - Potential habitat for state and federally listed species:
  - Big Cypress fox squirrel (*Sciurus niger avicennia*), State Threatened (ST)
  - Gopher tortoise (*Gopherus polyphemus*) – ST
  - Everglades mink (*Neovison vison evergladensis*) – ST
  - Eastern indigo snake (*Drymarchon corais couperi*) – FT
  - Little blue heron (*Egretta caerulea*) – ST
  - Tricolored heron (*Egretta tricolor*) – ST
  - Eastern black rail (*Laterallus jamaicensis jamaicensis*) - FT

- USFWS critical habitat for the West Indian manatee (*Thichechus manatus*) – FT
- USFWS proposed critical habitat for Florida bonneted bat (*Eumops floridanus*) – FT
- Bald eagle (*Haliaeetus leucocephalus*) nests – CO-044; CO-012; MO-003; MO-001
- Primary and secondary range for the Big Cypress population of Florida black bear (*Ursus americanus floridanus*) – South Bear Management Unit

Critical habitat in the preserve has been designated for West Indian manatee and proposed for Florida bonneted bat. No other designated or proposed critical habitat for federally protected species occurs within the preserve. There is USFWS designated critical habitat adjacent to the preserve for the following species: American crocodile (*Crocodylus acutus*), West Indian manatee, Cape Sable seaside sparrow, and Everglade snail kite.

Based on recommendations received from the Florida Fish and Wildlife Conservation Commission and historical agency consultations for the preserve related to ORV access and use (see section 4.7), each of the state or federally listed species that have the potential to be affected by this Supplemental Draft Plan/EIS are described in more detail below. The Florida Fish and Wildlife Conservation Commission did not provide recommendations or express concerns regarding impacts that had the potential to occur as a result of backcountry use to the Big Cypress fox squirrel, gopher tortoise, or Everglades mink; therefore, they are not discussed further in this document.

### 3.4.1 Florida Black Bear

The Florida black bear (*Ursus americanus floridanus*) is a subspecies of the American black bear. Historically, this species ranged throughout Florida, but human development has reduced its range and fragmented existing populations. Most major populations of bears live in protected areas like the preserve. There are five subpopulations of Florida black bears in Florida, and the Big Cypress subpopulation is estimated at 1,035 individuals (FWC 2015).

The Florida Black Bear Management Plan (FWC 2019) identifies a number of objectives for the Big Cypress subpopulation, including: maintain or increase the current bear subpopulation, expand forested connection with the South Central bear management unit, and reduce human–bear conflicts and habitat fragmentation (FWC 2019). The number of the bears in this subpopulation is above the bear management unit minimum subpopulation objective (greater than 700 bears), and the amount of habitat located within conservation lands is almost sufficient to meet the minimum subpopulation objective. Human–bear conflicts are relatively low in the South bear management unit, as are vehicle-related bear deaths. Ways in which the National Park Service would avoid or minimize potential impact on this species are identified in chapter 2.

### 3.4.2 Florida Panther

The Florida panther (*Puma concolor coryi*) is a subspecies of *Puma concolor* and represents the only known breeding population of puma in the eastern United States. An adult Florida panther is typically tan in overall coloration but may be darker brown to rust-colored along the midline of the back. Because it is distinct from other subspecies and is a small, isolated relic population, the Florida panther is listed as a federal and state endangered species (USFWS 2016a). The Florida panther was listed as federally endangered by the US Fish and Wildlife Service in 1967, and no critical habitat has been designated for this species.

Panthers require large, contiguous areas of suitable habitat; their habitat selection is most closely related to prey availability. Their diet mainly consists of white-tailed deer (*Odocoileus virginianus*) and wild hogs (*Sus scrofa*), but smaller mammals such as raccoons (*Procyon lotor*), armadillos (*Dasypus novemcinctus*), and rabbits (*Sylvilagus palustris*) are also an important part of their diet (USFWS 2016a). Preferred

vegetation communities include native upland forests and communities with a dense saw palmetto (*Serenoa repens*) understory for denning and resting.

Historically, this species ranged throughout most of the southeastern United States. Now, the only known self-sustaining population occurs in south Florida, generally in Lee, Collier, Hendry, Miami-Dade, and Monroe Counties (USFWS 2016a), which is less than 5% of its historical range. Potential panther habitat throughout the Southeast continues to be affected by human development. The small population size makes this species susceptible to a genetic bottleneck caused by a lack of genetic diversity, and the spread of contagious diseases has the potential to wipe out a large number of the remaining population. Additionally, panther mortality resulting from vehicle collisions threatens the potential for population expansion (USFWS 2016a).

The 26,400-acre Florida Panther National Wildlife Refuge was established in 1989 to protect the Florida panther and provide optimum habitat for this species. The refuge is near several state, federal, and tribal properties, including the preserve, Big Cypress Seminole Indian Reservation, Everglades National Park, Fakahatchee Strand Preserve State Park, and Picayune Strand State Forest. Together these lands form a large, contiguous tract of panther habitat. The preserve is within the primary zone of the USFWS Panther Focus Area (USFWS 2016). The primary zone, as defined by the US Fish and Wildlife Service, is occupied habitat that supports the only known breeding population of Florida panther. Conservation of these lands is essential for the long-term survival of this species, and any disturbance within the focus area has the potential to impact the species.

Extensive prior knowledge of panther movements from radio-tracking enabled placement of wildlife underpasses along I-75 at all identified panther crossing points. Twenty-four wildlife crossings and 12 other bridges modified for panther use were completed in the early 1990s within a 40-mile stretch of I-75, as well as a continuous barrier fence that directed animals to the crossings. Currently, there are 60 wildlife crossings or bridges that have been modified for use by panthers on Florida's roads. Panther deaths caused by vehicle collisions have been sharply reduced in areas where crossings and fencing are in place (FWC 2017). To date, the Florida Department of Transportation has built six wildlife crossings with associated fencing on State Road 29 to benefit the panther and other wildlife. The wildlife crossings allow panthers and other animals to move between Fakahatchee Strand State Forest and the Florida Panther National Wildlife Refuge on the west side of State Road 29 and Big Cypress National Preserve on the east side.

### **3.4.3 West Indian Manatee**

The West Indian manatee (*Trichechus manatus*) is a gentle, slow-moving herbivore that is found along the coast of Florida and in the Caribbean. Manatees move between freshwater, brackish, and saltwater environments. They prefer large, slow-moving rivers, river mouths, and shallow coastal areas, but may be found in canals during winter months as they search for warmer waters.

The West Indian manatee was listed as endangered by the US Fish and Wildlife Service in 1967. Critical habitat was designated by the US Fish and Wildlife Service in 1976. Some of this critical habitat exists within the preserve boundary in the southwest portion of Stairsteps Zone 1. Critical habitat within the preserve includes Halfway Creek and the canals around the Big Cypress National Preserve Welcome Center and housing, the lakes and channels of the Western Addition east of Everglades City, the Barron River Canal along Hwy. 29 and the Hwy 41 canal as far east as Birdon Road. A large portion of critical habitat exists adjacent to the preserve within the Ten Thousand Islands National Wildlife Refuge. Petition to the US Fish and Wildlife Service to revise the critical habitat for the manatee was issued in 2009, and the US Fish and Wildlife Service concurred that revision of the critical habitat was warranted. On April 5, 2017, the US Fish and Wildlife Service reclassified the West Indian manatee from endangered to

threatened under the Endangered Species Act. However, the US Fish and Wildlife Service has not yet moved forward with redesignation of critical habitat areas.

#### **3.4.4 Cape Sable Seaside Sparrow**

Cape Sable seaside sparrows (*Ammodramus maritimus mirabilis*) are medium-sized sparrows endemic to south Florida. They are nonmigratory residents of freshwater to brackish marshes. They prefer nesting in mixed prairie community that often includes muhly grass (*Muhlenbergia filipes*) (Stevenson and Anderson 1994). The short-hydroperiod prairies contain moderately dense, clumped grasses, with open space permitting ground movements by the sparrows. The restricted range of the Cape Sable seaside sparrow led to the US Fish and Wildlife Service listing the species as endangered in 1967. Changes in habitat that have occurred because of changes in the distribution, timing, and quantity of water flows in south Florida continue to threaten the subspecies with extinction (USFWS 1999b).

Critical habitat for the Cape Sable seaside sparrow was designated in 1977 and revised in 2007. No critical habitat has been mapped within the preserve; however, the preserve is situated within the consultation area. A core subpopulation of sparrows has historically existed within the southeastern boundary of Stairsteps Unit Zone 4. This subpopulation has experienced a sharp decline; as of the 2010 USFWS 5-Year Species Review (USFWS 2010), there were an estimated 93 individuals left of what was once a population of more than 2,500 individuals.

#### **3.4.5 Everglade Snail Kite**

The Everglade snail kite (*Rostrhamus sociabilis plumbeus*), now officially known as the snail kite, is a wide-ranging raptor found primarily in lowland freshwater marshes in tropical and subtropical America. The US Fish and Wildlife Service listed the snail kite as endangered in 1967. Because of a highly specific diet composed almost entirely of apple snails (*Pomacea paludosa*), survival of the snail kite depends directly on the hydrology and water quality of these watersheds, each of which has experienced pervasive degradation as a result of urban development and agricultural activities (USFWS 1999c).

Critical habitat for the snail kite was designated by the US Fish and Wildlife Service in 1977. No critical habitat is within the preserve; however, the eastern boundary of the preserve directly abuts the western boundary of the critical habitat. The preserve contains abundant suitable habitat and forage area within its vast prairies and marshes for this species.

#### **3.4.6 Audubon's Crested Caracara**

Audubon's crested caracara (*Polyborus plancus audubonii*) is a large, boldly patterned raptor, with a crest and unusually long legs. It is a resident, diurnal, and nonmigratory species. Its habitat mainly consists of the prairie and rangeland areas of the south-central region of Florida. Only the Florida population, which is isolated from the remainder of the subspecies in the southwestern United States and Central America, is listed under the Endangered Species Act (USFWS 1999d). Audubon's crested caracara was listed as threatened by the US Fish and Wildlife Service in 1987. No critical habitat has been designated for this species. A large portion of central and south Florida lies within the species' consultation area, including the lands in the preserve.

Audubon's crested caracara lives in a wide variety of semi-open habitats offering open ground for hunting and dense cover for nesting. These birds feed by flying low and taking small animals by surprise and by flying along highways in early morning, searching for roadkill (Audubon Society 2016). The mosaic of open and semiopen habitats in the preserve provide suitable habitat for this species.

### 3.4.7 Florida Bonneted Bat

The Florida bonneted bat (*Eumops floridanus*) is the largest species of bat in Florida (Belwood 1992); it can reach up to 6.5 inches in length, with a wingspan of 20 inches. Its name refers to its large, broad ears, which project forward over the eyes. Its fur ranges in color from dark gray to brownish-gray (NPS 2016b). Its diet primarily consists of flying insects, beetles, and flies. It has been known to forage in tropical hardwood, pineland, and mangrove habitats, as well as developed areas. It roosts in cliff crevices, tree cavities, and buildings. It is present in rural areas, as well as residential and urban areas (NPS 2016b). This species was listed as endangered by the US Fish and Wildlife Service in 2013. On June 10, 2020, the USFWS proposed that approximately 77% of the preserve be designated critical habitat for this species (USFWS 2020).

Because of its extremely limited range and low numbers, the Florida bonneted bat is vulnerable to a wide array of natural and human-related threats. Habitat loss, degradation, and modification from human population growth and the associated development and agriculture are major threats to this species (NPS 2016b). This species is active year-round and endemic to south Florida and is nonmigratory. The presence of this species in the preserve has been confirmed and two roost sites have been identified. General range information can be found at the following site: [Species profile for Florida bonneted bat \(\*Eumops floridanus\*\) \(fws.gov\)](https://www.fws.gov/species/species-profile/florida-bonneted-bat)

### 3.4.8 Wood Stork

The wood stork (*Mycteria americana*) is a large, long-legged wading bird, standing about 50 inches tall, with a wingspan more than 60 inches (USFWS 2016b). The wood stork's US range consists of parts of Florida, Georgia, and South Carolina. The wood stork forages for small fish, mainly in shallow water in freshwater marshes, swamps, lagoons, ponds, tidal creeks, flooded pastures, and ditches.

Highly social, these birds nest in large rookeries and feed in flocks. In south Florida, nesting occurs as early as October, with young leaving the nest in February or March. Nests are frequently located in the upper branches of large cypress trees or in mangroves on islands (USFWS 2016b).

The wood stork was listed as threatened by the US Fish and Wildlife Service in 1984. No critical habitat has been designated for this species. Based on data from 1996, there are eight wood stork rookeries in and directly adjacent to the preserve. As part of the evaluation for this Supplemental Draft Plan/EIS, trails and destinations were assessed for potential impacts within 1,000 feet from active wood stork colonies.

### 3.4.9 Eastern Indigo Snake

The Eastern indigo snake (*Drymarchon corais couperi*) is a large, nonvenomous snake that may reach up to 8 feet in length. The snake gets its name from its shiny, blue-black color. Its diet consists mainly of other snakes, amphibians, small mammals, and occasionally birds. Over most of its range (throughout Florida and along the coastal plain of Georgia) the Eastern indigo snake frequents several habitat types, including pine flatwoods, scrubby flatwoods, high pine, dry prairie, tropical hardwood hammocks, edges of freshwater marshes, agricultural fields, coastal dunes, and human-altered habitats. In the milder climates of central and southern Florida, Eastern indigo snakes exist in a more stable thermal environment, where availability of thermal refuge may not be as critical to the snake's survival.

The Eastern indigo snake was listed as threatened by the US Fish and Wildlife Service in 1978. No critical habitat has been designated for this species. While this species is often associated with the gopher tortoise, the Eastern indigo snake uses both uplands and wetlands throughout its life cycle. The Eastern indigo snake was listed as a threatened species because of dramatic population declines caused by over-collecting for the domestic and international pet trade as well as mortalities caused by rattlesnake collectors who gassed gopher tortoise burrows to collect snakes. Since its listing, habitat loss and



fragmentation by residential and commercial expansion have become much more noteworthy threats (USFWS 1999e). The habitat mosaic in the preserve supports an abundance of prey opportunities for the indigo snake. However, seasonal hydroperiods in the preserve are not conducive to the species and few records indicate the existence of the Eastern indigo snake in the preserve during these times.

#### **3.4.10 American Crocodile**

The American crocodile (*Crocodylus acutus*) is one of two species of crocodilians endemic to the United States. The American crocodile inhabits coastal habitats of extreme south Florida, the Caribbean, Mexico, Central America, and northern South America. The American crocodile is found primarily in mangrove swamps and along mangrove-lined bays, creeks, and inland swamps (Kushlan and Mazzotti 1989). Highly used inland waters suggests crocodiles prefer less-saline waters, using sheltered areas such as undercut banks and mangrove snags and roots that are protected from wind and wave action. Access to deep water is also an important component of preferred habitats (Mazzotti 1983).

In Florida, the American crocodile was listed as threatened in 1975 by the US Fish and Wildlife Service. Critical habitat was designated by the US Fish and Wildlife Service in 1976. There is no critical habitat in the preserve; however, critical habitat is identified in the neighboring Everglades National Park. Crocodiles have been known to occur in southwestern Collier County and are occasionally spotted in the preserve.

#### **3.4.11 American Bald Eagle**

The bald eagle (*Haliaeetus leucocephalus*) is one of the largest birds of prey found in North America. It is most commonly seen along coasts and near other large bodies of open water with an abundance of fish. The bald eagle prefers old growth and mature stands of coniferous or hardwood trees for perching, roosting, and nesting. Its diet is opportunistic and varied, but most feed mainly on fish. Since the 1980 listing for protection under the Endangered Species Act, gentler treatment by humans, along with the banning of the chemical dichlorodiphenyltrichloroethane (the bird's main pesticide threat), have led to a dramatic resurgence (USFWS 2015a). Bald eagles were delisted because of recovery and are no longer protected under the Endangered Species Act, but this species remains protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The Bald and Golden Eagle Protection Act is the state and federally enforced mechanism that makes it illegal to take bald or golden eagles, their parts, nests, or eggs. Under the Bald and Golden Eagle Protection Act, "take" is defined as any action that will kill, injure, molest, or disturb these species to the point where productivity or reproduction is affected. There are currently five known bald eagle nests within the preserve.

#### **3.4.12 Red-Cockaded Woodpecker**

The red-cockaded woodpecker (*Picoides borealis*; red-cockaded woodpecker) is approximately 7 inches long with a wingspan of about 15 inches. Its back is barred with black and white horizontal stripes, and its most distinguishing feature is a black cap and nape that encircle large white cheek patches. The diet of red-cockaded woodpeckers consists mostly of insects, including beetles, ants, roaches, spiders, and other insects found in or on pine trees. Fruits and seeds make up a small portion of the overall diet. Red-cockaded woodpeckers were once considered common throughout the longleaf pine ecosystem, which historically covered approximately 90 million acres before European settlement. The birds inhabited the open pine forests of the Southeast from New Jersey, Maryland, and Virginia to Florida, west to Texas, and north to portions of Oklahoma, Missouri, Tennessee, and Kentucky. The precipitous decline in red-cockaded woodpecker populations was caused by an almost complete loss of habitat. Longleaf pine ecosystems, of primary importance to red-cockaded woodpeckers, are among the most endangered systems on earth (Center for Biological Diversity 2016).

Red-cockaded woodpecker were listed as endangered by the US Fish and Wildlife Service in 1970. No critical habitat has been designated for this species.

Today, the red-cockaded woodpecker makes its home in mature pine forests and many red-cockaded woodpecker populations are located in the preserve. Longleaf pines (*Pinus palustris*) are most commonly preferred, but other species of southern pine are also acceptable (USFWS 2015b). The red-cockaded woodpecker is well established in mature slash pines (*Pinus elliottii*) in the preserve. Florida Fish and Wildlife Conservation Commission staff periodically monitor the locations and status of these populations, and there were 92 active colonies in the preserve in 2020.

### **3.4.13 Eastern Black Rail**

Eastern black rails (*Laterallus jamaicensis jamaicensis*) are found in a variety of salt, brackish, and freshwater marsh habitats that can be tidally or nontidally influenced. Within these habitats, the birds occupy relatively high elevations along heavily vegetated wetland gradients, with soils that are moist or flooded to a shallow depth (Eddleman et al. 1988). Eastern black rails require dense vegetative cover that allows movement underneath the canopy. Plant structure is considered more important than plant species composition in predicting habitat suitability for the subspecies (Flores and Eddleman 1995). Eastern black rails forage on a variety of small (<1 centimeter or 0.39 inch) aquatic and terrestrial invertebrates, especially insects, and seeds (e.g., *Typha*, *Scirpus*, *Spartina* spp.) by gleaning or pecking at individual items (Eddleman et al. 1994).

On November 9, 2020, the Eastern black rail was officially listed as threatened by the US Fish and Wildlife Service by a rule under authority of Section 4(d) of the ESA. Under rule 4(d), incidental take of this species resulting from long term or permanent conversion, fragmentation, or damage or persistent emergent wetland habitat and contiguous wetland upland transition zone is prohibited (Federal Register 2020). There is no designated critical habitat for the species. The preserve falls within the species range and provides suitable habitat to support black rail presence. The species has been documented with the Lostmans Pines, Deep Lake, and Turner River areas of the preserve.

### **3.4.14 Special Status Wading Birds**

Three state listed wading birds occur in the preserve. They are not listed or afforded protection under the federal Endangered Species Act. The population of wading bird species declined in the early 1900s because of egg and plume hunting and, currently, habitat degradation and loss, reduced prey availability, and disturbance at breeding and foraging sites contribute to ongoing population decline. These species range throughout Florida. In general, they forage in shallow water on a variety of fish, crustaceans, insects, and small reptiles, and they are colonial breeders.

### **3.4.15 Little Blue Heron**

The little blue heron (*Egretta caerulea*) is state listed as threatened and is commonly found within the preserve throughout the year. It feeds in a variety of aquatic habitats, including freshwater, brackish, and estuarine habitats. Nesting colonies are typically in coastal areas, usually in cypress, willow, maple, black mangrove, and cabbage palms. Foraging generally occurs in freshwater lakes, marshes, swamps, and streams; this habitat is abundant in the preserve (Florida Natural Areas Inventory 2001).

In 2013, the Florida Fish and Wildlife Conservation Commission finalized a Species Action Plan for Six Imperiled Wading Birds (FWC 2013), including the little blue heron, snowy egret, and tricolored heron. The objectives of the plan are to reverse the decline of the little blue heron and tricolored heron, maintain populations of the snowy egret, and improve the quality and amount of wading bird habitat. The plan identifies 31 conservation actions that contribute toward management and protection efforts so that the species does not warrant relisting on the Florida Endangered and Threatened Species List (FWC 2013).

Based on the criteria identified in the Species Action Plan, the little blue heron met criteria for listing as a threatened species because the population size has been reduced by 30% over the last three generations (36 years) due to decline in habitat (FWC 2013).

### 3.4.16 Tricolored Heron

The tricolored heron (*Egretta tricolor*) is state listed as threatened and is commonly found in the preserve in all seasons. Like the other wading birds, this species nesting is primarily in colonies of mixed species on mangrove islands or willow thickets in freshwater habitat and coastal environments. It forages in permanent and seasonal wetlands including mangrove swamp, tidal creeks, ditches, and the edge of ponds and lakes. Habitats for colony nesting and foraging are abundant in the preserve.

The same Species Action Plan, including the management and protection efforts, objectives, and conservation actions described for the little blue heron, apply to the tricolored heron. Like the little blue heron, the tricolored heron also meets criteria for listing as a threatened species.

## 3.5 WILDERNESS CHARACTER

The wilderness character of an area comprises the resources, values, and tangible and intangible attributes that render an area truly wild, where humans are visitors but do not remain. According to NPS Director's Order 41: *Wilderness Stewardship* (NPS 2011a), the condition of a particular wilderness can be measured, in part, via five "tangible qualities" of wilderness character. These defining qualities are rooted in the Wilderness Act of 1964 (16 USC 1131 et seq.) and can be summarized as follows:

- **Natural** — Wilderness ecological systems are substantially free from the effects of modern civilization. This quality is preserved or improved, for example, by controlling or removing nonindigenous species or restoring ecological processes. This quality is degraded by the loss of indigenous species, occurrence of nonindigenous species, alteration of ecological processes such as water flow or fire regimes, effects of climate change, and many others.
- **Untrammeled** — Wilderness is essentially unhindered and free from the intentional actions of modern human control or manipulation. This quality is influenced by any activity or action that intentionally controls or manipulates the components or processes of ecological systems inside wilderness. It is supported or preserved when such management actions are not taken. It is degraded when such management actions are taken, even when these actions are intended to protect resources, such as spraying herbicides to eradicate or control nonindigenous species, or reducing fuels accumulated from decades of fire exclusion.
- **Solitude or a Primitive and Unconfined Type of Recreation** — Wilderness provides outstanding opportunities for solitude or primitive and unconfined recreation. This quality is primarily about the opportunity for people to experience wilderness and is influenced by settings that affect these opportunities. This quality is preserved or improved by management actions that reduce visitor encounters, signs of modern civilization inside wilderness, agency-provided recreation facilities, and management restrictions on visitor behavior. In contrast, this quality is degraded by management actions that increase these factors.
- **Undeveloped** — Wilderness retains its primeval character and influence and is essentially without permanent improvement or modern human occupation. This quality is influenced by what are commonly called the "section 4(c) prohibited uses" or "nonconforming" uses, which are the presence of modern structures, installations, habitations, and the use of motor vehicles, motorized equipment, or mechanical transport. This quality is preserved by the absence of structures and installations and refraining from these prohibited uses. It is degraded by the

presence of structures and by prohibited uses, whether by the agency for administrative purposes, by others authorized by the agency, or unauthorized uses. (Note that structures and installations related to visitor use and recreation are included in the solitude quality rather than the undeveloped quality.)

- **Other Features of Value** — Wilderness preserves other tangible features that are of scientific, educational, scenic, or historical value. This quality captures important elements of the wilderness that may not be covered in the other four qualities, such as cultural or paleontological resources. No “other features of value” have yet been formally identified at the preserve.

### **3.5.1 Eligible and Proposed Wilderness in the Preserve**

There is currently no designated wilderness in the preserve, but parts of the preserve have been identified as eligible for designation (see appendix E and discussion at sections 1.3.2 and 2.12 above). Moreover, eligible lands in the Addition have previously been the subject of a formal wilderness study, resulting in a proposal that Congress designate 47,182 acres of the Addition as wilderness (see above, section 1.3.2). By policy, the National Park Services manages areas of eligible and proposed wilderness in such a way as to protect their wilderness character. See *NPS Management Policies 2006*, section 6.3.1.

Eligible and proposed wilderness at the preserve is in generally good condition. Past human activity outside and within the preserve boundary (e.g., canals and berms) has manipulated natural hydrological systems in the preserve, with adverse effects on some species, in some areas. Efforts are underway to ameliorate past trammeling actions to the extent feasible via hydrological restoration. Similarly, human activities have disrupted natural fire regimes in the preserve, prompting the National Park Service to use prescribed fire both to control fuel levels and benefit fire-adapted plants and animals. Hydrological restoration and prescribed fire are themselves trammeling actions, and they typically entail the use of motorized equipment and mechanized transport, thereby degrading the undeveloped quality of wilderness character. However, these activities serve to enhance the natural quality of wilderness character and, on balance, the natural quality is generally improving at the preserve. A long-standing adverse impact on the natural quality comes in the form of nonnative invasive plants and animals, which continue to pose a serious threat to natural systems at the preserve, as they do across south Florida.

Within the preserve, the undeveloped quality of wilderness character is currently degraded by evidence of past agricultural activities in some areas and signs of past dispersed motorized recreation in others. However, these disturbed areas continue to recover and now are essentially without permanent improvement or modern human occupation. As signs of past disturbance fade, opportunities for solitude and unconfined recreation increase. The preserve now protects some of the wildest areas in the eastern United States and is sought out by those seeking true solitude, physical challenge, and a wilderness experience.

### **3.6 VISITOR USE AND EXPERIENCE**

The preserve is a destination for both local residents and nonlocal visitors (NPS 2010). In the 1970s and 1980s, the primary visitors to the preserve were hunters, ORV users, and owners of improved properties (NPS 2010). Since the 1990s, there has been an increase in other recreational activities such as hiking, canoeing, wildlife viewing, bird watching, photography, bicycling, camping, picnicking, and sightseeing. This increase has happened concurrently with an increase in overall visitors to the preserve since the 1970s (NPS 2010).

According to the Addition GMP (NPS 2010), between 1997 and 2004, recreational visits to the preserve averaged between 400,000 and 500,000 per year. In 2005, visitation-counting methods changed to include

vehicle counts at the Oasis Visitor Center parking lot and the east and west ends of Loop Road. From 2005 to 2010, recreational visits to the preserve averaged approximately 785,000 per year (NPS 2012b).

Between 2005 and 2010, annual visits to the preserve included an average of 20,000 campground overnight stays, 11,000 backcountry overnight stays, 12,000 visits for hunting, 1,200 visits to the FNST, 71,000 visits to boat launch areas, 108,000 visitor center and headquarters visits, 14,000 interpretive program visits, and 3,000 visits as a part of a commercial tour. Visits by vehicle were recorded in the following locations (rounded to the nearest 1,000): 128,000 at Loop Road (east and west); 24,000 at Bear Island; 225,000 at Turner, Birdon, and Wagonwheel Roads; 21,000 at Mitchells Landing; 28,000 at Pinecrest; 41,000 at Turner River Launch site; and 192,000 at Oasis parking lot (NPS 2012b).

Existing visitor amenities and opportunities provided at the preserve include visitor centers, campgrounds, scenic drives, picnic facilities, trailheads, and trails. There are 16 permitted commercial operators that are authorized to provide visitor services in the preserve. These activities include swamp buggy tours, canoe and kayak rentals and tours, pole boat tours, camping and hiking tours, wilderness education, and bike rental and tours.

Due to the wide variety of uses, there is a potential for use conflicts between motorized and nonmotorized users seeking different experiences in the preserve. While there are many recreational activities available in the preserve, the dominant ones are discussed below.

### **3.6.1 Off-Road Vehicle Use**

Remote backcountry areas of the preserve are challenging to reach by foot. ORVs are a practical way to access the preserve's interior, and thus, ORV use is a traditional, popular recreational activity. Several types of ORVs are used to access the backcountry, including street-legal four-wheel-drive vehicles (4 × 4s), lightweight all-terrain vehicles, utility task vehicles, swamp buggies, and airboats. Motorcycles and other two-wheeled, motorized vehicles are not permitted in the backcountry.

Recreational activities that involve ORV use include hunting, fishing, frogging, camping, wildlife observation, transportation to private property, and recreational driving. ORV use is heaviest during the fall, winter, and spring hunting seasons. The greatest use is on opening weekends of hunting seasons and holidays.

Obtaining an ORV permit is a three-step process. First, before a vehicle permit sticker can be issued, a vehicle inspection (including meeting certain safety requirements) must be performed. Second, operators are required to complete an online ORV operator course before an operator permit can be issued. Lastly, ORV operators must also purchase an annual ORV permit (\$100 annually) to be displayed on the inspected vehicle. The vehicle permit is required for recreational ORV operation along preserve trails. All permit sales are on a first-come, first-served basis at this time, but a drawing system may be used as demand approaches the 2,000-permit per year limit. The National Park Service maintains a record of applicant and ownership information for each permitted ORV. Vehicle operators are responsible for knowing NPS regulations that apply to ORV use in the preserve.

Within the original preserve, ORV permit numbers have generally declined over recent years, going from a high of 2,000 in 2010 to a low of 1,021 in 2018. (1,359 permits were issued in 2020, the latest year for which figures are available.) Fluctuations in the number of ORV permits issued each year also reflect water levels in the preserve, with fewer registered vehicles in the wetter years (e.g., 1995) when portions of the preserve are closed to hunting (NPS 2010).

Management of ORVs in the original preserve is guided by the 2000 Recreational ORV Management Plan (NPS 2000a). Management of ORVs in the Addition is guided by the Addition GMP (NPS 2010). ORV use by the general public is currently prohibited in the Addition; however, under the Addition GMP the

National Park Service anticipates phasing it in over time (NPS 2010) and expects to designate up to 130 miles of primary trails and issue 650 ORV permits in the Addition.

There is an extensive network of primary ORV trails in the original preserve (table 3-4). No secondary ORV trails are currently open. There are 15 ORV access points distributed across four management units in the preserve.

**Table 3-4. Current Primary Trail Network in the Preserve**

Management Unit	Miles of Existing Primary ORV Trails
Bear Island Unit	21
Corn Dance Unit	65
Deep Lake Unit	—
Loop Unit	—
Stairsteps Zone 1	—
Stairsteps Zone 2	6
Stairsteps Zone 3	3
Stairsteps Zone 4	58
Turner River Unit	124
Western Addition	1
TOTAL	278

## 3.6.2 Camping

### 3.6.2.1 Established Campgrounds

The preserve offers several campgrounds, some of which are closed seasonally, with options for RV sites, restroom facilities, electrical hookups, and drinking water (table 3-5). These campgrounds offer easy access to backcountry areas, and some backcountry users stay in the campgrounds. Reservations for camping can be made through [www.recreation.gov](http://www.recreation.gov) for all campgrounds except Pink Jeep, Gator Head, and Bear Island Campgrounds, which are first-come, first-served; no reservations are taken. Within the Bear Island Unit, camping is allowed only in designated campgrounds including Bear Island Campground (40 sites). The Bear Island Campground is accessible by road vehicle. The Pink Jeep and Gator Head campgrounds are accessible only by permitted ORVs, biking, or hiking.

**Table 3-5. Campgrounds in the Preserve**

Campground (type)	# of Sites	Availability	Drinking Water?	Dump Station? <sup>1</sup>	Electrical Hookups?	Restroom?	Fee (per night)
Bear Island (primitive)	40 Tent	Varies: campsites 1–12 are open year-round. Sites 13–40 are open August 15 to April 15.	No	No	No	Vault toilets	\$10
Burns Lake (primitive)	8 RV/ 6 tent	August 15 -April 15. But open year-round for day use and backcountry access parking.	No	No	No	Vault toilets	\$24

Campground (type)	# of Sites	Availability	Drinking Water?	Dump Station? <sup>1</sup>	Electrical Hookups?	Restroom?	Fee (per night)
Midway (developed)	26 RV/ 10 tent	Open year round	Yes	Yes	Yes	Yes	RV site \$30; tent site \$24
Mitchell Landing (primitive)	11 RV/ tent	August 15 - April 15	No	No	No	Vault toilets	\$24
Monument Lake (developed)	26 RV/ 10 tent	August 15 - April 15	Yes	No	No	Yes	RV site \$28; tent site \$24
Pinecrest Group Campground (primitive)	4 Group sites (8 tents, 15 people each)	Open year-round	No	No	No	No	\$30
Pink Jeep (primitive backcountry)	9 Tent	August 15 – April 15	No	No	No	Vault toilets	\$10, ORV users need ORV permit
Gator Head (primitive backcountry)	9 Tent	August 15 – April 15	No	No	No	Vault toilets	\$10, ORV users need ORV permit

<sup>1</sup> Dump stations are located at Midway Campground and at Dona Drive (2.5 miles east of State Road 29 on US 41). Dump stations may be used free of charge by campers paying for NPS campgrounds in the preserve. There is a \$10 fee for those campers not paying for a preserve campground.

### 3.6.2.2 Backcountry Camping

Backcountry camping is allowed in almost all of the preserve. Such camping gives visitors a chance to experience the preserve's interior. Backcountry users must carry everything they need to survive on their back or in an ORV. A free backcountry camping permit is required for all backcountry camping. The permit can be filled out online and printed or obtained at a backcountry trailhead or visitor center.

Except as restricted in the Bear Island Unit and Zone 4 of the Stairsteps Unit, dispersed camping in nondeveloped areas is allowed in the preserve. Visitors may drive ORVs to a location along a designated trail nearest the preferred camping spot, park the ORV along the shoulder of the trail in such a manner that does not impede travel by others, and carry equipment to the campsite. Backcountry camping is prohibited within 0.5 mile of any developed area or county or state roads.

### 3.6.2.3 Backcountry Camping Rules and Regulations

The maximum length for a single stay in the preserve designated backcountry areas is 10 days from January 1 through April 30 and 14 days from May 1 through December 31. The total number of days a visitor may camp in the preserve backcountry in a calendar year is 180 days. When the daily limit has been reached for each time period, the person, party, or organization must move as instructed to another designated camping area. Except for the periods and locations indicated below, no camping gear can be left in the backcountry when the user is not actively camping and staying overnight at the campsite.

An individual may camp or leave camping gear unattended in backcountry areas of the preserve for the length of the following specific hunting seasons, except for Zone 4 of the Stairsteps Unit and the designated sites in the Gator Head and Pink Jeep Campgrounds:

- archery season/muzzle loading season
- general gun season
- spring turkey season

Campers must comply with the preserve's food storage regulations and all food/drink coolers are required to be Interagency Grizzly Bear Committee approved per the superintendent's compendium. See 36 CFR 2.10 (d).

ORV use in campgrounds is limited to Burns Lake, Pink Jeep, and Gator Head Campgrounds only. Travel by ORV is for the purpose of accessing the backcountry trails from parking areas or campsites by permitted ORVs. Mitchell's Landing allows permitted airboats to be launched from the launch site.

In the Bear Island Unit, backcountry camping is permitted only at designated campsites: nine tent sites at Gator Head Campground and nine tent sites at Pink Jeep Campground. Campers who leave equipment at the Gator Head and Pink Jeep Campgrounds would be required to pay the daily camping fee for the days their equipment occupies the site.

In Stairsteps Unit Zone 4, airboat users must camp in designated campsites only (1–16). Backcountry camping is allowed in other areas of Zone 4 (except the seaside sparrow closure area) when access is gained by foot or nonmotorized vessel and the campsite is at least 0.5 mile from Loop Road and 0.25 mile from any designated campsite or airboat trail. No personal property (e.g., tents, grills, cookware, tables, bedding) can be left in the backcountry anywhere in Zone 4 when the user is not actively camping and staying overnight at the campsite.

### **3.6.3 Hunting**

The preserve has been designated by the state as a wildlife management area, and the National Park Service permits hunting by the public in accordance with state laws and regulations. The National Park Service and the Florida Fish and Wildlife Conservation Commission have concurrent jurisdiction for enforcing game and fish laws in the preserve. Similarly, although the National Park Service has authority to manage wildlife in the preserve, the National Park Service cooperatively manages the Big Cypress Wildlife Management Area along with the Florida Fish and Wildlife Conservation Commission. The Commission manages species restoration; conducts research, surveying, and monitoring activities; sets regulations and seasons for hunting and fishing; and in addition to other activities, conducts outreach and education initiatives. The Florida Fish and Wildlife Conservation Commission consults with the National Park Service and US Fish and Wildlife Service before issuing regulations that affect hunting within the preserve. Likewise, the National Park Service consults with the Commission before establishing any temporary or permanent closures or public use limits.

Hunting regulations within the preserve are outlined in the Florida Fish and Wildlife Conservation Commission Big Cypress Wildlife Management Area Regulations brochure, which is updated annually and posted on the websites of both the commission and the preserve. The brochure provides detailed information on quota permit information, ORV permit requirements, general area regulations, public access and vehicles, check stations, dogs, camping, bag and possession limits, archery season, muzzle-loading gun season, modern gun season, small game season, trapping (which is prohibited in the preserve), spring turkey season, migratory bird seasons, fishing and frogging, and general NPS rules and information (FWC 2020).

Hunting seasons in the preserve include archery, muzzle-loading gun, general gun (rifles or shotguns), small game, spring turkey, and migratory bird. Hunters typically access stands and camps via ORVs.



Hunters may take antlered deer, wild hogs, and turkeys (spring turkey season only). Hunters may also take gray squirrels, quail, rabbits, raccoons, and coyotes, as well as migratory game birds in season.

Fishing and frogging are allowed year-round. Fishing requires a license and anglers must adhere to Florida's Freshwater Fishing Regulations published by the Florida Fish and Wildlife Conservation Commission. Recreational frogging for personal use is allowed and does not require a license. Frogs may be taken by gig (multipronged spear) only.

Deer and hog hunting season takes place from September through December. From 2015–2020 deer and hog hunting seasons in the preserve averaged 6,840 human-days of hunter pressure with a mean annual harvest (over the five years) of 89 deer (bucks only) and 1 hog (FWC 2020-2021 Annual Harvest Report). The Florida Fish and Wildlife Conservation Commission and the National Park Service monitor deer population trends through aerial surveys because deer and hogs are the main prey species of the Florida panther (NPS 2014).

### **3.6.4 Wildlife Viewing**

Several major highways transect or run adjacent to the preserve. Interstate 75, Alligator Alley, crosses the northern portion of the preserve for approximately 30 miles. Although this highway is the primary transit route between Fort Lauderdale and Naples, it also offers views into the undeveloped land in the preserve. US 41, Tamiami Trail, is a paved highway that crosses the southern portion of the preserve for about 36 miles. State Road 29 is a paved highway that forms the western border of the Western Addition for approximately 29 miles.

There are various opportunities for visitors to view wildlife along the extensive network of paved and unpaved roads throughout the preserve, such as Burns Road, Bear Island Grade, portions of the L-28 levee road, the Jetport access road, and Bass Road. Popular scenic drives in the preserve include Loop Road and the Turner River/Wagonwheel/Birdon Roads loop. Visitors can view birds, alligators, and other wildlife. There is also a nature center and an interpretive trail along Loop Road. In the original preserve, formal wildlife observation platforms are located at the H.P. Williams Picnic Area, the Kirby Storter Boardwalk, the Big Cypress Swamp Welcome Center, and the Oasis Visitor Center. Within the Addition, wildlife viewing and bird watching opportunities are relatively primitive in nature and self-directed because no infrastructure is available (NPS 2010).

The preserve supports bird watching as one of its principal attractions in both frontcountry and backcountry areas. Cypress strands, hardwood hammocks, old-growth pine flatwoods, sawgrass prairies, and mangrove forests support an array of bird diversity. Nearly 200 species of birds may be seen throughout the year, including limpkins, purple gallinules, roseate spoonbills, snail kites, swallow-tailed kites, and wood storks. The preserve is part of the Great Florida Birding and Wildlife Trail, a collection of 445 sites throughout Florida selected for their excellent bird watching or bird education opportunities.

### **3.6.5 Hiking**

Hiking in the preserve can be along designated trails, including ORV trails, or orienteering through unmarked territory. There are 63 miles of dedicated hiking trails in the preserve, 36 miles of which are part of the FNST. The FNST is a 1,400-mile nonmotorized, recreational trail that stretches across Florida; it received federal designation as a National Scenic Trail in 1983. The FNST provides backcountry hiking experiences to visitors; its southern terminus is the Oasis Welcome Center.

The FNST within the preserve can be divided into two sections from north to south:

- Northern Preserve Boundary to I-75 (approximately 8 miles) – This section of trail follows Nobles Grade, an old oil road, through hardwood, prairie, and pineland habitats. Because it

follows an old road, it makes for an easier hiking experience and is not subject to becoming overgrown like the southern portion of the trail.

- I-75 to US 41 (approximately 29 miles) – Trailheads are located on US 41 near the Oasis Visitor Center and on I-75 at the rest area at Mile Marker 63. The trail passes through a variety of habitat types including hardwood hammocks, pine flatwoods, prairies, and cypress. This walk is not for the casual hiker. It is not heavily marked and vegetation grows over it during the rainy season when there is little foot traffic. During the dry season, there is no water available on this part of the FNST and visitors must carry all water.

The US 41 to Loop Road Trail (approximately 6.5 miles), formerly part of the FNST, is also available for visitors to experience the preserve's backcountry. The trail begins at Loop Road and ends across the highway from the Oasis Visitor Center. The trail traverses dwarf cypress and prairies and crosses through Robert's Lake Strand. It is well marked and easy to moderate in the winter season, but knee to waist deep in water during the rainy season. Additionally, there are several short (less than 3 miles) frontcountry trails available for hiking, including Bass Lake Trail, Deep Lake Trail, Fire Prairie Trail, Gator Hook Trail, and Tree Snail Hammock Trail.

### **3.6.6 Paddling (Canoeing/Kayaking)**

There are several designated paddling (non-motorized) trails available for visitors in the preserve, most of which are south of US 41. The options range from easy to moderate trails including the Turner River Paddling Trail (9.93 miles), the Halfway Creek and Halfway Creek Loop Paddling Trails (7.28 miles), and the Lefthand Turner River Paddling Trail (3.65 miles). Other areas are open to motorized and nonmotorized boats. In the Addition, the lakes and streams adjacent to Everglades City and Plantation Island are open to paddlers and provide a coastal marsh and mangrove experience (NPS 2010). Waterways in the park are subject to superintendent closure when hydrological conditions place greater than normal stress on wildlife or when conditions pose a safety hazard to visitor use.

### **3.6.7 Motorboat Use, Including Airboats**

Use of motorboats throughout the preserve is generally restricted to the deeper water estuarine environments south of US 41 outside of Everglades City and the L-28 Interceptor Canal in the Northeast Addition. The Stairsteps Unit (south of US 41) is the wettest area of the preserve and is often referred to as "airboat country." Access to Zone 4 of the Stairsteps Unit is restricted to airboats.

In accordance with the principles of adaptive management, the preserve has established water levels for airboat use in Stairsteps Unit Zone 4. Different low-water levels have been established for the summer-fall (June through December) and winter-spring (January through May) seasons. As described in the 2000 Recreational ORV Management Plan, airboat use in Zone 4 is allowed as follows:

- during the summer-fall season only when water levels at the P34 gauging station are greater than 2.2 feet above sea level and less than 4.0 feet above sea level
- during the winter-spring season only when water levels at the P34 gauging station are greater than 3.0 above sea level and less than 4.0 feet above sea level

Motorized vessels are regulated by the Florida Fish and Wildlife Conservation Commission, which serves as the state boating law administrator, and the US Coast Guard. All vessels must comply with applicable federal and state laws (NPS 2010). Airboats must meet all Florida and US Coast Guard rules and regulations for vessels, including lighting and registration.

### 3.7 NATURAL SOUNDSCAPES

The natural soundscape is considered a resource and includes sounds found desirable during times of rest and relaxation. The enjoyment of natural sounds in the preserve enhances the visitors' experience, and natural quiet can be essential for some individuals to achieve a feeling of peace and solitude. Natural sounds throughout the preserve (e.g., flowing water, animals, and rustling leaves) are not considered noise. There are no absolute standards that define unacceptable levels, duration, or qualities of environmental noise (NPS 2013). The frequencies, magnitudes, and durations of human-caused sound considered acceptable vary among the NPS units (NPS 2012b). In the preserve, the levels and types of noise that are considered acceptable vary based on management zoning, resource sensitivity, human activity, and expectations of visitor experiences (NPS 2000b).

As stated in Director's Order 47: *Sound Preservation and Noise Management* (NPS 2000b), natural sounds are intrinsic elements of the environment. They are inherent components of the "scenery and the natural and historic objects and the wildlife" protected by the Organic Act of 1916. Per *NPS Management Policies 2006* (NPS 2006a) and Director's Order 47 (NPS 2000b), the National Park Service seeks to preserve natural soundscapes and restore degraded soundscapes whenever possible. The National Park Service is responsible for preserving, to the greatest extent possible, the natural quiet and natural sounds associated with physical and biological resources and restoring the natural condition wherever possible of those soundscapes that have become degraded by noise /unnatural sounds (NPS 2010). Sound levels are usually measured and expressed in decibels (dB) that are weighted to frequencies perceivable by the human ear, known as A-weighted sound levels (dBA).

There are many sources of noise within the preserve. Human-generated sounds within the preserve include sounds created by NPS administrative operations such as resource management, prescribed fire activities, emergency response, and facility maintenance; overflight sources such as high-altitude, commercial jet traffic, military activity, and general aviation; recreational activities such as ORV use, hunting-related firearm use, and watercraft; oil and gas operations and development; and vehicles (NPS 2010). Vehicle noise levels (for both on-road vehicles and ORVs) may vary depending on vehicle type, speed of travel, and type of tires. Elevated noise levels are generally concentrated along vehicular access trails and at campgrounds. NPS administrative operations may also use helicopters to access the backcountry (NPS 2000b); however, the Supplemental Draft Plan/EIS does not contemplate or include public or private use of helicopters within the preserve.

Sound levels in the preserve vary greatly, depending on the area and activities. Ambient sound levels in the preserve generally range between 24 dBA and 40 dBA, depending on the contribution of noise by insects (NPS 2010). Typical sounds and their approximate levels are shown in table 3-6.

**Table 3-6. Typical Sounds in the Preserve**

Sound	Approximate Level (dBA)
Threshold of human hearing at 1 kHz	0
Leaves rustling	20
Whispering (5 feet)	20
Crickets (16 feet)	40
Distant bird calls	45
Rainfall	50
Normal conversation	60
Highway traffic	70
Motorboats	85 - 115

Sound	Approximate Level (dBA)
Thunder	100 - 120
Gunfire	150 - 170

Sources: NPS 2013, NPS 2011b

There are about 278 miles of primary trails where ORV use is currently permitted (table 3-4). Recreational ORV use is not allowed in the Deep Lake Unit, Loop Unit, Stairsteps Unit Zone 1, or the Addition, and impacts to the natural soundscape are least pronounced in these areas. With nearly 124 miles of available primary ORV trails, Turner River Unit provides visitors with the most trails, and correspondingly the most impacts to natural soundscapes. ORV users must procure permits for backcountry trips, and if the National Park Service temporarily closes certain areas of the preserve for safety or resource protection reasons, ORV users must not operate in closed areas (NPS 2000a). These policies ensure that ORV users can use the preserve while limiting impacts to the natural soundscape.

There are about 57 miles of trail in Stairsteps Unit Zone 4 where airboat use is currently permitted. All airboats are required to have one or more exhaust headers or manifolds attached to a flex pipe and routed to rear of the boat, and “powerloading” or running the engine to load an airboat onto a trailer is prohibited, as per the ORV Management Plan (NPS 2000a). These regulations ensure that airboat users can use the preserve while limiting impacts to the natural soundscape.

### 3.8 ETHNOGRAPHIC AND ARCHEOLOGICAL RESOURCES

The preserve is situated within the Glades region of south Florida—an area defined by hardwood and pinewood hammock, sawgrass, and dwarf cypress interspersed with shallow freshwater marshes and prairies. Human habitation of this region can be traced back to the late Pleistocene or Lithic eras. Paleo-Indian populations migrating throughout North America likely arrived in south Florida more than 13,000 years ago. Florida’s environment was substantially different during this period. Sea levels were much lower and Florida’s land mass was about twice the size it is today. The climate was much cooler and drier. The story of human activity in Florida during this period is not well understood, due in part to the fact that much of the area occupied by humans was inundated by rising sea levels that occurred with the retreat of the continental ice sheets that began around 12,000 to 13,000 years ago. This change in global glaciations signaled the end of the Pleistocene era.

The prehistoric periods of human culture include the Paleo-Indian period, the Archaic period (8,000 BC to 500 BC), and the Glades Tradition period, which extends into the historic period (500 BC to AD 1760). The historic periods of human culture begin within the initial Spanish contact in 1513 and continue through the 20<sup>th</sup> century.

There are fewer than 100 Paleo-Indian archeological sites in Florida, and none are located within the boundary of the preserve. Most sites associated with the Paleo-Indians of this era are likely submerged beneath the state’s coastal waters. However, at least one area, within Deep Lake management unit, has the potential for association with this prehistoric period.

The Archaic period that followed the Pleistocene is divided into three distinct divisions: early, middle, and late. The Archaic cultures of south Florida are distinguished by progressively more diversified hunting, fishing, and gathering; the creation of more permanent settlements; and increasingly sophisticated tools, trade networks, and in the late Archaic the appearance of pottery. A few Archaic period sites have been identified within the preserve.

The Glades period or Glades Tradition succeeded the Archaic period and incorporates both the end of the prehistoric period in south Florida and the first historic documentation of indigenous culture in south Florida. The Glades Tradition witnessed the introduction of decorated pottery and woodworking, as well

as the introduction of European trade goods such as metal implements and trade beads. Spanish explorers documented the extant tribal cultures, which included the Calusa, Tequesta, and Key Indians.

The Spanish established forts and settlements along the Florida coast, raided the tribes for slaves, and sought to convert the indigenous peoples to Christianity. The Spanish managed to retain some control of Florida despite repeated incursions by the English and French. Following the end of the Seven Years' War in 1763, Spain ceded Florida to Great Britain. At the end of the American Revolution in 1783, the British returned Florida to Spain. The Spanish maintained at least nominal control of Florida while the British and the Americans tried to assert control over the region. The United States officially acquired Florida in 1821. American expansion into Florida led to the establishment of ports and towns, the introduction of the plantation system, and a policy of Indian removal, which in turn triggered prolonged and intense conflict with the Seminoles.

The Seminoles trace their origins back to groups in the Creek Confederacy, many of whom migrated into Florida in the 18th century. Additionally, according to Seminole oral tradition they joined with the remaining people of the Florida tribes. Many Seminoles sought to escape Indian removal by taking refuge in the Everglades and Big Cypress swamp, where they managed to maintain a presence even as European settlers ultimately asserted control over the rest of Florida.

The pace of modern development in Florida greatly accelerated in the 20th century. Farming, ranching, logging, oil and gas exploration, and land development opened areas that earlier European contact had left relatively undisturbed. The completion of the Tamiami Trail in 1928 connected Florida's Atlantic and Gulf coasts and opened the interior to recreation. The Big Cypress area has been home to a wide range of recreational activities, such as hunting, fishing, trapping, boating, and hiking for many generations.

Despite changes in use, development, and access, the Seminole Tribe of Florida and Miccosukee Tribe of Indians of Florida have maintained a presence in the Big Cypress area. The preserve's establishing legislation recognizes special access rights for both tribes for "usual and customary use and occupancy within the preserve, including hunting, fishing, and trapping on a subsistence basis and traditional tribal ceremonials."

There are approximately 500 known archeological sites within the preserve. The NPS Southeastern Archeological Center anticipates that there are also several hundred unrecorded sites in the preserve. Recorded sites and anticipated cultural resources may include prehistoric habitation areas, burial areas, special use camps, 19th century military camps, fortifications, trails, and historic Seminole or Miccosukee camps and sacred areas, as well as 20th century hunting and lumber camps.

These sites are all protected under the Archaeological Resources Protection Act of 1979, as amended (16 USC 470 et seq.) and by NPS *Management Policies 2006* (NPS 2006a). The 2000 Recreational ORV Management Plan established criteria for developing the designated ORV trail system and access points, including criteria for resource protection. The goal of the criteria was to "protect important environmental and cultural areas, restore heavily impacted and environmentally sensitive areas, and direct use to areas of suitable substrate." These criteria were designed to entirely avoid archeological sites (NPS 2000a). However, there are several areas in the preserve where existing ORV trails may or may not be impacting previously recorded sites and the current conditions of many sites are unknown.

The goal of this Supplemental Draft is to plan trails and destinations to entirely avoid known archeological sites and additional sites where there is higher potential for these resources to be present, specifically hammock habitat. A Programmatic Agreement has been developed in order to ensure that adequate archaeological investigation is conducted to identify potentially eligible cultural resources that could be affected by the destinations and trails.

Currently, there is no available database for ethnographic resources in the preserve. An ethnographic resource is a site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it (NPS 2006a). The Seminole Tribe of Florida and the Miccosukee Tribe of Indians of Florida are both recognized in the preserve's enabling legislation as peoples traditionally associated with the preserve. Although the Seminole Nation of Oklahoma is not recognized in the enabling legislation, it is also traditionally associated with the Big Cypress. Despite being forcibly removed, the Seminole Nation of Oklahoma continues to acknowledge Florida and the Big Cypress as part of its ancestral lands. Many resources within the original preserve and the Addition have traditional associations with the Seminole and Miccosukee tribes.

Native American ceremonial sites exist in the preserve. The National Park Service, in accordance with the American Indian Religious Freedom Act of 1978, is working with the various Miccosukee and Seminole groups to protect the privacy and sanctity of their ceremonial and burial sites.

# Chapter 4

## Environmental Consequences



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## CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

### 4.1 INTRODUCTION

This chapter discusses the likely environmental consequences resulting from a no-action alternative and two proposed action alternatives.

The analysis is the basis for comparing the beneficial and adverse effects of implementing the alternatives. By examining the environmental consequences of the alternatives on an equivalent basis, decision makers can evaluate which approach would create the most desirable combination of benefits with the fewest adverse effects.

### 4.2 ANALYSIS METHODS AND ASSUMPTIONS

The analysis of impacts follows Council on Environmental Quality guidelines, Director's Order 12 procedures, the NPS *NEPA Handbook* (NPS 2015a), and NPS *NEPA Handbook Supplemental Guidance: Writing Impact Analysis Section of EA and EISs* (NPS 2015b). Preparation of this document was begun before promulgation of revised NEPA regulations on July 16, 2020 (at 85 Federal Register 43304). See 40 CFR Parts 1500-1508. The formatting and general approach of this document reflects the former regulations, e.g., in its treatment of cumulative impacts, but is consistent with the requirements of the revised regulations.

The planning team based the impact analysis and the conclusions in this chapter on the review of existing literature and field studies, information provided by experts in the preserve and in other agencies, and professional judgment. The team's method of analyzing impacts is further explained below. Impacts were assessed with the assumption that the implementation of mitigation measures would minimize, reduce, and/or avoid impacts to resources. If mitigation measures described in chapter 2 "Alternatives," including the preferred alternative, were not implemented, the potential for resource impacts and the magnitude of those impacts would increase.

The environmental consequences for each resource were identified and characterized based on impact type (adverse or beneficial), intensity, area of analysis, and duration. Cumulative effects are discussed in section 4.3, "Cumulative Impacts Analysis."

*Impact Type* refers to whether the impact would be beneficial or adverse:

- *Beneficial*: A favorable change in the condition or appearance of the resource, or a change that moves the resource toward a desired condition
- *Adverse*: A change that declines, degrades, and/or moves the resource away from a desired condition or detracts from its appearance or condition

*Impact Intensity* refers to the degree or magnitude to which a resource would be beneficially or adversely affected.

*Area of Analysis* refers to the geographic setting within which an impact may occur, such as the affected region or locality. In this document, most impacts are either site-specific or are expected to occur throughout the preserve.

*Impact duration* refers to how long an impact would last. For many of the resources evaluated, the duration is estimated based on whether restoration to predisturbance conditions would require mechanical manipulation or human intervention or would occur under natural ecological processes within a given period.

Impacts on a resource area may result from a variety of direct or indirect effects. *Direct effects* are caused by an action and are effects that occur at the same time and place as the action. *Indirect effects* are caused by the action and occur later or farther away but are still reasonably foreseeable. This document discloses and analyzes both direct and indirect effects but does not differentiate between them in the discussions.

The impacts of the action alternatives describe the impacts that would occur resulting from implementing the no-action alternative and implementing each of the action alternatives. To understand the full scope of the impacts of implementing any of the action alternatives, the reader should also consider the impacts that would occur in the no-action alternative. While the “Affected Environment” section (chapter 3) serves as the baseline for assessing impacts, it is important to understand that impacts occur even under the no-action alternative.

The impact analysis for natural resource impact topics (wetlands, soils, vegetation, special status species) was based on research; the National Park Service and other expert knowledge of the area’s resources; and the best professional judgment of planners, resource specialists, and biologists who have experience with similar types of projects. Additional methods and assumptions used in characterizing the severity or intensity, as well as the duration, of impacts for certain resource areas (e.g., special status species) are discussed below.

#### **4.2.1 Special Status Species**

Impacts on special status species are characterized according to impact type, intensity, context, and duration. In this document, the anticipated Endangered Species Act determination categories are based on the US Fish and Wildlife Service and the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service guidance for implementing section 7 consultation under the Endangered Species Act (USFWS 1998) and are as follows.

- *No effect*: The appropriate conclusion when the action agency determines its proposed action would not affect a listed species or designated critical habitat.
- *May affect, not likely to adversely affect*: The appropriate conclusion when effects on listed species are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous favorable effects without any adverse effects to the species. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur.
- *May affect, likely to adversely affect*: The appropriate finding in a biological assessment (or conclusion during consultation) if an adverse effect to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial (see definition of may affect, not likely to adversely affect). In the event the overall effect of the proposed action is beneficial to the listed species, but is also likely to cause some adverse effects, then the proposed action is likely to adversely affect the listed species. If incidental take is anticipated to occur as a result of the proposed action, a likely to adversely affect determination should be made.

#### **4.2.2 Cultural Resources and Section 106 of the National Historic Preservation Act**

The impact analyses provided in section 4.11, “Ethnographic and Archeological Resources,” are intended to comply with the requirements of both NEPA and section 106 of the National Historic Preservation Act.

In accordance with the Advisory Council on Historic Preservation's regulations implementing section 106 (36 CFR Part 800), impacts on cultural resources were also identified and evaluated by

1. determining the area of potential effects;
2. identifying cultural resources present in the area of potential effects that are either listed in or eligible to be listed in the National Register of Historic Places;
3. applying the criteria of adverse effect to affected, NRHP-eligible or NRHP-listed cultural resources; and
4. considering ways to avoid, minimize, or mitigate adverse effects.

**Consultation with SHPO/THPO, and Native American tribes.** Under the Advisory Council's regulations, a determination of either *adverse effect* or *no adverse effect* must also be made for affected, NRHP-listed or eligible cultural resources depending on the impacts to any characteristics of the resource that qualify it for inclusion in the NRHP. An *adverse effect* occurs whenever an impact alters (directly or indirectly) a characteristic of a cultural resource that qualifies it for NRHP inclusion (e.g., diminishing the integrity or the extent to which a resource retains the historic appearance of its location, design, setting, materials, workmanship, feeling, or association). Cultural resources are nonrenewable resources, and adverse effects generally consume, diminish, or destroy the original historic materials or form, resulting in a loss in the integrity of the resource that can never be recovered. Therefore, although actions determined to have an *adverse effect* under section 106 may be mitigated, the effect remains adverse. Adverse effects also include reasonably foreseeable effects caused by actions proposed in the alternatives that would occur later in time, be farther removed in distance, or be cumulative (36 CFR 800.5). A determination of *no adverse effect* means there is an effect, but the effect would not diminish the characteristics of the cultural resource that qualify it for inclusion in the NRHP.

A section 106 summary is provided at the end of the impact analysis sections for each alternative. It is an assessment of the effect of the undertaking (implementation of the alternative), based on the criterion of effect and criteria of adverse effect found in Advisory Council regulations. In addition to NRHP-eligible and listed sites, the National Park Service is required to protect sites not yet assessed for eligibility, and ethnographic resources.

### 4.3 CUMULATIVE IMPACTS ANALYSIS

The Council on Environmental Quality regulations implementing NEPA (40 CFR 1500-1508) require the assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions" (40 CFR 1508.7). As stated in the Council on Environmental Quality handbook, *Considering Cumulative Effects* (Council on Environmental Quality 1997), cumulative impacts need to be analyzed in terms of the specific resource, ecosystem, and human community being affected and should focus on effects that are truly meaningful.

Cumulative impacts are considered for the alternatives and are presented for each resource. To determine potential cumulative impacts, projects in the vicinity of the proposed action were identified. Projects identified as cumulative actions included any planned development activity that was already implemented, is currently being implemented, or would be implemented in the reasonably foreseeable future (within a range of three to five years). These cumulative actions are evaluated in the cumulative impacts analysis, in conjunction with the impacts of each alternative, to determine if they would have any additive effects on each resource analyzed.

Cumulative impact projects considered in this environmental impact statement include the following:

- In 2019, FWC contractors and National Park Service authorized agents became authorized to use primary and passable secondary ORV trails for python management activities (administrative access).
- The ORV Management Plan for the preserve, completed in 2000, prescribes designated ORV trails and established parking/staging areas for ORV users. The ORV Management Plan established maximum trail mileages within each management unit. To provide a broader range of backcountry access, this Supplemental Draft Plan/EIS uses the framework provided in this document to propose additional mileage to the current primary trail network, establish the secondary trail network, and to establish designated backcountry destinations.
- The Resource Management Plan outlines issues within the preserve, including natural resources, cultural resources, nonnative plants and wildlife, and the hydrologic environment. The plan emphasizes that conservation, restoration, and preservation must take place on an ecosystem scale. This plan establishes the goals for preserving resources, along with management objectives to obtain those goals. Ongoing activities such as fire management and nonnative species controls are discussed in this Supplemental Draft Plan/EIS.
- The Addition GMP, completed in 2010, “provides a comprehensive direction for resource preservation and visitor use and a basic foundation for decision-making for the Addition for the next 15 to 20 years” (NPS 2010). The Addition GMP outlines diverse frontcountry and backcountry recreational opportunities, a wilderness proposal, enhanced day use and interpretive opportunities along road corridors, and enhanced recreational opportunities with new facilities and services. The 125 miles of conceptual primary ORV trails in the Addition are common to the alternatives proposed in this Supplemental Draft Plan/EIS.
- Improvement of up to six ORV trailheads and construction of up to five turn lanes on US 41 were analyzed as part of the preferred alternative in the Environmental Assessment of ORV Trailheads and Turn Lanes, approved in June 2012. Trailhead improvements at Skillet Strand North (US 41), Monroe Station (US 41), and Paces Dike (Loop Road) were completed in 2013, and construction at additional sites and turn lanes would occur as funding becomes available. Trailhead and turn lane construction would involve filling of wetlands and onsite mitigation by wetland restoration.
- In 2006, the National Park Service completed construction of 10 visitor safety highway improvements along US 41 and Loop Road in the preserve. These improvements resulted in benefits to visitor use by improving visitor safety and providing visitors information about the preserve and its resources. The construction resulted in adverse, long-term impacts on vegetation and wetlands; however, the impacts were mitigated by locating the improvements to maximize the use of previously disturbed lands.

Burnett Oil Company, Inc. completed an environmental assessment in 2016 to plan for a seismic survey of a 110-square-mile area that includes the northern portion of Turner River Unit and Nobles Grade in the Northeast Addition Unit. The purpose of the survey was to explore for new oil and gas accumulations in the area. Seismic exploration activities were conducted in 2017 and 2018; additional mitigation/environmental restoration activities associated with this work are pending. In 2020, Burnett submitted an application to drill for and produce private minerals at two locations at the preserve. One set of oil wells would be drilled in the Racoon Point area, the other would be located southwest of the I-75 rest area at mile marker 63.

A commercial services plan for the preserve was completed in July 2009. The selected alternative for the plan assesses the levels of necessary and appropriate commercial service operations at the preserve, and

the means to manage those activities. Commercial services that would be expanded under the plan include developing the preserve's visitor services. Developing new frontcountry locations at Monroe Station and Seagrape Drive, and developing a new backcountry camping complex, would potentially introduce more visitors to the Loop Road, resulting in visitor use and transportation impacts.

## **4.4 SOILS**

This section addresses the potential consequences of the no-action and action alternatives on soils.

### **4.4.1 Basis of Analysis**

The soil substrates underlying the various vegetation communities in the preserve range from unsuitable for recreational use to highly resilient for recreational use, as detailed in chapter 3. Data on historical impacts and subsequent monitoring of trails demonstrate the impacts of ORV use on the shallow soils in the preserve, which can last more than seven years. Both the no-action and the action alternatives would involve displacement and disturbance of soils, depending upon the degree of use and substrate suitability of a particular trail or destination.

Research by Duever et al. (1981) indicated that water elevation was a factor influencing the severity of ORV impacts on soils. In areas where the water table was at the surface at the time ORV impacts occurred, the degree of impact and time required for recovery increased. Data on historical impacts and subsequent monitoring of trails demonstrate the long-term impacts of ORV use on the shallow soils in the preserve. The extent to which ORV operation affects soils within the preserve was analyzed in detail in the 2000 Recreational ORV Management Plan (NPS 2000a), which reported that impacts on soils resulting from ORV use vary based on soil depth, soil composition, plant cover, and frequency of use. Impacts are easily observable and range from exposed bedrock, rutting and ridging of soils, and water channelization to lateral expansion of trail network by users as they avoid areas that are excessively muddy or rutted. ORV-induced deformation of soil structure and level causes an overall depletion of the soil resource through such processes as oxidation and erosion (Yamataki 1994). ORVs also affect processes that are influenced by soils, such as surface flows, evaporation, and the abundance and distribution of plants and wildlife. In accordance with the principles of adaptive management, the National Park Service would continue to implement a hydrologic trigger as described in the 2000 Recreational ORV Management Plan. These trigger levels for resource protection may be updated as additional data are collected.

Establishing a designated trail system has prevented dispersed use and concentrated impacts along established trails, which can be monitored and managed by the National Park Service. These impacts (described below) can be minimized and managed (see mitigation measures described in chapter 2). Duever et al. (1986b) indicated that once an ORV has severely disturbed the soil, recovery of the resulting track can take a very long time. Therefore, it is likely that soil impacts are cumulative and can worsen over time. Because of the fragile nature of certain soil substrates within the preserve, substrate types, their associated habitat type, and their respective ability to withstand ORV use are the key factors for determining sustained ORV and recreational use. Based on the approach used in the 2000 Recreational ORV Management Plan (NPS 2000a) and experience and observations of preserve staff, soil substrates have been assigned a relative suitability type of highly resilient, resilient, least resilient, or unsuitable for ORV traffic. Soil suitability types can, but do not always, correlate to the various habitat types found on the preserve. Because the physical expression of the soils is sometimes, but not always, visible through vegetation communities, the substrate suitability for ORV use is based in part on the habitat types found in the preserve and in part on field observation of each individual trail route and destination.

In all the alternatives, ORV use and backcountry camping would be the main actions causing impacts to soils. Many preserve users access backcountry areas by ORV, which would result in soil disturbance and displacement along existing and/or proposed travel routes. The extent of these impacts would vary based

on soil suitability, depth, composition, moisture, plant cover, and frequency of use. Use of access points, campsites/destinations, trail maintenance (e.g., light vegetation trimming and replacement of trail markers and signs), trail stabilization, and NPS administrative use for law enforcement and/or resource management, would also cause soil displacement and disturbance. Local impacts from the above activities include exposure of bedrock, trail rutting and braiding (lateral expansion), placement of fill (amounting to less than 1 cubic yard for each sign/trail marker), erosion, and water channelization. Soil impacts that occur because of light use would have the ability to recover with implementation of adaptive management actions (identified in table 2-6).

Users participating in nonmotorized activities (e.g., camping, hiking, bicycling) could also cause soil displacement and disturbance, and some impacts would be visible on aerial photography. Some impacts, but not all, would likely recover with implementation of adaptive management actions identified in table 2-6 and natural ecological processes (such as wind and rain). Impacts to soils as created through nonmotorized uses (i.e., pedestrian foot traffic and bicycles) were analyzed using a worst-case scenario through application of recovery time frames as analyzed by *Off Road Vehicles and Their Impacts in the Big Cypress National Preserve* (Duever et al. 1981). This study evaluated recovery times of ORV-related impacts, which are of a higher intensity (per individual pass) than impacts created by foot traffic or bicycle tires. Through professional best judgment, it is assumed that nonmotorized soils impacts could recover through natural ecological processes within the same recovery timeframes that ORV impacts could recover under the same conditions.

Across both of the action alternatives, trails and destinations were sited primarily in highly resilient to resilient soil types. The soil substrates underlying the trails and destinations in each alternative are summarized in table 4-1.

**Table 4-1. Summary of Soil Substrate Suitability of Trails and Destinations**

Trails/Destinations	Highly Resilient to Resilient <sup>1</sup> Alt. 1	Highly Resilient to Resilient <sup>1</sup> Alt. 2	Highly Resilient to Resilient <sup>1</sup> Alt. 3	Least Resilient to Unsuitable <sup>1</sup> Alt. 1	Least Resilient to Unsuitable <sup>1</sup> Alt. 2	Least Resilient to Unsuitable <sup>1</sup> Alt. 3
Primary trails (miles)	238 <sup>1</sup>	238 <sup>1</sup>	288	40 <sup>1</sup>	40 <sup>1</sup>	44
Secondary trails (miles)	0 <sup>3</sup>	14	47	0 <sup>3</sup>	1	5
Nonmotorized trails (miles)	54 <sup>1</sup>	57 <sup>2</sup>	130 <sup>2</sup>	9 <sup>1</sup>	11 <sup>2</sup>	55 <sup>2</sup>
Number of existing backcountry destinations <sup>1</sup>	22	21	21	3 <sup>4</sup>	3 <sup>4</sup>	3 <sup>4</sup>
Number of proposed backcountry destinations	0	23	78	0	1 <sup>4</sup>	5 <sup>4</sup>

Notes:

Mileages within this table are rounded to the nearest whole mile and describe trails only; destinations are noted as the number of occurrences within each habitat type under each alternative.

<sup>1</sup> Includes existing trails. There are no proposed trails under this alternative.

<sup>2</sup> Includes both existing and proposed trails.

<sup>3</sup> There are currently no designated secondary ORV trails.

<sup>4</sup> This number of destinations is generated from polygons in geographic information system (GIS) software. Ground-truthing indicates that all destinations are actually in highly resilient to resilient substrates.

The majority of trails and all destinations are located in highly resilient to resilient substrates, thereby minimizing impacts to soils across each of the alternatives (table 4-1). The greatest potential for soil impacts occurs when trails are located in the least resilient to unsuitable substrate types. Alternative 3 has the most trail sections sited in the least resilient to unsuitable category.

To provide spatial perspective on the extent of impacts, the acreages of trails were calculated by applying an average 12-foot width to primary and secondary ORV trails to establish the percentage of cover within the preserve, as summarized in table 4-2. Overall, the amount of primary and secondary trails traversing least resilient to unsuitable substrates increases somewhat between the no-action alternative and alternative 3 but still occurs in well less than 0.1% of the preserve.

**Table 4-2. Percentage of Total Acreage Affected**

Type of Trail	Highly Resilient to Resilient <sup>1</sup> Alt. 1	Highly Resilient to Resilient Alt. 2	Highly Resilient to Resilient Alt. 3	Least Resilient to Unsuitable <sup>1</sup> Alt. 1	Least Resilient to Unsuitable <sup>1</sup> Alt. 2	Least Resilient to Unsuitable <sup>1</sup> Alt. 3
Primary trails (% of total preserve acreage)	0.05	0.05	0.06	0.008	0.008	0.009
Secondary trails (% of total preserve acreage)	N/A	.003	.009	N/A	.0002	.001

#### 4.4.2 Impacts of Alternative 1

**Direct and Indirect Impacts.** The primary ORV trail system, comprising 278 miles of existing trails, would remain unchanged and no secondary ORV trails would be opened. The existing primary ORV trails generally traverse highly resilient soil substrates. Less than 5% of these existing trails would need periodic stabilization (on an as-needed basis) using lime rock and geotextiles. Primary ORV trail mileage that occurs in least resilient to unsuitable soils (40 miles) would have the greatest potential to impact soil resources in the preserve. ORV use in these areas would continue to cause rutting and lateral expansion, thus leading to soil disturbance and displacement.

When ruts are created, ORV users travel along the sides of the trail to avoid passing through the deeper and stirred-up mud that accumulates within the channel, thereby expanding the footprint of the trail. This trail expansion is commonly referred to as braiding. Braiding can have an adverse effect on the adjacent wetland because it increases the surface area vulnerable to rutting and trampling of vegetation. Because of their fragile underlying substrate, these impact areas would likely require mechanical restoration of grades to restore predisturbance conditions. In addition, braiding of trails results in temporal loss of wetland function, requiring compensation via mitigation.

Tire ruts would average less than 1 foot in depth. Trail widths would expand from 12 feet to 20 feet (on average). These two impacts would continue to affect approximately 5% of the entire trail system in highly resilient to resilient substrate types, totaling 12 linear miles. In least resilient to unsuitable substrate types, 10% of the entire trail system would continue to be affected by rutting and braiding, totaling 4 linear miles. Overall, 16 miles of primary trail would continue to be subject to rutting and braiding and the consequent soil displacement and disturbance. These impacts would remain as long as visitor use continued.

Camping opportunities would continue in alternative 1, consisting of 16 backcountry campsites in the Stairsteps Unit Zones 3 and 4, 9 backcountry campsites along the FNST, two primitive group camping areas along the FNST, and two existing backcountry campgrounds within the Bear Island Unit. These camping areas are located in highly resilient to resilient soil types and are already disturbed. At each of the backcountry campsites, the average area affected would be 10 × 20 feet (0.005 acre). Thus, soil erosion and soil compaction (caused by camping in designated campsites) would continue to be minimal, amounting

to 0.125 acre across the entire preserve. The impacts would mostly be unnoticeable on aerial and satellite imagery.

Under the no-action alternative, dispersed backcountry camping via foot or nonmotorized vessel would continue to be allowed throughout the preserve (except in the Bear Island Unit and in Zone 4 of the Stairsteps Unit (no dispersed camping for airboat users). Many backcountry campers, especially during hunting seasons, prefer dispersed camping at sites of their choosing. Many return to these same locations year after year. Historical observations show some of these sites are located in less suitable substrates. For purposes of assessing impacts, this analysis assumes 100 of the dispersed camping sites would be located in less suitable substrates and would thus be denuded and/or would have trampled vegetation. For each of these 100 sites, the average area affected would be 10 × 20 feet (0.005 acre). For the entire preserve, the net area adversely impacted by soil compaction and erosion would total 0.5 acre. These adverse effects would remain as long as visitor use continued. Preserve staff would continue to implement management actions in accordance with the 2000 Recreational ORV Management Plan.

There are currently 63 miles of hiking trails in the preserve, 36 along the FNST and an additional 27 miles of shorter trails. Pedestrian traffic along trails would continue to lead to some small ruts (less than a few inches) and widening of trails (to less than 10 feet in width). The area affected would generally be less than 1% of the length of any given trail, totaling 0.6 linear mile in the entire preserve. The impacts of pedestrian traffic would continue as long as visitor use continued. If visitor use ceased, these areas may recover through natural ecological processes (Duever et al. 1981).

Under alternative 1, bicycles and e-bikes would be allowed on primary ORV trails to the extent authorized by the superintendent's compendium. Impacts to soils would consist of soil compaction and minor rutting on and along trails. These impacts would result from thin bicycle tires that concentrate weight. However, the native soils on primary trails have already been substantially disturbed by trail stabilization and ORV use, and any impacts to soils from bicycles and e-bikes would be insignificant compared to the impacts from regular ORV activity.

Alternative 1 would continue to allow airboat use on designated trails in zones 3 and 4 of the Stairsteps Unit. Airboat use can affect soil substrates if vessels scrape bottom or create currents at low water that increase turbidity. Under alternative 1, airboat use would have little impact on soils so long as use occurred at water depths authorized in the superintendent's compendium.

**Conclusion.** Under the no-action alternative (alternative 1), soil resources in the preserve would continue to be impacted as they are now. Existing ORV and/or hiking trails and campsites that have been previously disturbed would continue to be disturbed and the soils outside the relatively small direct impact areas would not be expected to be adversely affected. Under the no-action alternative, direct and indirect impacts on soil resources as a result of the primary ORV trail use would cause rutting and braiding, thus leading to soil disturbance and displacement along 16 miles of trails. However, these effects would occur in less than 0.005% of the overall preserve. These impacts would continue as long as visitor use continued.

#### **4.4.3 Impacts of Alternative 2**

**Direct and Indirect Impacts.** The primary ORV trail system would be the same as in the no-action alternative (alternative 1), although a designated secondary ORV trail system would also be established. The majority of the primary ORV trail system (over 85%) traverses highly resilient substrate types.

Of the additional 15 miles of reopened secondary ORV trail, 14 would be in areas of highly resilient to resilient substrates. They would require minimal NPS maintenance to be reopened and maintained for the long term. NPS maintenance actions would consist of removal of obstacles (such as downed trees and branches), hand and mechanical trimming of vegetation obstructing the trail corridor, and sign



installation, which would displace 1 cubic foot of soil per sign. Soil resources may recover from maintenance activities under natural ecological processes. ORV use of secondary trails (by visitors) would cause minor soil displacement; this displacement would come from ruts less than 1 foot in depth and trail expansion to widths of approximately 20 feet. These impacts would affect .75 mile or 5% of the proposed 15 miles of reopened secondary trails.

The additional 8 miles of nonmotorized trails associated with the realignment of the FNST would also be located in previously disturbed areas. The realignment of the FNST would require minimal NPS maintenance, including removal of obstacles (such as downed trees and branches), hand and mechanical trimming of vegetation obstructing the trail corridor, and installation of signs along the trail. Installation of signs would displace 1 cubic foot of soil. Overall displacement of soil due to signs would be a small, adverse impact, affecting less than 0.01% of the topsoil in the preserve. Visitor use of non-motorized trails would result in small ruts (less than a few inches) and trail braiding (to widths less than 10 feet). These impacts would affect less than 1% of the 8 miles of new nonmotorized trails, or 0.08 linear mile. Soil resources would remain affected as long as visitor use continued.

Alternative 2 would create an additional 24 backcountry destinations. These destinations were all chosen because of their stable substrate conditions and their ability to be maintained as primitive, minimally developed areas. No stabilization or installation of impervious surface would be required to designate any of these areas. Many preserve users, including NPS staff, would likely access these campsites by ORV, which would cause minor soil displacement along the travel routes, primarily as a result of rutting and trail expansion.

Dispersed camping would be discontinued in this alternative, and all camping would occur in designated sites/destinations. Camping and recreational activities at each destination would result in trampled vegetation and may, over time and with repeated use, result in denuded areas. The reduction in vegetation increases the potential for degradation and erosion of soils, particularly at destinations that are least resilient to unsuitable. These effects would likely occur in areas averaging 10 × 20 feet (0.005 acre); soils that are least resilient to unsuitable are most susceptible to these effects. As noted above, the great majority of these existing and proposed sites are located in suitable substrates. These sites would also be monitored for resource impacts. However, even if the soils at all 48 existing and proposed destinations were affected by degradation or erosion, potential impacts would amount to less than 0.24 acre.

The elimination of dispersed camping and the movement of all camping to designated areas would have a beneficial impact on soils by concentrating impacts to a smaller, more resilient total area.

Because there would be 15 miles of reopened secondary trails in this alternative, impacts to soils from bicycle and e-bike use could be marginally greater than in alternative 1. Impacts would consist of soil compaction and minor rutting on and along trails. These impacts would result from thin bicycle tires that concentrate weight. However, given the rough and unimproved nature of secondary trails, it is likely that they would see very little bicycle or e-bike use. Alternative 2 does not propose any new airboat trails, so impacts to soils from airboat use would be the same as in alternative 1.

This alternative includes wilderness designated in portions of the Deep Lake, Turner River, Corn Dance, Loop, and Stairsteps management units within the original preserve. Under this alternative, a total of 190,528 acres in the original preserve and adjoining Western Addition would be managed for wilderness character and preservation of resources. Designating these areas as wilderness would exclude motorized and mechanized use from these areas unless authorized by a wilderness minimum requirements analysis (see *NPS Management Policies* section 6.3.5; NPS 2006a), which in turn would reduce potential for soil disturbance and preserve soil conditions and the natural ecological functions required to maintain soil productivity.

**Conclusion.** The opening of an additional 15 miles of secondary trails—and the consequent visitor use—would lead to erosion, degradation, displacement, trail braiding, and rutting of soils. These adverse impacts, combined with the impacts from existing ORV trails, would only affect about 0.06% of the preserve. In all, adverse impacts would occur along 17 miles of primary and secondary trails and would expand the area adversely affected relative to alternative 1. Use of an additional 24 proposed backcountry destinations, relative to alternative 1, would lead to denuded and/or trampled vegetation, adversely affecting a total area of 0.12 acre, a small additional adverse impact relative to the size of the preserve. These impacts would continue as long as visitor use continued. The elimination of dispersed camping would minimize the resultant adverse soil impacts in much of the preserve but would increase impact intensity at destinations. This would result in small adverse impact overall, compared to the no-action alternative. The proposed wilderness designation of 190,528 acres (32% of the original preserve and Western Addition) would exclude most motorized and mechanized use from these areas, and preserve soil, resulting in beneficial impacts to soils.

#### **4.4.4 Impacts of Alternative 3 (Proposed Action/Preferred Alternative)**

**Direct and Indirect Impacts.** The primary ORV trail system would be expanded by 54 miles, most of which (39 miles) would consist of reopened airboat trail on preexisting routes. Of this total, about 50 miles would be located in highly resilient to resilient substrate and about 4 miles in least resilient to unsuitable substrate.

The reopened secondary trail system would be 52 miles longer than under the no-action alternative; about 47 miles are located in areas of highly resilient to resilient substrate and about 5 miles are located in least resilient to unsuitable substrate. They would require minimal NPS maintenance to be reopened and maintained. The types of impacts to soils resulting from reopening, maintaining, and use of secondary trails would be the same as those discussed in alternative 2. These impacts would affect about 2.6 linear miles or 5% of the proposed 52 secondary trail miles.

The types of adverse impacts to soils required to open and maintain 106 miles of new primary and secondary ORV trails are the same as those discussed in alternative 2. Overall, these impacts would affect about 5.3 linear miles, 4.85 linear miles in highly resilient to resilient substrates, and .45 linear mile in least resilient to unsuitable substrates.

The impacts associated with the realignment of the FNST are the same as discussed under alternative 2. The additional 114 miles of nonmotorized trails (e.g., Cross Preserve Trail, Gator Hook Extension, R-T Day Hike to Charlie Cypress Camp, and Airplane Prairie) would be located in previously disturbed and some undisturbed areas. These impacts would affect less than 1% of the 114 miles of new nonmotorized trails, or about 1 linear mile. These impacts would continue as long as visitor use continued. If visitor use ceased, soil resources may recover under natural ecological processes (Duever et al. 1981).

Alternative 3 incorporates 83 proposed backcountry destinations occurring at the end of secondary trails. These destinations were all chosen because of their stable substrate conditions and their ability to be maintained as primitive, minimally developed areas. No stabilization or impervious surface would be required to designate any of these areas. The types of impacts that result from establishing backcountry campsites would be the same as those discussed in alternative 2.

Camping and recreational activities at each destination would result in trampled vegetation and may over time, and with repeated use, result in the same types of impacts as in alternative 2. However, even if the soils at all the proposed destinations were affected by degradation or erosion, it would amount to adverse effects to 0.42 acre (0.005 acre/site × 83 sites). Effects from both existing and proposed destinations combined (107 total sites) would be about 0.54 acre.

Dispersed camping would be allowed in more areas than under alternative 1, with the same types of effects. Assuming that 100 of the dispersed camping sites would be located in less suitable substrates, and the average area affected would be 10 × 20 feet (0.005 acre), the net area adversely impacted would be 0.5 acre (the same as alternative 1). However, the larger total area available for dispersed camping would allow campers to choose from more locations. Compared to alternative 1, this increase in choices would lead to more dispersion, and would reduce the intensity of impacts at destinations. Impacts would continue as long as visitor use continued. If preserve staff detected dispersed camping site impacts, adaptive management would be implemented as identified in table 2-6 to ensure indicators do not exceed established thresholds.

The establishment of 54 miles of new primary trail and the reopening of 52 miles of secondary trail could result in additional impacts to soils from bicycle and airboat use. Impacts from bicycle and e-bike use would result in the same type of impacts as in alternatives 1 and 2 but would be spread over a wider area. Most bicycle and e-bike use would take place on the major primary trails, which are already disturbed. Impacts to soils from soil compaction and minor rutting would be insignificant compared to the impacts from ORVs on the same trails. As in alternatives 1 and 2, airboat use would have little if any impacts to soils so long as use took place at water depths authorized in the superintendent's compendium.

The removal of the annual 60-day closure for ORVs is not expected to adversely affect soils, because visits during this period are typically low due to summer heat, and because ORVs must remain on designated trails.

The alternative 3 wilderness proposal would prevent mechanized and motorized use in 147,910 acres of the original preserve and adjoining Western Addition unless authorized by a wilderness minimum requirements analysis. This would reduce the potential for soil disturbance in those areas and preserve soil conditions and the natural ecological functions required to maintain soil productivity. Overall, impacts to soils would be beneficial, but less than under alternative 2.

**Conclusion.** The reopening of 54 miles of the primary trail system and 52 miles of secondary trails—and the consequent visitor use—would lead to erosion, soil degradation and displacement, trail braiding, and rutting of soils. These adverse impacts, when combined with impacts from existing ORV trails, would affect an area totaling 21 linear miles and would expand the area adversely affected relative to alternatives 1 and 2. However, no impacts would occur on more than 99.9% of the preserve (about 0.004% of the preserve would be affected). Use of 24 existing and 83 proposed backcountry destinations would lead to denuded and/or trampled vegetation, adversely affecting a total area of 0.54 acre, a larger area than alternative 2, but a very small amount compared with the size of the preserve. These impacts would continue as long as visitor use continued. The availability of more total area for dispersed camping would reduce adverse impact intensity at destinations. This would result in beneficial impacts to soils. Designating 147,910 acres of the original preserve and adjoining Western Addition as wilderness would preserve soil conditions in those areas as well as the natural ecological functions required to maintain soil productivity.

#### 4.4.5 Cumulative Impacts

Implementation of the ORV Management Plan (NPS 2000a) has minimized impacts to soils throughout the preserve. Impacts, such as rutting, channeling, and soil displacement, were substantially reduced with the implementation of the primary ORV trail network and the elimination of dispersed ORV travel that had historically occurred in the preserve. Moving ORV use onto a designated trail system has resulted in an overall beneficial impact on soil resources in the preserve.

Implementation of future oil and gas plans of operation could have adverse impacts on soils. The use of off-road equipment and construction of roads and pads could result in soil compaction, disturbance, and

displacement. One such plan was the recent Burnett Oil Company Seismic Monitoring Environmental Assessment (NPS 2016a), published on March 25, 2016. Within this planning effort, there were 46 mitigation measures to be implemented to prevent impacts to natural resources within the survey area, including soils. Mitigation measures included “single pass” limitations, where feasible, and temporal restrictions to reduce potential impacts on native soils. Future oil and gas activities would likely result in similar mitigation measures that would reduce potential for adverse impacts on soils.

Development of trailheads, access points, and recreational facilities under the Addition GMP (NPS 2010) and the ORV Trail Heads and Turn Lanes Environmental Assessment (NPS 2012b) have all contributed to some permanent soil loss within the preserve due to the addition of impervious and semi-impervious surface area. The use of the primary trail network for ORV travel is anticipated to contribute to minor amounts of soil displacement within the trail corridor, but these impacts are negligible when compared to the overall benefit to soil resources that has occurred as a result of ending dispersed ORV use. When looked at collectively, these management actions have contained adverse ORV impacts to smaller, more stable areas, resulting in a beneficial impact.

Overall, the effects of the projects discussed above would likely result in the addition of a small amount of impervious and semi-impervious surface areas, an adverse impact. The impacts would continue as long as the impervious or semi-impervious areas were in use. When no longer in use, these areas may require mechanical manipulations or active revegetation to recover. Under all alternatives in this Supplemental Draft Plan/EIS, soil resources would be preserved with minimal changes—the overwhelming majority would remain largely undisturbed. The range of actions contained in implementing the various alternatives would contribute incrementally but minimally to the overall cumulative impact. Alternatives 1 and 2 would contribute a smaller overall footprint of impacts, whereas alternative 3 would result in a larger overall footprint of impacts because of increases in trail mileage and the number of backcountry camping opportunities.

When the likely effects of implementing the alternatives are added to the effects of other past, present, and reasonably foreseeable actions, there would be a small adverse cumulative impact on soil resources. The adverse impacts would be most pronounced in places where trails traverse substrates that are classified as either least resilient or unsuitable. The percentage of primary and secondary trails traversing least resilient to unsuitable substrates stays roughly constant across the three alternatives and constitutes less than 0.1% of the preserve. These adverse impacts would be reduced by the beneficial impacts of designating 25% of the original preserve (alternative 3) to 32% of the original preserve and Western Addition (alternative 2) as wilderness.

## **4.5 WETLANDS**

This section discusses the direct, indirect, and cumulative impacts related to vegetation and function of wetland communities in the preserve. As discussed in chapter 3 “Affected Environment,” wetland communities in the preserve comprise cypress domes, cypress strands, sloughs, freshwater forested wetlands, hydric hammocks, prairies, and marshes. Wetlands are formed by the area’s topography and the presence of water; they influence the nature and development of the soils and the types of plant and animal communities present. Impacts on wetland soils are discussed in section 4.4, “Soils”; the current section focuses on impacts on wetlands vegetation and hydrology. Impacts to upland vegetation and habitat are discussed in section 4.6, “Vegetation and Habitat.” Impacts to wetland dependent special status species are discussed in section 4.7, “Special Status Species.”

#### 4.5.1 Basis of Analysis

Over 80% of the lands within the preserve are wetlands. A large portion of the activities proposed within the action alternatives would take place in wetland habitat. No activities within the range of alternatives would result in the conversion of wetlands to either impervious surface or an alternative habitat type. ORV-related facilities that would affect wetlands, such as canal crossings and trail stabilization, would require a section 404 permit and compensatory mitigation. To protect wetlands, the National Park Service would obtain the requisite permits before construction.

Spot stabilization on primary trails may involve small amounts of fill, typically along less than 30 linear feet of trail. Placing fill would result in small losses of wetland acreage and function. Analysis of aerial imagery, and staff knowledge of the preserve, indicate that some portions of the new sections of primary trail in alternative 3 would require stabilization before opening. A section 404 permit generally would not be required for routing unimproved trails through wetland areas, because they would not result in the dredging or filling of wetlands. However, to the extent regulatory authorities deemed rutting in unimproved trails to constitute the filling of wetlands, a permit and compensatory mitigation could be required.

The ORV trails and destinations proposed in each alternative have been used by motorized recreational user groups in the past and are currently disturbed areas. The extent, occurrence, and severity of effects that ORVs have on wetlands are largely attributed to ruts that can channel water, which have the potential to alter water depths and inundation durations, thereby affecting the diversity of vegetation. Trails that become extensively rutted and oriented parallel to natural flow would drain surface water from an adjacent wetland, particularly in low-lying marshes and prairies in the preserve.

Herbaceous wetland communities would be most impacted by ORV use, as evidenced in extensive, braided networks of trails and rutting caused by dispersed use, easily visible on aerial photography (Welch and Madden 1998, Welch et al. 1999). Forested wetland communities in the preserve (i.e., strands, swamps, sloughs, domes, shrublands, and hammocks) are less susceptible to trail braiding and off-trail use because of the presence of trees and depths of water inundation. In cypress strands, deep water and large, closely spaced trees confine ORVs to existing, previously established trails along the margins, where soil or bedrock provides sufficient traction and water depth is relatively shallow. Duever et al. (1981) found that established ORV trails through swamps (and sloughs) had some of the deepest ruts of all vegetation types and that typically trails were worn down to bedrock and filled with standing water. The majority of ORV use would be to cross through the strand, as opposed to along the strand.

Prairies appear to be the vegetation community most impacted by ORV use, resulting in vegetation loss and exposed soils. ORV trails in this community are easily distinguished even on small-scale aerial photography. Duever et al. (1981) and Duever et al. (1986b) described effects of dispersed ORV traffic in marl marshes and sand marshes in the original preserve (now classified as prairies). Duever et al. (1986b) observed that sand marshes that were not inundated were less likely to sustain heavy impacts from ORV use. This suggests that seasonal variation in hydrology may be an important factor in determining impacts resulting from ORV use and that ORV use in prairies during the wet season should be minimized.

ORV use has been shown to alter plant community structure. After one year of recovery in the original preserve, Duever et al. (1981) found that sawgrass and muhly grass were reduced in the tire lanes. Hyssop (*Bacopa* sp.) and bladderwort (*Utricularia* sp.) were common in the rutted areas; this was attributed to an increased hydroperiod in the tire ruts and increased sunlight from tree or shrub canopy removal within ORV use areas. After seven years, Duever et al. (1986b) found that four grass-like species were more common in ORV trails than in comparison areas. Sawgrass was less common in the trails used by ORVs than in the undisturbed comparison areas.

ORV use has been shown to alter marsh plant composition and structure. Duever et al. (1981, 1986a, and 1986b) described effects of ORV traffic in inundated sand marshes and peat marshes (wheeled vehicles were not tested in peat marshes). Duever et al. (1981) indicated that ORVs produced heavy impacts in inundated sand prairies, but less impact in noninundated sand prairies with the same amount of ORV use. Continuously inundated marl marshes were not tested with wheeled vehicles but appeared to be more affected when they were inundated than not. This suggests that marl marshes with extended hydroperiods may be quickly impacted by ORV use.

In marl marsh communities in the original preserve, Duever et al. (1981) found that panic grass (*Panicum* sp.), sawgrass, and muhly grass decreased with increased ORV use. Bladderwort, a floating aquatic plant, was common in the rutted areas; this was attributed to an increased hydroperiod in the tire ruts. Sand marsh communities showed little difference in plant diversities relative to comparison areas after one year. After seven years, coinwort (*Centella asiatica*) was more common in marl marsh areas used by ORVs.

All new adverse impacts associated with wetland fill and degradation (such as rutting and vegetation damage/removal) will be compensated for in accordance with the *National Park Service Procedural Manual 77-1: Wetland Protection* (NPS 2016c) and detailed in the Wetland Statement of Findings, which will be prepared and released for public comment when the National Park Service has completed the detailed design of the trail system and has specific trail-siting locations to propose (see discussion in appendix B). Compensation mitigation will be proposed to offset (at a minimum 1:1 ratio) the adverse impacts to wetlands.

The wetland vegetation communities underlying the trails and destinations per alternative are summarized in table 4-3.

**Table 4-3. Trails and Destinations in Preserve Wetlands**

Trails/ Destinations	Herbaceous Wetlands <sup>1</sup> Alt. 1	Herbaceous Wetlands <sup>1</sup> Alt. 2	Herbaceous Wetlands <sup>1</sup> Alt. 3	Forested Wetlands Alt. 1	Forested Wetlands Alt. 2	Forested Wetlands Alt. 3
Primary trails (miles)	64	64	83	115	115	141
Secondary trails (miles)	0	1	2	0	4	16
Nonmotorized Trails (miles)	5	5	39	37	40	101
Existing backcountry destinations	6	5	5	13	13	13
Proposed backcountry destinations	0	0	2 <sup>1</sup>	0	4	11

Note: "Herbaceous wetlands" includes prairies and marshes. "Forested wetlands" includes cypress systems, freshwater and forested wetlands, shrublands, and hardwood hammocks. Mileages within this table are rounded to the nearest whole mile and describe trails only; destinations are noted as the number of occurrences within each habitat type under each alternative, per GIS data.

<sup>1</sup> This number of destinations is generated from polygons in GIS software. Ground-truthing indicates that there are no proposed destinations in herbaceous wetlands.

Overall, table 4-3 shows the increases in trail mileage and number of destinations in herbaceous and forested wetlands between alternative 1 and alternative 3, based on GIS data. For both alternative 2 and alternative 3, the mileage of primary trails is greater in forested wetlands than in herbaceous wetlands. In

alternative 2, there would be 1 mile of reopened secondary trail in herbaceous wetlands and 4 miles of reopened secondary trail in forested wetlands. In alternative 3, there would be 2 miles of reopened secondary trail in herbaceous wetlands and 16 miles of reopened secondary trail in forested wetlands. Alternative 3 would have about 39 miles of nonmotorized trail miles in herbaceous wetlands and 101 miles in forested wetlands.

To provide spatial perspective, ORV trail acreage was calculated using trail length and with an average 12-foot width (for both primary and secondary ORV trails). This average, as expanded to account for areas of rutting and braiding (see discussion in alternatives section below), was used to establish the acreage of wetlands in the original preserve covered by trails. (The primary and secondary trails that would be reopened by the Supplementary Draft Plan are located almost entirely in the original preserve.) The results are summarized in table 4-4.

**Table 4-4. Acres of Wetlands Covered by ORV Trails in Original Preserve**

Types of Trails	Herbaceous Wetlands <sup>1</sup> Alt. 1	Herbaceous Wetlands <sup>1</sup> Alt. 2	Herbaceous Wetlands <sup>1</sup> Alt. 3	Forested Wetlands <sup>2</sup> Alt. 1	Forested Wetlands <sup>2</sup> Alt. 2	Forested Wetlands <sup>2</sup> Alt. 3
Primary trails (acres)	99	99	129	173	173	212
Secondary trails (acres)	0	2	3	0	6	24

<sup>1</sup> Prairies and marshes

<sup>2</sup> Cypress strands, domes, sloughs, freshwater and forested wetlands, shrublands, and hardwood hammocks

Table 4-4 shows that the acreage of herbaceous wetlands affected by primary trails increases between alternatives 1 and 3. However, the largest acreage affected (129 acres) is only about 0.3% of herbaceous wetlands in the preserve. The acreage of herbaceous wetlands affected by secondary trails likewise increases between alternatives 1 and 3, but at a smaller scale. In Alternative 2, secondary trails would affect only 2 acres of herbaceous wetlands, while in alternative 3, secondary trails would affect only 3 acres of herbaceous wetlands. The largest acreage affected by secondary trails (3 acres) is only .002% of the original preserve.

Under all alternatives, impacts on wetlands would be attributed to trail and destination maintenance, NPS administrative ORV use (for law enforcement and/or resource management), and visitor use.

Use of destinations located in wetlands would result in adverse impacts such as trampling (loss of plant cover) and removal of vegetation, soil degradation, and compaction. The adverse impacts would occur over a small geographic area (0.005 acre at each destination) and would be dispersed throughout the preserve. Those destinations that are less frequently visited, or are on suitable soils, have a lower potential to experience these adverse effects, and such impacts would not likely be detectable on aerial photography. Those destinations present in herbaceous wetlands (i.e., the five existing destinations in Stairsteps Unit Zone 4 located on least resilient to unsuitable substrates) or that are frequently used would likely exhibit loss of vegetation and changes in soils. These impacts may be detectable in some instances from aerial photography, and in others may require site visits to detect. If visitor use ceased, or was light, wetland vegetation and soils could recover from these impacts with implementation of adaptive management actions identified in table 2-6. If preserve staff detected destination site impacts, adaptive management would also be implemented to ensure indicators do not exceed the established thresholds. Such NPS actions that could affect wetlands include primary trail stabilization, light vegetation trimming,

and displacement of vegetation and soil to replace signage and trail markers (amounting to less than 1 cubic yard for each location for signs). These actions would have a slight adverse effect on wetlands. Duration of these impacts would be relatively permanent for placement of signage and trail stabilization material, and temporary for vegetation trimming.

Visitors participating in nonmotorized activities on designated trails (e.g., camping, hiking, and bicycling) could also cause small (i.e., a few inches deep to 6 inches or more) ruts in wetlands, but in many instances these would be imperceptible on aerial photography, are not likely to exceed indicator thresholds, and should recover under natural ecological processes. Areas receiving more intensive visitor use, such as the FNST, would create impacts that are perceptible in aerial photography. Trail tracks in wetlands could be incised to a depth of 6 inches or more.

The conditions that often discourage ORV use in forested wetlands, including deep water and closely spaced trees, would persist; impacts from ORV use would often be limited to the outer margins of these wetland communities. Adverse impacts could include vegetation trampling and a reduction in vegetation diversity. Forested wetlands are less susceptible to rutting due to the underlying stable substrate. If preserve staff monitoring indicates ORV use in forested wetlands is approaching the threshold identified in table 2-6, then adaptive management actions would be implemented to ensure wetland resources are at acceptable levels.

ORV trails that traverse prairies and marshes primarily do so along the margins, in the ecotonal area between forested and nonforested wetland areas. ORV use in these communities would cause rutting, which alters wetland hydrology and plant diversity.

Ongoing vegetation management, including the use of prescribed fire, and efforts to restore natural hydrological processes, would continue to improve conditions for native wetland vegetation because water availability and connectivity would increase, and plant diversity would be enhanced. These efforts result in beneficial impacts to wetlands and increase their function and value.

Under all alternatives, bicycles and e-bikes would be allowed on the preserve's trail system to the extent authorized by the superintendent's compendium. Impacts to wetlands would consist of soil compaction, minor rutting on and along trails, and some minor disturbance to wetland vegetation. These impacts would result from thin bicycle tires that concentrate weight. However, trail segments that cross wetlands are not truly amenable to bicycle or e-bike use and thus impacts to wetlands are expected to be small. Any impacts to wetlands from bicycles and e-bikes would be insignificant compared to the impacts from regular ORV activity along the same trails.

All alternatives would continue to allow airboat use on designated trails in zones 3 and 4 of the Stairsteps Unit. Airboat use can affect wetland integrity if vessels scrape bottom or create currents at low water that disturb wetland substrates. Under all alternatives, airboat use would have little impact on wetland substrates so long as use took place at water depths authorized in the superintendent's compendium. Airboat use would have long-term adverse impact on wetland vegetation, as discussed in section 4.6.1 below.

#### **4.5.2 Impacts of Alternative 1**

**Direct and Indirect Impacts.** The existing primary ORV trail system, which comprises 278 miles, would remain unchanged under alternative 1; no secondary ORV trails would be opened. The existing primary ORV trail system traverses mostly highly resilient to resilient substrates, 115 miles of which support forested wetland communities that are not as vulnerable to impacts by ORV use as herbaceous wetland communities. The general use of designated primary trails would result in adverse impacts from ORV tires (rutting) that is generally not perceptible on aerial photography. Preserve staff would continue to implement management actions in accordance with the ORV Management Plan. Depending on the type



of substrate, recovery may either continue to occur under natural ecological processes or will require mechanical or other intervention (see section 4.4, Soils). Other adverse impacts would continue, including vegetation trampling and a reduction in vegetation diversity. Because of the highly resilient substrates within forested wetlands, these effects are limited to approximately 5% of the trail mileage.

There are 64 miles of the existing primary trail network that would continue to traverse marsh and prairie wetlands, the wetland communities most susceptible to adverse impacts by ORV use. Along the primary trails, these impacts would continue to be rutting and braiding, resulting in a change in the depth and duration of inundation, and expansion of the trail footprint from an average of 12 feet to approximately 20 feet, except where the trails traverse herbaceous wetland communities, where the ruts would be less than 2 feet deep. In prairies and marshes, these ruts would continue to require grade restoration through mechanical means or active revegetation. Overall, based on the susceptibility of the substrate, rutting and braiding would affect approximately 10% of motorized trail mileage traversing prairies and marsh wetlands.

Camping opportunities under alternative 1 consist of 19 backcountry destinations located in wetlands. Dispersed camping would continue to be allowed throughout the preserve under the no-action alternative, except for the Bear Island Unit and Stairsteps Zone 4 (airboat users in Zone 4 would be required to use designated campsites). Camping would continue to result in adverse impacts to wetlands, mainly through denuded or trampled vegetation in campsites. The size of these denuded or trampled areas would vary, but averages 10 × 20 feet (0.005 acre).

The impacts of dispersed camping would continue to be spread over the entire preserve. Because of the small size of dispersed campsites, the dispersed nature of the impacts, and their seasonal nature (camping would occur in wetlands during the dry season), the effects of dispersed camping would be small. These adverse effects are not anticipated to be visible from aerial photography. Preserve staff would continue to implement management actions identified in the ORV Management Plan. At the 19 designated backcountry campsites, the combined adverse impacts on wetlands would affect about 0.1 acre.

*Cypress Strands and Domes, Sloughs, Freshwater and Forested Wetlands, Shrublands, and Hardwood Hammocks* — Under alternative 1, approximately 115 miles of primary ORV trails traverse forested wetlands. Forested wetlands comprise cypress strands and domes, sloughs, freshwater forested wetlands, shrublands, and hardwood hammocks and contain the greatest mileage of primary ORV trails both through them and around their margins. Adverse impacts from ORV and visitor use would include vegetation trampling and a reduction in vegetation diversity. Rutting and braiding would be less likely to occur than in herbaceous wetlands. Overall, in forested wetlands, approximately 5% of the trail corridors would experience these harmful impacts, totaling 6 miles or roughly 14 acres. Total acres of forested wetlands affected by ORV trails would be about 173 acres. Existing nonmotorized trails would affect an additional 45 acres of forested wetlands.

Twelve backcountry destinations that occur in forested wetlands would continue to be susceptible to vegetation trampling, and with repeated use, would likely be denuded of vegetation. The impacts would occur over a relatively small area, totaling 0.06 acre over the entire preserve. Wetland functions and services may be degraded at destinations that are heavily used. These impacts would be visible from the ground level, but possibly not on aerial photography due to canopy coverage. Preserve staff would continue to implement management actions per the ORV Management Plan.

*Prairies and Marshes* — The current primary ORV trail network traverses approximately 64 miles of prairies and/or marshes. The soil substrate underlying herbaceous wetlands causes poor traction for ORVs and rutting and braiding of trails are common. Cumulatively, rutting or braiding is expected to affect less than 7 miles (10%) of trails, or 16 acres. Preserve staff would continue to implement management actions in accordance with the ORV Management Plan. Total acres of herbaceous wetlands

affected by ORV trails would be about 99 acres. Existing nonmotorized trails would affect an additional 6 acres of herbaceous wetlands.

The five backcountry destinations that occur in herbaceous wetlands would continue to be susceptible to vegetation trampling and, with repeated use, may be denuded of vegetation. In addition, because the soils are on least resilient to unsuitable substrates, they would continue to be degraded and susceptible to erosion. The adverse impacts would occur over a relatively small area, totaling 0.03 acre, and all are in Stairsteps Unit Zone 4. These impacts would be visible from the ground level, and depending on the time of year, on aerial photography. Preserve staff would continue to implement management actions in accordance with the ORV Management Plan.

Airboats are allowed in Stairsteps Unit Zone 4. Users may camp aboard their vessels, thereby minimizing the potential for adverse impacts.

**Conclusion.** Under the no-action alternative, more than 99.9% of the wetland resources in the preserve would continue to provide natural ecological functions and services, with only a small amount, 0.05%, continuing to be impacted by trails and other backcountry facilities. Existing primary ORV trails, nonmotorized trails, and campsites would continue to disturb wetlands. Visitor use, particularly ORV use, would result in slight loss of vegetation along trail corridors, small changes in inundation depth and duration due to rutting and braiding of trails, and denuded areas at campsites. These adverse effects would continue to degrade wetland functions as long as visitor use continued. The adverse impacts on herbaceous wetlands would be small, affecting approximately 105 acres, or 0.07%, of the herbaceous wetlands in the preserve. Adverse impacts to forested wetlands would be greater, consisting primarily of vegetation trampling and reduction in vegetation diversity, and would affect 218 acres, or about 0.05%, of forested wetlands in the preserve. Except in the case of herbaceous wetlands, these effects would be mostly imperceptible on aerial photography, and preserve staff would continue to implement management actions per the ORV Management Plan. Denuded areas and/or trampled vegetation at existing designated campsites would total about 0.1 acre. As needed, preserve staff would continue to implement management actions in accordance with the ORV Management Plan. Dispersed camping would result in some trampled vegetation in wetlands but would also minimize the intensity of adverse impacts at and near most designated campsites.

### 4.5.3 Impacts of Alternative 2

**Direct and Indirect Impacts.** The primary ORV trail system would be the same as under the no-action alternative, with the same impacts.

Alternative 2 would include 4 miles of proposed secondary ORV trails in forested wetlands and 1 mile of secondary ORV trails in herbaceous wetlands. The impacts associated with secondary ORV trails are the same as those described for the primary ORV trails system under alternative 1, except that no trail stabilization or deposition of fill would occur in the reopening of secondary trails. Reopening secondary ORV trails would require prior inspection and clearance, which would necessitate NPS staff using an ORV or swamp buggy to inspect for and remove hazards such as downed trees, to install signs, and to trim vegetation in the trail corridor. There would be minor vegetation loss from trimming. No removal of rooted vegetation is anticipated, but if it occurred it would be confined to the trail right-of-way. Other adverse impacts resulting from ORV trail use would include vegetation trampling and a reduction in vegetation diversity. Overall, these impacts are expected to occur in less than 5% of the total trail mileage for reopened secondary trails.

Realignment of the FNST would require motorized equipment to inspect for and remove hazards such as downed trees, to install signs, and to trim vegetation in the trail corridor. There would be minor vegetation loss from trimming. No removal of rooted vegetation is anticipated, but if it occurred it would

be confined to the trail right-of-way. Other adverse impacts resulting from nonmotorized trail use would include vegetation trampling and a reduction in vegetation diversity. Overall, these impacts are expected to occur in less than 1% of the total trail mileage for nonmotorized trails.

Alternative 2 includes zero proposed backcountry destinations in herbaceous wetlands and four in forested wetlands. Camping and recreational activities at these and the 18 existing destinations in wetlands would result in adverse impacts, including denuded and trampled vegetation in areas averaging 10 × 20 feet (0.005 acre) at each location, or a combined impact of 0.11 acre. Because dispersed camping would be discontinued, visitor use and intensity of the impacts at destinations would increase but the overall extent of impacts would be reduced, with a net benefit to wetlands relative to the no-action alternative.

This alternative includes a wilderness proposal of 190,528 acres in portions of the Deep Lake, Turner River, Corn Dance, Loop, and Stairsteps Units in the preserve. Designating 32% of the original preserve and Western Addition as wilderness would restrict mechanized and motorized use, which in turn would reduce the potential for wetland degradation and preserve wetland functions and values.

*Cypress Strands and Domes, Sloughs, Freshwater and Forested Wetlands, Shrublands, and Hardwood Hammocks* — Under alternative 2, approximately 115 miles of primary ORV trails, 4 miles of secondary trails, and 40 miles of nonmotorized trails (including about half of the realigned portion of the FNST) would traverse forested wetlands. Forested wetlands contain the greatest mileage of trails, both through them and around their margins. Visitor use, including ORV use, would result in adverse impacts such as vegetation trampling and a reduction in vegetation diversity. More severe impacts such as rutting and braiding would affect approximately 5% of the trails in forested wetlands, amounting to 6 linear miles or 14 acres. Total acres of forested wetlands affected by ORV trails would be about 179 acres. Nonmotorized trails would affect an additional 48 acres of forested wetlands.

The four proposed backcountry destinations in forested wetlands would be susceptible to vegetation trampling. Because of the discontinuation of dispersed camping, visitor use of destinations would be expected to increase, which would accelerate trampling and removal of vegetation. Overall, these adverse impacts would affect a relatively small area, totaling 0.02 acre of the preserve, and would be noticeable at the ground level.

As identified in table 2-6, presence of impact indicators would trigger adaptive management actions to ensure wetland resources thresholds are not exceeded. Because camping would be confined to the destinations, the National Park Service would be able to effectively monitor for adverse effects and take corrective actions.

*Prairies and Marshes* — Adverse impacts associated with the primary ORV trail system in herbaceous wetlands would be the same as alternative 1 and would total 99 acres. Only 1 mile of secondary ORV trail proposed under alternative 2 would traverse herbaceous wetlands, affecting 2 acres. Total acres of herbaceous wetlands affected by ORV trails would be about 101 acres. Approximately 5 miles of nonmotorized trail would traverse herbaceous wetlands, affecting 6 acres.

Under alternative 2, there are no new proposed backcountry destinations in herbaceous wetlands.

**Conclusion.** The increase in ORV trail mileage, realignment of the FNST, and designated destinations are anticipated to increase the total amount of adverse wetland impacts compared to alternative 1, but impacts would be less than in alternative 3. Visitor use, and ORV use in particular, would cause most of these adverse impacts. Specific adverse impacts include loss of vegetation, reduction in vegetation diversity, and changes in inundation depth and duration due to rutting and braiding of trails. Overall, these effects would only degrade a small amount, 0.05%, of wetlands in the preserve, and the great

majority (greater than 99.9%) of the wetlands would continue to provide natural ecological functions and services.

Adverse impacts to herbaceous wetlands associated with ORV trails would total approximately 101 acres, or 0.07% of the herbaceous wetlands within the preserve. Adverse impacts to forested wetlands would be of greater magnitude and would occur within 179 acres, or 0.04% of the forested wetlands in the preserve. In both cases, if conditions are not acceptable, adaptive management techniques including cessation of, or decrease in, visitor use would be implemented. Under these conditions, areas of affected vegetation would likely recover to predisturbance conditions under natural ecological processes.

Alternative 2 would result in 32% of the original preserve and Western Addition being designated as wilderness. This designation would prevent motorized and mechanical use (unless authorized by a wilderness minimum requirements analysis), eliminate the potential for wetland degradation, and preserve wetland function and values, resulting in a beneficial impact.

Dispersed camping would be discontinued, leading to a concentration of users at 48 backcountry destinations and campsites, including 22 in wetlands. This concentration would accelerate vegetation trampling/loss and would likely lead to longer recovery times at those individual sites. However, the net effect on wetlands would be beneficial because the total area of adverse impact would be reduced relative to the no-action alternative due to the elimination of dispersed camping. While the adverse effects would be more severe at the designated campsites and destinations in wetlands, they would still total about 0.11 acre, a very small amount considering the large size of the preserve. Limiting camping to these established campsites and destinations would also enhance NPS's ability to monitor and take corrective actions.

#### **4.5.4 Impacts of Alternative 3 (Proposed Action/Preferred Alternative)**

**Direct and Indirect Impacts.** Alternative 3 would expand the mileage of primary trails in herbaceous wetlands by 19 miles, and forested wetlands by 26 miles, compared to the no-action alternative. Two miles of secondary ORV trails would be reopened in herbaceous wetlands and 16 miles in forested wetlands. These trails would require inspection and preparation before opening. The actions required to prepare these secondary trails for opening are identical to those described under alternative 2. The types and duration of adverse impacts associated with opening, and visitor use of, primary and secondary trails are similar to those in alternative 2, except that the 54 additional miles of primary trail in this alternative would require the filling of wetlands in certain locations to stabilize the trail prism. (This filling of wetlands would result in a loss of wetland functions and values that the National Park Service would need to mitigate via restoration or other projects elsewhere in the preserve.) The geographic extent of adverse impacts overall would be larger than in alternative 2.

Compared to alternative 2, alternative 3 includes 34 additional miles of nonmotorized trails in herbaceous wetlands and 61 additional miles in forested wetlands, with a total of 140 miles of nonmotorized trails in wetlands. Anticipated impacts due to opening, maintenance, and visitor use of nonmotorized trails are as described under alternative 2. Alternative 3 would increase the total amount of adverse wetland impacts compared to alternatives 1 and 2 because the overall mileage of nonmotorized trail would be higher. Overall, adverse impacts from visitor use, such as trail braiding and rutting, would likely affect about 1% of the total nonmotorized trail mileage in wetland areas, amounting to about 1.4 linear miles or 2 acres.

Under alternative 3, there would be zero proposed backcountry destinations in herbaceous wetlands and 11 backcountry destinations in forested wetlands. The types and duration of adverse impacts resulting from camping and recreational activities at these sites and the existing 18 destinations are the same as in alternatives 1 and 2. The most substantial adverse impact would be trampled and denuded vegetation at the destinations. The total area affected would be 0.15 acre, a slightly larger area than alternative 2.

Alternative 3 would allow dispersed backcountry camping via foot in Bear Island and in all areas more than 0.5 mile from paved roads and 0.25 mile from trails. Camping would also be allowed along primary ORV trails. (Airboat users in Stairsteps Zone 4 would still be required to use designated campsites.) Dispersed camping would increase the geographic extent of adverse impacts but would reduce the intensity of adverse impacts in and around destinations by dispersing use.

Under this alternative, a total of 147,910 acres (25%) of the original preserve and Western Addition) would be proposed as wilderness. Mechanized and motorized uses would not be allowed in the wilderness, except under special circumstances, which would reduce the potential for wetland degradation. Because this alternative proposes a smaller amount of wilderness than under alternative 2, there would be fewer beneficial impacts associated with wilderness than in alternative 2.

*Cypress Strands and Domes, Sloughs, Freshwater Forested Wetlands, Shrublands, and Hardwood Hammocks* — Under alternative 3, approximately 141 miles of primary ORV trails and 16 miles of secondary trails would traverse forested wetlands. Compared to alternative 1, this represents an increase of 26 miles (primary trails) and 16 miles (secondary trails).

Visitor use, and ORV use in particular, would result in the same adverse impacts as under alternative 2, but over a larger area. The adverse impacts from rutting, braiding, etc. would affect approximately 5% of the trails in forested wetlands, amounting to about 8 linear miles or about 19 acres. Total acres of forested wetlands affected by ORV trails would be about 236 acres.

Nonmotorized trails (e.g., the FNST) proposed under alternative 3 would cross 101 miles of forested wetlands, which is 64 miles more than under alternative 1. The impacts associated with nonmotorized trails would be the same as under alternative 2, but on a substantially larger scale, affecting about 122 acres of forested wetlands.

Eleven new backcountry destinations would be located in forested wetlands. Visitor use at these and the 13 existing destinations in forested wetlands would result in adverse impacts, primarily vegetation trampling and loss. The impacts would affect a relatively small area, totaling 0.12 acre. If unacceptable conditions, or indicators as identified in table 2-6, are detected, the National Park Service would implement adaptive management, including limited or restricted use, which would allow areas of denuded and trampled vegetation in forested wetlands to repair themselves to predisturbance conditions under natural ecological processes.

*Prairies and Marshes* — Under alternative 3, primary trails would traverse 83 miles of herbaceous wetlands and secondary trails would cross 2 miles of herbaceous wetlands. Compared to alternative 1, this represents an increase of 19 miles (primary trails) and 2 miles (secondary trails).

Visitor use of the trail system, and ORV use in particular, would result in the same adverse impacts as under alternative 2, but over a larger area. The adverse impacts from rutting, braiding, etc. would affect approximately 10% of the trails in herbaceous wetlands, amounting to about 9 linear miles or about 21 acres. Total acres of herbaceous wetlands affected by ORV trails would be about 132 acres.

Nonmotorized trails (e.g., the FNST) proposed under alternative 3 would cross 39 miles of herbaceous wetlands, which is 34 miles more than under alternative 1. The impacts associated with nonmotorized trails would be the same as under alternative 2, but on a substantially larger scale, affecting about 47 acres of herbaceous wetlands.

As in alternative 2, there are no proposed backcountry destinations in herbaceous wetlands under this alternative.

**Conclusion.** The increase in ORV primary and secondary trail mileage, together with additional backcountry destinations, would increase adverse wetland impacts compared to alternative 2. Visitor use,

and ORV use in particular, would result in adverse impacts. Combined, these effects would only degrade a small amount (0.09%) of wetlands in the preserve, but most (greater than 99.9 %) would continue to provide natural ecological functions and services. Preserve staff would monitor conditions of wetlands as resources permit and require adaptive management per table 2.6 if unacceptable conditions are identified.

The opening and use of primary and secondary ORV trails and nonmotorized trails in this alternative would cause adverse impacts to approximately 179 acres, or 0.12% of the herbaceous wetlands, and 358 acres, or 0.08%, of forested wetlands within the preserve.

Dispersed camping would likely reduce the intensity of impacts at individual sites but would also reduce the National Park Service's ability to regularly monitor sites for adverse impacts and undertake corrective actions compared to alternative 2.

Alternative 3 proposes that 25% of the original preserve and Western Addition be designated as wilderness. This designation would prevent motorized or mechanical use within the wilderness boundary (unless authorized by a wilderness minimum requirements analysis), reduce the potential for wetland degradation, and preserve wetland function and values, resulting in beneficial impacts to wetlands.

#### **4.5.5 Cumulative Impacts**

Implementation of the plans identified in section 4.3, Cumulative Impact Analysis, collectively addressed the management of ORV travel in the preserve. Once dispersed throughout the preserve, ORV traffic is now contained in the current primary trail network. Implementation of these plans resulted in a net benefit to wetlands due to reduced effects from trampling, rutting, and channeling of water. As a result of restricting ORV use to designated primary trails, much of the historical linear features created by intense rutting have largely dissipated in heavily impacted areas, especially prairies. Areas of impact, which were historically visible through aerial photography, have largely disappeared from aerial view.

Development of trailheads and recreational facilities under the Addition GMP (NPS 2010), ORV Management Plan (NPS 2000a), and the ORV Trail Heads and Turn Lanes Environmental Assessment (NPS 2012b) have all contributed to some loss of both wetland acreage and function due to the addition of impervious and semi-impervious surface area and vegetation removal. The utilization of the primary ORV trail network is anticipated to contribute to vegetation trampling, but these impacts are negligible when compared to the overall benefit to wetland resources that has occurred as a result of ending dispersed ORV use. The continued use of the primary ORV trail network is anticipated to contribute to negligible amounts of vegetation loss, due to any trimming required for trail access and to vegetation trampling as a result of trail straddling during periods of high water. Collectively, these management actions have contained ORV wetland resource impacts in smaller, more stable areas through managing ingress and egress of ORVs and the designation of a primary trail network in the preserve to limit dispersed ORV impacts.

Implementation of future oil and gas plans of operation could have adverse impacts on wetland composition and function. Use of off-road equipment and constructing roads and pads would result in temporary adverse impacts such as alteration of wetland soils, hydrology, and vegetation. One such plan was the recent Burnett Oil Seismic Monitoring Environmental Assessment (NPS 2016a). In this planning effort, there were 46 mitigation measures identified and required to mitigate and prevent impacts to natural resources within the survey area, including wetlands. Mitigation measures included contours, "single pass" limitations (where feasible), and temporal restrictions to reduce potential impacts on wetlands. Future oil and gas activities would likely result in similar or more stringent mitigation measures that would reduce potential for adverse impacts on wetlands.

Under all the alternatives in this Supplemental Draft Plan/EIS, wetland resources would be preserved with minimal changes—the overwhelming majority of the preserve would remain wetlands and would remain

largely undisturbed. The range of actions contained in implementing the various alternatives would contribute incrementally and minimally to the cumulative impact. Alternatives 1 and 2 would result in fewer impacts, whereas alternative 3 would result in greater impacts, due to greater increases in trail mileage and the number of backcountry camping opportunities. The wilderness proposals in alternatives 2 and 3, ranging from 25% to 32% of the original preserve and Western Addition, would all result in beneficial impacts to wetlands.

When the likely effects of implementing the alternatives are added to the effects of other past, present, and reasonably foreseeable actions, there would be a small adverse cumulative impact on wetland resources. The extent of adverse impacts would be smallest with alternative 2 and largest with alternative 3. Regardless of the alternative, all loss of wetland function would need to be compensated for via mitigation to result in no net loss of wetland function. However, in all the alternatives, the great majority, 99.9%, of the wetlands in the preserve would remain undisturbed. In addition, adverse impacts would be reduced by the beneficial cumulative impacts of designating from 25% (alternative 3) to 32% (alternative 2) of the original preserve and Western Addition as wilderness.

## **4.6 VEGETATION AND HABITAT**

This section discusses the direct, indirect, and cumulative impacts on protected, native, nonnative, and invasive vegetation communities and habitat for species in the preserve that have the potential to be impacted. Impacts related to wetland communities are discussed in section 4.5, and impacts to special status, nonvegetation species are discussed in section 4.7.

### **4.6.1 Basis of Analysis**

To reduce redundancy, this section is organized to discuss impacts to protected plant species, native vegetation, and nonnative and invasive species as individual groups, as management actions would affect those groups somewhat differently across alternatives. Under each alternative, impacts specific to vegetation groups are described first, followed by impacts common to all groups.

As discussed in chapter 3 “Affected Environment,” pine flatwoods make up about 16% of the overall preserve, hardwood hammocks 5%, and disturbed areas less than 1%. Given that disturbed areas have already been altered, and much of the preserve’s habitat has already been addressed under section 4.5, “Wetlands,” the native vegetation section for each alternative focuses on pine flatwoods and hammocks.

Overall mileage of primary trails in pine flatwoods (approximately one-third of the total existing primary trail mileage throughout the preserve) increases by approximately 8 miles, and the mileage of secondary trails in pine flatwoods increases by approximately 34 miles, from alternative 1 to alternative 3. Mileage of nonmotorized trails in pine flatwoods increases by 23 miles between the no-action alternative and alternative 3.

Overall mileage of primary trails in hammocks (approximately 5% of the total existing primary trail mileage throughout the preserve) increases by over 1 mile, and the mileage of secondary trails by 1 mile, from alternative 1 to alternative 3. The current primary trail system contains 14 miles of trails in hammocks, which increases by over 1 mile from alternative 1 to alternative 3. The miles of nonmotorized trails in hammocks increases from 4 to 17 between alternatives 1 and 3. No proposed destinations occur in hammock habitat in any of the alternatives. Because of the increased potential for impacting cultural resources, proposed trails and destinations in hammock habitat were minimized during the evaluation process.

**Table 4-5. Summary of Trails and Destinations Crossing Pine Flatwoods and Hardwood Hammocks**

Trails/Destinations	Pinelands <sup>1</sup> Alt. 1	Pinelands Alt. 2	Pinelands Alt. 3	Hammocks <sup>1</sup> Alt. 1	Hammocks Alt. 2	Hammocks Alt. 3
Primary trails (miles)	99 <sup>1</sup>	99 <sup>1</sup>	107	14 <sup>1</sup>	14 <sup>1</sup>	16
Secondary trails (miles)	0 <sup>2</sup>	11	34	0 <sup>2</sup>	0.33	1
Nonmotorized trails (miles)	20 <sup>1</sup>	22 <sup>3</sup>	43 <sup>3</sup>	4 <sup>1</sup>	5 <sup>3</sup>	17 <sup>3</sup>
Number of existing backcountry destinations	6	6	6	8	8	8
Number of proposed backcountry destinations	0	20	70	0	0	1 <sup>4</sup>

Notes:

Mileages within this table are rounded to the nearest whole mile and describe trails only; destinations are noted as the number of occurrences within each habitat type under each alternative.

<sup>1</sup> Includes existing trails. There are no proposed trails under this alternative.

<sup>2</sup> There are currently no designated secondary ORV trails.

<sup>3</sup> Includes both existing and proposed trails.

<sup>4</sup> This number of destinations is generated from polygons in GIS software. Ground-truthing indicates that there are no proposed destinations in hammocks.

Under all the alternatives, adverse impacts would result primarily from trail opening and maintenance (e.g., hand and mechanical trimming of overhanging vegetation), NPS administrative ORV use (e.g., law enforcement and land management), and visitor use. These actions would result in trampling of vegetation in the trail corridor, and trimming and removal of vegetation, but would not include the removal of rooted vegetation except in special circumstances. ORV use would be infrequent in areas outside existing designated trails. The adverse effects of ORVs on vegetation and habitat are largely based on diminished habitat value or habitat displacement (due to loss of vegetation), which would be limited to a 12-foot-wide denuded swath in designated ORV trails and a 10-foot-wide swath in nonmotorized trails.

Both the ORV trails and destinations proposed in each alternative have been used by motorized recreational user groups in the past and are currently disturbed. Among other things, this means there would be little to no root removal needed during ORV trail reopening and maintenance. Minimal, if any, root removal would be needed during the opening of new hiking trails. Thus, across all the alternatives, the geographic extent of impacts is relatively small.

Under all alternatives, bicycles and e-bikes would be allowed on the preserve's trail system to the extent authorized by the superintendent's compendium. Impacts to vegetation would consist of crushing plants and removing vegetation for trail maintenance. Crushing impacts would result from thin bicycle tires that concentrate weight. Trail segments that cross wetlands are not truly amenable to bicycle or e-bike use and thus impacts to wetland vegetation are expected to be small. Any impacts to vegetation from bicycles and e-bikes would be insignificant compared to the impacts from regular ORV activity along the same trails.

All alternatives would continue to allow airboat use on designated trails in zones 3 and 4 of the Stairsteps Unit. Regular airboat use on trails adversely affects wetland vegetation by preventing the regrowth of such vegetation within the trail footprint. Under all alternatives, airboat use would continue to affect vegetation in this way for so long as designated airboat trails remained in use. Off-trail use of airboats is not a major problem, but any such use would contribute additional, temporary, adverse impacts.

Throughout the alternatives, all new campsites/destinations would be located in pineland habitat, as compared to other habitat types. The Florida Fish and Wildlife Conservation Commission and National



Park Service annual surveys of red-cockaded woodpecker clusters have documented no loss of pines due to ORV traffic. According to Duever et al. (1981), pine flatwoods were the most resistant to adverse effects from ORV use. Duever et al. (1981) also found few differences in pineland understory when they compared it to undisturbed areas. Duever et al. (1986a) indicated that pine flatwoods recovered more quickly than other areas, so that these areas may be considered favorably for designated trails.

Visitors participating in nonmotorized activities on designated trails (e.g., camping, hiking, bicycling) would also cause adverse impacts such as vegetation trampling, but these would be largely imperceptible and are likely to recover under natural ecological processes.

Ongoing vegetation management, including the use of prescribed fire, would continue to improve conditions for native vegetation and decrease competition from nonnative and invasive plants across all alternatives. These efforts result in beneficial impacts to vegetation and habitat, increasing their function and value. In addition, ongoing land management and monitoring efforts in the preserve would help detect and mitigate new nonnative and invasive species that would affect native plant communities.

As discussed in chapter 3 “Affected Environment,” most nonnative plants reported in the preserve are restricted to early successional stages on disturbed sites, and five species (melaleuca, Brazilian pepper, water hyacinth, hydrilla, and old-world climbing fern) pose a long-term threat (e.g., more than five years) to native communities. Of these, two species (melaleuca and Brazilian pepper) have the potential to displace native plant communities in pineland habitats.

Even though nonnatives are spread by natural events (such as hurricanes) and animals (such as raccoons and birds), there are indications that ORVs have resulted in the spread of nonnative and invasive plants within the preserve, including Brazilian pepper, melaleuca, and old-world climbing fern. ORVs transport seed in their tire treads and vehicle beds and distribute it in currently unaffected areas of the preserve as they travel. Evidence of the spread of invasive plants along ORV trails has been documented around the Monroe Station trailhead (Pernas 1999). Ways in which the National Park Service would avoid or minimize distribution of nonnative plants are in chapter 2.

Because this plan would have no adverse impacts to protected plant species, they are discussed in appendix B, “Dismissed Topics.”

#### **4.6.2 Impacts of Alternative 1**

**Native Vegetation.** Under the no-action alternative, ORV use would continue along 99 miles of primary trails in pine flatwoods and 14 miles of primary trails in hardwood hammocks. Nonmotorized trail use would occur along 20 miles of nonmotorized trails in pine flatwoods and 4 miles of nonmotorized trails in hardwood hammocks. There are six existing destinations within pine flatwoods and eight in hardwood hammocks.

The durability of the substrate present in pine flatwoods minimizes adverse impacts from ORV use in these areas. The loss of mature oak and/or pine trees due to ORV use has not been documented in pine flatwoods and hardwood hammocks. However, ORV use, or the stabilization and maintenance of ORV trails, would continue to have adverse impacts on other plant species in these communities. Adverse impacts would continue to include edge effects, such as injury to a plant or group of plants, or plant loss in a discrete area, due to repeated use and trampling. The sizes of the impact areas vary, but generally, impacts occur in less than 5% of the designated primary ORV trails in pine flatwoods (5 miles) and hammocks (1 mile). This impact totals just over 7 acres of impacts in pine flatwoods and 1 acre of impacts in hammocks. If visitor use ceases, these affected areas may recover via natural ecological processes.

**Nonnative and Invasive Species.** Under the no-action alternative, the abundance and spread of nonnative and invasive plants would continue to be limited by NPS land management efforts and a

relatively small trail system. Ongoing land management would continue to decrease competition from nonnative and invasive plants and improve the integrity of native habitats, resulting in a beneficial impact on native vegetation. The continuation of monitoring efforts would also help to detect new nonnative and invasive species.

Visitors and ORVs can be agents for seed dispersal, increasing the threat to native plant communities. Nonnative and invasive plants can have severe impacts on the integrity of native systems and habitats. However, limited NPS administrative ORV use, visitor use, and trail maintenance in the preserve, would in turn continue to limit the distribution and establishment of nonnative and invasive plants, which would beneficially impact native vegetation. The harmful effects would continue to be most pronounced along travel corridors and at disturbed sites. The continuation of dispersed camping would help spread nonnative and invasive species into more areas, resulting in an adverse impact on native vegetation.

**Conclusion.** Under the no-action alternative, ORV use and trail maintenance would continue to result in adverse impacts to native vegetation, such as trampling and edge effects. The area affected would continue to total about 8 acres. If visitor use ceased, these areas would recover naturally. Existing patterns of visitor use, especially dispersed camping, although limited, can also help disperse nonnative and invasive seeds, decreasing the overall health of native plant communities.

#### 4.6.3 Impacts of Alternative 2

**Native Vegetation.** Alternative 2 would include the same mileage of primary trails in pine flatwoods (99 miles) and hardwood hammocks (14 miles) as the no-action alternative. However, under this alternative, pine flatwood habitat would also be the site of 11 miles of secondary trails, 2 additional miles of nonmotorized trails (from the realignment of the FNST), and 20 proposed backcountry destinations. Hardwood hammock habitat would be the site of 0.33 mile of secondary trails, 1 additional mile of nonmotorized trails, and 0 proposed destinations.

The types of adverse impacts that would occur because of the additional motorized and nonmotorized activities would be the same as those described in section 4.6.1. Adverse impacts from establishing backcountry campsites/destinations would include denuded or trampled vegetation in areas averaging 10 × 20 feet (0.005 acre) at each destination, totaling 0.10 acre for 20 new destinations. The combined impacts to vegetation from existing and proposed destinations in pine flatwoods and hammocks (34 sites) would total 0.17 acre. While the effects associated with opening and visitor use of motorized and nonmotorized trails would be similar to those under the no-action alternative, the geographic extent would increase. Edge effects would occur along 5.5 miles (5%) of the primary and secondary ORV trails in pine flatwoods, less than 1 mile of primary and secondary trails in hardwood hammocks, and 1.35 miles of total nonmotorized trails in pine flatwood and hammock habitat (combined). Because of resilient substrate in pine flatwoods, vegetation may be restored in these areas by implementation of the adaptive management actions identified in table 2-6.

In addition, this alternative proposes the greatest amount of wilderness, 32% of the original preserve and Western Addition. A wilderness designation would restrict development and motorized use and would reduce the potential for diminished habitat value or habitat displacement.

**Nonnative and Invasive Species.** The types of adverse impacts associated with nonnative and invasive plant species under alternative 2 would be the same as those under the no-action alternative. The opening and use of additional secondary trails, and realignment of the FNST, would result in increased potential for nonnative and invasive plant seed dispersal. However, elimination of dispersed camping would limit campers to designated sites (destinations and campgrounds), thus making it easier to monitor and treat for nonnative and invasive species. This would result in a small beneficial impact on native habitat compared to the no-action alternative.

**Conclusion.** Under alternative 2, once the trails are opened, visitor use and trail maintenance would result in edge effects and some trampling of vegetation, affecting an area around 12 acres, a very small area considering the total size of the preserve. If necessary, adaptive management activities identified in table 2-6 would be implemented and trail closures and other management actions may allow pine flatwoods to recover naturally. The opening and use of 20 new backcountry destinations would result in additional disturbance of 0.10 acre of pine flatwood habitat and no impacts in hammocks. The total impact from all 34 destinations in this alternative (existing and proposed) would be 0.17 acre. Overall, the great majority of the pine flatwoods (over 99.9%) would be unaffected by this alternative.

Beneficial impacts would occur from the elimination of dispersed camping and the proposed wilderness designation of 32% of the original preserve and Western Addition. This approach would further protect and enhance native species and reduce the potential for diminished habitat value or habitat displacement.

#### **4.6.4 Impacts of Alternative 3 (Proposed Action/Preferred Alternative)**

**Native Vegetation.** Under alternative 3, there would be 107 miles of primary trail, 34 miles of secondary trail, and 43 miles of nonmotorized trails in pine flatwoods. This represents an increase of 8, 23, and 21 miles, respectively, relative to alternative 2. There would also be 70 proposed backcountry destinations in pine flatwoods, as compared to 20 in alternative 2. These new destinations would supplement the six existing destinations in pine flatwoods.

The types of adverse impacts to native vegetation in pine flatwoods would be the same as those described for alternative 2, but the geographic area in which these effects occur would be larger. The opening and maintenance of motorized and nonmotorized trails would increase the extent of trimmed vegetation by around 52 miles. ORV use would result in edge effects on about 7 miles, or 10 acres, of trail (5% of ORV trail system in pine flatwoods). Visitor use of existing and proposed destinations would result in vegetation trampling or denuding on about 0.38 acre. Because of the resilient substrate found in pine flatwoods, adverse effects associated with trail use and camping may be restored by adaptive management actions identified in table 2-6.

Under alternative 3, primary trail mileage in hammocks would total 16 miles (an increase of 2 miles from alternative 2, where primary trail mileage in hammocks totaled 14 miles). Secondary trail mileage in hammocks would total 1 mile (an increase of 0.7 mile relative to alternative 2). There are no proposed hammock destinations in alternative 3. Opening and maintenance of motorized trails would result in edge effects on about 0.85 mile, or 1.24 acre of trail (5% of ORV trail system in hammocks). Visitor use of the eight existing destinations in hammocks would result in vegetation trampling or denuding on about .04 acre, the same as in alternatives 1 and 2. Because of the resilient substrate found in most of the hammocks chosen for the trail system, adverse effects associated with trail use and camping may often be restored by adaptive management actions identified in table 2-6.

Alternative 3 calls for a total of 84 existing and proposed destinations in pine flatwoods and hardwood hammocks, as compared to 34 in alternative 2. This increased number of destinations would increase the potential for vegetation trampling and loss. At each destination, denuded and/or trampled vegetation would average 10 × 20 feet (0.005 acre) in area, totaling 0.42 acre for all destinations.

Dispersed camping would result in adverse impacts similar to those found at destinations. However, because visitors would have more choices in campsites, the intensity of impacts would be reduced at individual sites. If necessary, adaptive management activities identified in table 2-6 would be implemented and trail closures and other management actions may allow pine flatwoods and hammocks to recover naturally.

This alternative proposes to designate less acreage as wilderness than alternative 2. The alternative 3 wilderness proposal would result in beneficial impacts to vegetation by restricting development and

motorized use in proposed wilderness areas. This approach would reduce the potential for degraded habitat values or habitat displacements and thus enhance native vegetation. Benefits would be less than under alternative 2.

**Nonnative and Invasive Species.** In alternative 3, the types of adverse impacts caused by the spread of nonnative and invasive plants would be the same as those described under alternative 2. However, because of alternative 3's greater number of primary, secondary, and nonmotorized trails and the allowance of dispersed camping in more areas, the seeds of nonnative and invasive plants would have a greater potential of spreading into new areas.

**Conclusion.** Implementation of alternative 3, and consequent visitor use, would result in the same types of adverse impacts on native vegetation as alternative 2, but the scale of those impacts would be larger. Edge effects would be the main adverse impact and would be greater in scale than alternatives 1 and 2, totaling just over 11 acres, a very small area considering the total size of the preserve. Visitor use of 84 existing and proposed backcountry destinations may cause denuded or trampled pineland and hammock vegetation, resulting in a total disturbance to 0.42 acre, a larger area than alternative 2 but a small area considering the amount of pineland vegetation in the preserve. The opening of additional secondary trails and destinations would also increase the potential for nonnative and invasive plant seed dispersal. In alternative 3, dispersed backcountry camping via foot or nonmotorized vessel would be permitted throughout the preserve, including Bear Island. (Airboat users in Zone 4 of the Stairsteps Unit would still be required to camp at designated campsites.) Relative to alternative 2, this would result in a small increased threat to native plant communities by increasing the potential spread of nonnative and invasive species. If necessary, adaptive management actions identified in table 2-6 would be implemented and trail closures and other management actions would allow pine flatwoods to recover naturally. Overall, the great majority of the pine flatwoods and hammocks (over 99.9%) would be unaffected by actions associated with this alternative.

Beneficial impacts from designation of wilderness would be less than in alternative 2. Proposed wilderness would amount to 25% of the original preserve and Western Addition.

#### 4.6.5 Cumulative Impacts

Implementation of the ORV Management Plan (NPS 2000a) established a primary trail system and parking/staging areas for ORV users. This minimized the adverse effects of ORVs on vegetation and habitat in the original preserve by eliminating dispersed use and thereby decreasing vegetation loss and the potential for establishment of nonnative and invasive plants. The establishment of these access points resulted in loss of native vegetation within the construction footprint. Overall, these access points result in a beneficial impact by confining motor vehicles to defined areas and thus preventing trampling and loss of vegetation on a larger scale.

The Addition GMP (NPS 2010) outlined frontcountry and backcountry recreational opportunities, including enhanced day use and interpretive opportunities along road corridors. It also included a wilderness proposal totaling 47,182 acres. The proposed wilderness helps reduce the potential for diminished vegetation and habitat values in the Addition and results in a permanent beneficial impact.

Implementation of future oil and gas plans of operation could have adverse impacts on native vegetation because using off-road equipment, and constructing roads and pads, would damage native vegetation. One such plan was the recent Burnett Oil Seismic Monitoring Environmental Assessment (NPS 2016a). Within this planning effort, there were 46 required measures identified to mitigate and prevent impacts to natural resources in the survey area. Mitigation measures included "single pass" limitations, where feasible, and temporal restrictions to reduce potential impacts on native vegetation. Future oil and gas

activities would likely result in similar or more stringent mitigation measures that would reduce potential for adverse impacts on native vegetation.

The effect of the projects discussed above would likely result in the addition of a small amount of native vegetation and habitat loss or degradation, an adverse impact. The effects of nonnative vegetation would likely continue until management controls the infestation. Habitats could be repaired under natural ecological conditions over time. Under all alternatives in this Supplemental Draft Plan/EIS, vegetation and habitats would be preserved with minimal changes—the overwhelming majority would remain largely undisturbed. The range of actions contained in implementing the various alternatives would contribute incrementally to the overall cumulative impact. Alternatives 1 and 2 would contribute a smaller overall footprint of impacts, whereas alternative 3 would result in a larger overall footprint of impacts due to the increase in primary and secondary trail mileage and the larger number of nonmotorized trails.

When the likely effects of implementing the alternatives in this Supplemental Draft Plan/EIS are added to the effects of other past, present, and reasonably foreseeable actions, there would be a small adverse cumulative impact on native vegetation and habitat in the region. Inside the preserve, the extent of adverse impacts would be smallest with alternative 2, and largest adverse impacts would be with alternative 3. However, in all the alternatives, the majority of the preserve's native vegetation and habitat would not be subject to adverse effects. In addition, adverse impacts would be offset by the beneficial cumulative impacts of designating from 25% (alternative 3) to 32% (alternative 2) of the original preserve and Western Addition as wilderness.

## **4.7 SPECIAL STATUS SPECIES**

This section examines the environmental consequences on special status species that would result from implementation of the no-action and the action alternatives. The analysis is limited to fish and wildlife species and two plant species (see below); the impacts to one additional protected plant species were dismissed from further consideration (see appendix B).

### **4.7.1 Special Status Species – Plants**

The federally listed plant species Florida prairie-clover (*Dalea carthagenensis* var. *floridana*) occurs immediately adjacent to the primary ORV trail leading north from Oasis, a trail that is present in all three plan alternatives. Because of the potential for direct impacts to individual plants from ORV use and trail maintenance activities, the National Park Service has determined that all three alternatives *may affect and are likely to adversely affect* the Florida prairie-clover. The National Park Service will maintain up-to-date information on Florida prairie-clover and coordinate with staff managing trail maintenance to avoid or minimize impacts to individual plants from trail maintenance activities.

Florida pineland crabgrass (*Digitaria pauciflora*) occurs along the airboat trail to Gum Slough in Stairsteps Zone 3. It is also found along the Pace's Dike primary trail in Stairsteps Zone 3 and may be located along the hiking trail east of Pace's Dike. Given that the Pace's Dike primary trail is present in all three plan alternatives and that the potential exists for direct impacts to individual plants from visitor use and trail maintenance activities, the National Park Service has determined that all three alternatives *may affect and are likely to adversely affect* the Florida pineland crabgrass. The National Park Service will maintain up-to-date information on Florida pineland crabgrass and coordinate with staff managing trail maintenance to avoid or minimize impacts to individual plants from trail maintenance activities.

### **4.7.2 Special Status Species – Animals**

As discussed in chapter 3, the preserve is inhabited by a wide variety of special status species that employ a wide range of survival strategies and are dependent on a variety of habitats. None of the proposed

activities within the range of alternatives would convert natural land to impervious surface or eliminate habitat for special status species.

The effects of ORVs to the Florida panther, Cape Sable seaside sparrow, red-cockaded woodpecker, and bald eagle were analyzed in the 1991 GMP (NPS 1991). Effects to these four species, in addition to the Everglade snail kite, West Indian manatee, and wood stork, were also analyzed by the US Fish and Wildlife Service during the consultation initiated in connection with the 2000 Recreational ORV Management Plan (NPS 2000a). Effects to these species were analyzed because ORV use and management activities could reduce the quality of habitat preferred by these species, directly disturb individual animals, or reduce foraging opportunities. At the conclusion of formal consultation with the US Fish and Wildlife Service for the Addition GMP (NPS 2010), the US Fish and Wildlife Service issued a biological opinion that concluded that the Florida panther is the only species that may be adversely affected.

On July 8, 2000, the US Fish and Wildlife Service issued a biological opinion for the preferred alternative identified in the ORV Management Plan. In accordance with section 7 of the Endangered Species Act, the biological opinion analyzed the potential effects and explored ways to reduce or remove adverse effects of the preferred alternative on the Florida panther, wood stork, red-cockaded woodpecker, Cape Sable seaside sparrow, West Indian manatee, bald eagle, and Eastern indigo snake. The biological opinion stated that the preferred alternative would have no effect on the West Indian manatee or the Eastern indigo snake; may affect but is not likely to adversely affect the wood stork, red-cockaded woodpecker, Cape Sable seaside sparrow, or bald eagle; and may affect, and is likely to adversely affect the Florida panther.

On November 17, 2010, the US Fish and Wildlife Service issued a biological opinion for the preferred alternative identified in the 2010 Addition GMP. The biological opinion analyzed the potential effects and explored ways to reduce and/or remove the adverse effects of the preferred alternative (NPS 2010) on the Florida panther, West Indian manatee, Everglade snail kite, red-cockaded woodpecker, wood stork, American crocodile, and Eastern indigo snake. Detailed descriptions of each species life history were provided, along with any known occurrences within the Addition. The biological opinion concluded that the proposed activities identified in the Addition GMP may affect, but are not likely to adversely affect, the Eastern indigo snake, red-cockaded woodpecker, wood stork, Everglade snail kite, West Indian manatee, and American crocodile; and may affect, and are likely to adversely affect the Florida panther.

On March 11, 2016, the Florida Fish and Wildlife Conservation Commission issued comments and recommendations in a response to the preliminary alternatives newsletter and workshop for the backcountry access plan. Specific comments and recommendations were provided for the Florida panther, red-cockaded woodpecker, wood stork, state-listed wading birds, Florida black bear, and the bald eagle. The commission commented that the proposed increases in trails and camping opportunities would not substantially impact Florida panthers. It was noted that shifts in resource management (i.e., shift to designated ORV trails, elimination of dogs for deer hunting, and mandatory check-in/out) played a large role in the increase in Florida panther numbers, and water levels had a much stronger influence on panther resource selection than human disturbance.

On December 15, 2020, the US Fish and Wildlife Service issued comments on the previous version of this backcountry access plan. Partly in response to those comments, the preserve decided to ground-truth all previously proposed ORV trails to confirm those trails that are sustainable over the long term. As a result, the new trail system in alternative 3 has substantially reduced impacts to special status species and their habitats, as discussed later in this section.

The Florida Fish and Wildlife Conservation Commission has suggested strategies for the reduction of potential impacts to red-cockaded woodpeckers, wading birds, and black bears. Establishing 200-foot buffers around red-cockaded woodpecker cavity trees was suggested, as specified in the 2000 Recreational ORV Management Plan. Buffers around wading bird colonies were suggested at a range of

330 feet for both ORV trails and campsites (FWC 2018). The Florida Fish and Wildlife Conservation Commission suggested that the National Park Service post signs at backcountry campgrounds and campsites and provide educational materials to visitors regarding black bears to decrease the potential for human/bear conflicts.

**Summary of Protection Measures for Special Status Animal Species.** Measures established by this Supplemental Draft Plan/EIS to protect special status animal species are described in the following paragraphs.

*Trail siting and maintenance* — Trails and destinations would be sited to avoid sensitive wildlife habitats and known sensitive locations (e.g., red-cockaded woodpecker cavity trees and Florida bonneted bat roost trees). Activities to reopen trails and complete maintenance (as described in section 2.7), would be timed to avoid sensitive periods, such as nesting or breeding seasons. To protect the threatened Eastern indigo snake, a qualified ecologist would scout trail areas for burrows that may indicate the presence of gopher tortoises, burrowing owls, or Eastern indigo snakes. If a burrow is discovered by the ecologist, no field equipment would be driven within 50 feet of the burrow.

*Targeted trail closures* — Sensitive areas would be closed temporarily to benefit special status species. Such areas would include panther dens, Florida bonneted bat roost trees immediately adjacent to trails and wading bird colonies. Specific problem areas identified by preserve staff, such as areas of extensive trail braiding, would likewise be subject to closure.

*Cavity tree protection* — Removal of trees that have a visible cavity would be avoided to protect the Florida bonneted bat. A 200-foot buffer would be established around red-cockaded woodpecker cavity trees. Woodpecker cavity trees in the vicinity of trails and destinations would be painted with a white band.

*Wading bird colony buffers* — Buffers of 330 feet would be established around wading bird colonies for both ORV trails and destinations.

*Night-time closure* — The preserve would remain closed to ORV use between the hours of 10:00 p.m. and 5:00 a.m. to minimize disturbance to foraging wildlife, including the endangered Florida panther and the Florida bonneted bat, and to reduce disturbances to roosting birds, such as the endangered red-cockaded woodpecker. This closure would reduce the possibility of illegal night-time hunting and would minimize campground noise from returning and departing ORVs.

*High- and low-water closures* — Closures during periods of high and low water would reduce the potential for indirect impacts to some listed species habitat from recreational activity.

*Preserve-wide speed limits* — These speed limits reduce the chances of impacts to the Florida panther and other listed species.

*Control of wildlife feeding* — Measures would be taken to reduce the potential for wildlife to obtain food from humans. Wildlife-proof garbage containers would be provided, as needed, where wildlife-human interactions are documented or observed. Signs would continue to educate visitors about the need to refrain from feeding wildlife.

*Python control* — Contractors for the Florida Fish and Wildlife Conservation Commission and the South Florida Water Management District, together with NPS-authorized agents (volunteers), would continue to remove nonnative pythons from the preserve.

**Impacts on Species Not Subject to Detailed Evaluation.** No impacts on the Florida black bear, West Indian manatee, and American crocodile or their habitat would occur under any of the action alternatives of this Supplemental Draft Plan/EIS. Therefore, the National Park Service has made an Endangered Species Act determination of *no effect* for these species. For avian species such as the American bald eagle,

Everglades snail kite, Cape Sable seaside sparrow, wood stork, Audubon's crested caracara, and state listed wading birds, there would be no impact on known nest sites or rookeries. However, given the possibility of noise, visual disturbance, and related visitor-use impacts resulting from this Supplemental Draft Plan/EIS, the National Park Service has made an Endangered Species Act determination of *may affect, not likely to adversely affect* for the Everglades snail kite, Cape Sable seaside sparrow, wood stork, and Audubon's crested caracara. Those species that are afforded protection exclusively by the State of Florida (e.g., state listed wading birds) would not require a permit or any other authorization from the Florida Fish and Wildlife Conservation Commission before implementation of any of the alternatives.

The impacts to the Florida bonneted bat are expected to be the same under all alternatives. The preserve is in one of four focal areas for the Florida bonneted bat in south Florida and falls within "Unit 3" of proposed critical habitat. There are two known roost sites in the preserve, but given that both are more than 50 feet from an ORV trail, it is anticipated that these roost sites would be unaffected by implementing the alternatives. Overhanging vegetation would be hand and mechanically trimmed along the trails and destinations, leaving potential suitable roost sites untouched. Tree removal is not necessary to implement the trails and destinations proposed by the alternatives. Further, Florida bonneted bat movement in the preserve has been documented. This species forages at night when motorized and nonmotorized trail use would be restricted by night closures and when nonmotorized use is minimal. Therefore, no impacts to foraging individuals, their habitat, or their insect prey are anticipated as a result of implementing any of the alternatives. The National Park Service has determined that implementation of any of the alternatives would result in an Endangered Species Act determination of *may affect, not likely to adversely affect* the Florida bonneted bat.

Vegetation maintenance and hazardous tree removal will require impacts to vegetation and trees within the proposed critical habitat for the Florida bonneted bat. To protect the endangered Florida bonneted bat proposed critical habitat, removal of trees that have a visible cavity would be avoided. (If removal is unavoidable, the avoidance and minimization measures listed in the bullet points below would be followed.) No removal of large trees (4–6 inches in diameter at breast height, or greater) is anticipated unless they pose a hazard. The following avoidance and minimization measures will be incorporated into the proposed action to minimize effects to the Florida bonneted bat:

- When planned vegetation maintenance includes felling any trees or snags, biological staff will be notified to allow inspection of any trees or snags greater than 33 feet (10 meters) in height, greater than 8 inches (20.3 centimeters) in diameter at breast height, or with cavity elevations higher than 16 feet (5 meters) above ground level. Trees and snags will be inspected for potential roosting sites (i.e., cavities or loose bark) and investigated further with a peeper camera if a potential roosting site is found.
- If an inspection cannot be conducted by resource management staff, no trimming or felling activities may occur and must be postponed until surveys can be conducted.
- If an active bat roost is found, an acoustic recorder will be set up to verify species. In most cases, known roost trees will be left in place and not removed. In all cases where active bonneted bat roosts are found, the USFWS will be contacted for further guidance.

Because of minimal impacts to suitable foraging habitat, avoidance of larger mature trees to the greatest extent possible, acoustic surveys, and wetland mitigation to offset the proposed impacts, the proposed alternatives are not likely to result in the adverse modification of proposed Florida bonneted bat critical habitat.

**Impacts on Species Subject to Detailed Evaluation.** Four special status wildlife species have the potential to be affected by the proposed alternatives and are evaluated in detail under each alternative: the Florida panther, red-cockaded woodpecker, Eastern indigo snake, and Eastern black rail. Potential impacts to suitable habitat for the red-cockaded woodpecker were quantified using known cavity tree



locations, with 200-foot buffers being drawn around each cavity tree. Trails within the 200-foot buffers were flagged and further evaluated by subject matter experts. Destinations within 200 feet of known cavity trees were likewise flagged and reviewed. Along trails, the principal activities of concern would be ORVs passing by, dispersed camping near cavity trees (under alternatives 1 and 3), extended camping near woodpecker colonies (maximum of 14 consecutive days), and NPS maintenance activities in the trail corridor. At destinations, the principal activity of concern would be overnight camping in the vicinity of cavity trees. To mitigate impacts to the red-cockaded woodpecker from dispersed and extended camping, all cavity trees near trails would be marked with broad white bands and camping would be prohibited within 200 feet of a marked cavity tree. During maintenance activities, identified and marked cavity trees would not be touched. It should be noted that the location of cavity trees varies over time and will change during the life of this Supplemental Draft Plan/EIS.

The analysis of the impact that motorized and nonmotorized trails would have on the Florida panther, Eastern indigo snake, and Eastern black rail is based on the amount of suitable habitat contained within trail and destination locations, by alternative. The acreage of trails and destination-related disturbance in habitat suitable for the Florida panther was calculated using upland and wetland habitats and specifically excludes mangroves, open water, and developed areas. The acreage of trails and destination-related disturbance in habitat suitable for the Eastern indigo snake was calculated using pine flatwoods and hammocks. Potential suitable habitat for Eastern black rail was inferred from the preserve vegetation map prepared by NPS South Florida/Caribbean Monitoring network. Sixteen graminoid dominated fresh and saltwater plant communities were included as potential suitable habitat based on expected plant community composition and structure within those habitats.

All ORV trails and destinations proposed in each alternative have been used by motorized recreation user groups in the past. All ORV trail corridors (including airboat trails) are disturbed, and this disturbance is obvious on the ground. However, the destinations show various levels of disturbance based on the amount of past use, ranging from natural conditions to heavily impacted. The extent, occurrence, and severity of destination- and trail-related effects on special status species are largely attributed to user-species encounters, noise, and visual disturbance. Reestablishing use of motorized trails would also degrade trail conditions in small areas, potentially affecting adjacent habitats through rutting and braiding (which could alter the trail), duration and flow of water, and changes to adjacent vegetation composition.

Visual and noise disturbance associated with human recreation and ORV use along trails and at destinations could affect the behavior of these species if they are nearby. Disturbance from off-road human recreation would include visual and noise effects from ORVs, airboats, and the use of bicycles and e-bikes on primary and secondary ORV trails. Extended camping and dispersed camping (in alternatives 1 and 3) would have similar effects, but for a longer duration. Potential exposure to a single recreational user includes temporary disturbance (for less than five minutes) and breeding or foraging behavior modifications. These disturbances may result in movement of individuals (the distance depending on the species) away from the source of the disturbance. Some exposures would be longer (e.g., from groups of passing ORVs or from campers), resulting in correspondingly larger disturbances and effects on species. Most of the species affected are highly mobile and would have access to a wide variety of high-quality habitats in the preserve to carry out their life history requirements. During periods of heavy visitor use (particularly during hunting season), ORV use, extended camping (including dispersed camping in alternatives 1 and 3), and the sound of gunfire may increase the magnitude and duration of the short-term effects described above, resulting in more pronounced effects on special status species. The possibility of ORV collisions with listed species is deemed to be low because of the low speeds of ORVs over generally rough trail surfaces.

A summary of the quantitative differences in potential impacts to habitat suitable for the Florida panther, red-cockaded woodpecker, Eastern indigo snake, and Eastern black rail associated with the components

of each alternative are summarized in table 4-6. Generally, the amount of species habitat affected is smallest in alternative 1, and largest in alternative 3.

Table 4-7 provides the percentage of cover of motorized and nonmotorized trails within suitable habitat for the Florida panther, Eastern indigo snake, and Eastern black rail relative to the total amount of suitable habitat available for the species in the preserve. For the red-cockaded woodpecker, table 4-7 provides the percentage of trails within the buffer zone for the species by alternative.

Table 4-6. Potential Impacts to Habitat Used by Special Status Species

Trail/Destinations	Florida Panther <sup>1</sup> Alt. 1	Florida Panther <sup>1</sup> Alt. 2	Florida Panther <sup>1</sup> Alt. 3	Red Cockaded Woodpecker <sup>2</sup> Alt. 1	Red Cockaded Woodpecker <sup>2</sup> Alt. 2	Red Cockaded Woodpecker <sup>2</sup> Alt. 3	Eastern Indigo Snake <sup>1</sup> Alt. 1	Eastern Indigo Snake <sup>1</sup> Alt. 2	Eastern Indigo Snake <sup>1</sup> Alt. 3	Florida Bonneted Bat <sup>1</sup> Alt. 1	Florida Bonneted Bat <sup>1</sup> Alt. 2	Florida Bonneted Bat <sup>1</sup> Alt. 3	Eastern Black Rail <sup>1</sup> Alt. 1	Eastern Black Rail <sup>1</sup> Alt. 2	Eastern Black Rail <sup>1</sup> Alt. 3
Motorized trails (acres)	398	420	552	2	3	3	144	160	205	319	340	459	69	70	95
Nonmotorized trails (acres)	77	83	224	0.21	0.21	0.21	24	27	52	73	79	211	4	5	40
Destinations (acres)	6	12	27	0	0	0	2	7	20	3	9	24	1	1	1
<b>TOTAL</b>	<b>481</b>	<b>515</b>	<b>803</b>	<b>2.21</b>	<b>3.21</b>	<b>3.21</b>	<b>170</b>	<b>194</b>	<b>277</b>	<b>395</b>	<b>428</b>	<b>694</b>	<b>74</b>	<b>76</b>	<b>136</b>

Notes:

<sup>1</sup> The acreage of trails and destinations within suitable habitat for the species.

<sup>2</sup> The acreage of trails within 200 feet and acreage of destinations within 200 feet of the known cavity nest site.

**Table 4-7. Percentage of Motorized and Nonmotorized Trails in Suitable Habitat for Special Status Species**

Type of Trail	Florida Panther <sup>2</sup> Alt. 1	Florida Panther <sup>2</sup> Alt. 2	Florida Panther <sup>2</sup> Alt. 3	Red Cockaded Woodpecker <sup>1</sup> Alt. 1	Red Cockaded Woodpecker <sup>1</sup> Alt. 2	Red Cockaded Woodpecker <sup>1</sup> Alt. 3	Eastern Indigo Snake <sup>2</sup> Alt. 1	Eastern Indigo Snake <sup>2</sup> Alt. 2	Eastern Indigo Snake <sup>2</sup> Alt. 3	Florida Bonneted Bat Alt. 1	Florida Bonneted Bat Alt. 2	Florida Bonneted Bat Alt. 3	Eastern Black Rail; Alt. 1	Eastern Black Rail Alt. 2	Eastern Black Rail Alt. 3
Motorized trails	0.06	0.06	0.08	0.2	0.2	0.22	0.15	0.17	0.21	0.05	0.06	0.08	0.05	0.05	0.07
Nonmotorized trails	0.01	0.01	0.03	0.02	0.02	0.02	0.03	0.03	0.05	0.01	0.01	0.04	0	0	0.03
<b>TOTAL<sup>3</sup></b>	<b>0.07</b>	<b>0.07</b>	<b>0.11</b>	<b>0.22</b>	<b>0.22</b>	<b>0.24</b>	<b>0.18</b>	<b>0.2</b>	<b>0.29</b>	<b>0.07</b>	<b>0.07</b>	<b>0.18</b>	<b>0.06</b>	<b>0.06</b>	<b>0.11</b>

Notes:

<sup>1</sup> The 200-foot buffer zone around known cavity nest sites is not included in the calculation.

<sup>2</sup> The amount of suitable habitat disturbed divided by the total amount of suitable habitat available for the species in the preserve.

<sup>3</sup> The percentage of suitable habitat disturbed for each alternative which includes trail types and destinations

#### 4.7.2 Impacts of Alternative 1

**Direct and Indirect Impacts.** Under the no-action alternative, impacts to special status species, including Florida panthers, red-cockaded woodpeckers, Eastern indigo snakes, and Eastern black rail would continue to result primarily from ORV and visitor use in the backcountry, including dispersed camping.

The Florida panther uses a wide variety of habitats, and 98% of the overall preserve is within the USFWS primary zone of this species. Based on telemetry data of previously tracked Florida panthers, occupied habitats would continue to primarily occur within the Corn Dance, Turner River, Deep Lake, Bear Island, Northeast Addition, and Western Addition management units. Under the no-action alternative, use of motorized and nonmotorized trails, including the FNST, and disturbances in destinations would continue to occur in 481 acres or 0.07% of the habitat suitable for this species in the preserve.

Recreational use within suitable habitat for Florida panthers may continue to result in shifts in individual home ranges for this species, particularly during hunting season or during periods of heavy visitor use. Changes in home range would have a wide variety of potential consequences, including potential reduced encounters with mates or prey, which may influence an individual's fitness. Florida panthers may continue to be flushed or displaced by a variety of human activities that include ORV use, hiking, and NPS administrative use (including law enforcement and/or land management). However, panthers are mostly active between dusk and dawn, resting in the heat of the day when the potential to encounter recreational users would be highest, thereby reducing the potential for adverse effects to this species' dispersal patterns and daily movement.

The red-cockaded woodpecker occurs predominately in pineland habitat. The preserve hosts one of the largest populations of red-cockaded woodpeckers in the state. Many of the existing primary ORV trails and nonmotorized trails occur in pine flatwoods in the Stairsteps Zones 3 and 4, Turner River, and Corn Dance Units. Under the no-action alternative, motorized and nonmotorized trails and disturbances in destinations that overlap with protection buffers for red-cockaded woodpeckers total 2.21 acres. More than 99% of ORV and nonmotorized recreation would continue to occur outside the 200-foot protection buffer for red-cockaded woodpeckers. Continued use of the motorized and nonmotorized trails in and outside the identified protection buffers would have no direct impact, injury, or mortality to the species.

Eastern indigo snakes are rarely encountered in the preserve and habitats are primarily associated with pine flatwoods. Motorized and nonmotorized trails, including the FNST, and disturbances in destinations under the no-action alternative would continue to occur in 170 acres or 0.18% of the habitat suitable for this species in the preserve.

The Eastern black rail occurs predominately in wetland habitat and because of its secretive nature would rarely be encountered in the preserve. Motorized and nonmotorized trails, including the FNST, and disturbances in destinations under the no-action alternative would continue to occur in 75 acres or 0.06% of the habitat suitable for this species in the preserve.

Red cockaded woodpecker territories and Eastern indigo snakes occur in pineland areas that are likely the most suitable and attractive to dispersed campers. If dispersed camping occurs in proximity to active woodpecker cavity trees or Eastern indigo snake habitat, these activities could result in visual and noise disturbance, temporarily flushing or displacing these species. Impacts on red-cockaded woodpeckers and Eastern indigo snakes associated with dispersed camping would not be expected to be reoccurring. In the recent past (2016–2020), an average of 3,572 backcountry camping permits were issued annually. Over the preserve's entire 727,235 acres, this averages about 204 acres per camper. Given the secretive nature of the Eastern indigo snakes and the low likelihood of locating an active woodpecker cavity tree, the potential to encounter occupied habitat for either of these species is greatly reduced.

Most of the impacts on special status wildlife would continue to occur for a short duration (less than five minutes) but may reoccur throughout the day (for example, as ORVs continue to pass along a trail). While these disturbances may reoccur, they would not be expected to adversely affect the red-cockaded woodpecker, Eastern indigo snake, or Eastern black rail. The preserve issues a relatively low number of permits; therefore, the potential to encounter occupied habitat for these species is likely to be small. For the Florida panther, repeated or heavy use by motorized vehicles can result in changes to a panther's daily movement and dispersal patterns, a temporary adverse impact. However, the nocturnal behavior of panthers reduces the overall likelihood of panther disturbance.

The no-action alternative would not remove, degrade, or fragment breeding or foraging habitats or cavity trees that would be suitable for the special status species or their prey base. Indirect impacts on special status species may continue to include temporary disruption of foraging activities, which would result from flushing, or displacing individuals due to visual or noise/vibration disturbance. The species would continue to be able to use similar adjacent high-quality habitats and could return to the area after the visitor has left. Sustained noise disturbance from heavy use in a local area could continue to cause the species to avoid the area entirely.

**Conclusion.** The continuation of current management practices and ORV use patterns would result in small adverse impacts on special status species. Under the no-action alternative, ORV use and visitor use of trails in the backcountry and dispersed camping activities would continue to have small adverse impacts on the Florida panther, red-cockaded woodpecker, Eastern indigo snake, and the Eastern black rail. The adverse impacts would primarily result in habitat and visual/noise disturbance, which may result in disruption of breeding, foraging, or dispersal behaviors and may affect species' home range or displace individuals. The impacts on special status species would continue to affect 0.3% of the total amount of habitat available for particular species. Specifically, 0.07% of suitable habitat for the Florida panther would have the potential to be adversely impacted, 0.2% of the habitat red-cockaded woodpecker cavity trees would have the potential to be adversely impacted from motorized trail use, 0.18% of the suitable habitat for the Eastern indigo snake would have the potential to be adversely impacted, and 0.06% of Eastern black rail suitable habitat would have the potential to be adversely impacted.

Based on the above factors, the 200-foot red-cockaded woodpecker protection buffers, and the closures and adaptive strategies described in section 2.4.7, the National Park Service has determined that the project would result in an Endangered Species Act determination of *may affect, not likely to adversely affect* for the Florida panther, red-cockaded woodpecker, Eastern indigo snake, and Eastern black rail.

### 4.7.3 Impacts of Alternative 2

**Direct and Indirect Impacts.** Under alternative 2, the types and duration of adverse impacts to special status species are the same as those discussed in the no-action alternative. The extent of adverse effects increases relative to alternative 1, but would be smaller than alternative 3.

The opening and use of motorized and nonmotorized trails (e.g., realignment of the FNST) and use of destinations under alternative 2 would affect 515 acres, or less than 0.1% of habitat suitable for the Florida panther in the preserve. Overall, this is a small area of disturbance, and large expanses of suitable habitat would remain available for panthers and their prey populations in the preserve. The National Park Service would implement adaptive closures if visitor use interferes with known den sites. In recent years, the number of annual ORV permits issued for the preserve has generally been decreasing, indicating the possibility of an overall decrease in backcountry use. This overall trend of decreasing ORV use in the backcountry would reduce the likelihood of visitor-panther encounters in the future. However, the number of permits issued by the preserve increased in 2019 and 2020, and the increased recreational opportunities afforded by this alternative could possibly result in increased ORV use on primary and secondary ORV trails. If so, impacts to panthers would still be limited because the number of permits sold

is capped at 2,000 in the original preserve and 650 in the Addition, numbers designed to protect panther populations (NPS 2000a, 2010).

Alternative 2 would impact 3.21 acres of red-cockaded woodpecker habitat in the preserve, which is 1 acre more than the no-action alternative. This adverse effect would be limited, given that no cavity trees would be removed or trimmed as part of trail or destination opening or maintenance, and a 200-foot protection buffer exists for ORV and nonmotorized trail use as well as camping.

In alternative 2, there would be a small increase in the impacted acreage of habitat suitable for the Eastern indigo snake, resulting in adverse effect to 194 acres. This expanded footprint represents 0.2% of the total amount of suitable habitat in the preserve. Similar to the no-action alternative, the likelihood of injury or mortality is low given the snake's cryptic nature and the presence of more than 95,000 acres of suitable habitat that would remain undisturbed.

The alternative 2 effects on the Eastern black rail are like those under the no action alternative, resulting in adverse effects to 76 acres of suitable habitat or 0.06% of the total amount of suitable habitat in the preserve. Similar to the no-action alternative, the likelihood of injury or mortality is low given the secretive nature of the bird and presence of more than 126,000 acres of suitable habitat that would remain undisturbed.

Under alternative 2, no suitable foraging habitat for Florida panther, red-cockaded woodpecker, Eastern indigo snake, or Eastern black rail would be physically removed, degraded, or fragmented apart from opening trails and destinations. Reopening of ORV trails, realignment of the FNST, and visitor use of destinations that occur in areas adjacent to suitable foraging habitat may result in indirect impacts on the species from visual or noise disturbance if an individual or congregation of individuals occurs near a trail or destination. Visual and noise disturbances may result in temporary flushing, displacement, or behavior modification. In most instances, this disturbance would be temporary in nature as the visitor or group of visitors passes through the area. In addition, Florida panthers, red-cockaded woodpeckers, and Eastern black rails are highly mobile and can readily move to other similar, nearby habitats to avoid these disturbances.

Most of the impacts on special status wildlife would occur for a short duration (less than five minutes) but may reoccur throughout the day (for example, as ORVs continue to pass along a trail). In some instances, impacts could be of longer duration, as when groups of ORVs pass by, or ORV users pause in occupied habitat. While these disturbances can be expected to occur, they would not be expected to adversely affect the red-cockaded woodpecker, Eastern indigo snake, or Eastern black rail because of the relatively low number of permits issued by the preserve and the low likelihood of encountering occupied habitat for these species. For the Florida panther, opening trails and areas to ORV and visitor use, including camping, can result in changes to a panther's daily movement and dispersal patterns, a temporary adverse impact. However, the nocturnal behavior of panthers reduces the overall likelihood of panther disturbance.

No dispersed camping would occur under this alternative, and thus, the potential adverse effects on special status species and their habitat would be reduced as compared to the no-action alternative, resulting in beneficial impacts.

The proposed wilderness designation in alternative 2 would include 190,528 acres, 32% of the original preserve and Western Addition. This designation would limit development and motorized and mechanized use in wilderness areas, thereby reducing the potential for disturbance and providing special status species with extensive lands for refuge, a permanent beneficial impact. Because alternative 2 proposes the greatest amount of wilderness, the beneficial impact of wilderness designation would be greater under this alternative than under the other action alternative.

**Conclusion.** Under alternative 2, the types and duration of adverse impacts on special status species would be similar to those described under the no-action alternative. However, due to the increase in trail mileage and number of destinations relative to the no-action alternative, alternative 2 would slightly increase the amount of habitat disturbed and noise/visual effects for the Florida panther (disturbance to less than 0.1% of suitable habitat), Eastern indigo snake (disturbance to 0.2% of suitable habitat), and Eastern black rail (disturbance to 0.06% of suitable habitat). Overall, this is a small area of disturbance for the Florida panther, Eastern indigo snake, and Eastern black rail. The extent of impacts on known red-cockaded woodpecker cavity trees would be slightly more than under the no-action alternative. Overall, less than 1% of the total amount of suitable habitat for these species present in the preserve would be affected by this alternative. More than 99% of the suitable habitats for these special status species would not be affected by this alternative.

The elimination of dispersed camping in this alternative reduces the potential for visitors to directly disturb special status species, a permanent beneficial impact. The proposed wilderness in this alternative would eliminate development and mechanized and motorized use from about 190,528 acres, which reduces the potential for disturbance of special status species. The proposed wilderness would result in a permanent beneficial effect on all four species.

Based on the above factors, the closures and adaptive measures addressed in section 2.5.7 (above), the mitigation measures addressed in section 2.9.5 (above), and the 200-foot red-cockaded woodpecker protection buffers, the National Park Service has determined that the project would result in an Endangered Species Act determination of *may affect, not likely to adversely affect* for the Florida panther, red-cockaded woodpecker, Eastern indigo snake, and Eastern black rail.

#### **4.7.4 Impacts of Alternative 3 (Proposed Action / Preferred Alternative)**

**Direct and Indirect Impacts.** Under alternative 3, the types of adverse impacts on special status species are the same as described in the no-action alternative and alternative 2. These include habitat and visual/noise disturbance, which may result in disruption of breeding, foraging, and dispersal behaviors and may affect species home range or displace individuals. Adverse impacts from the realignment of the FNST would be the same as discussed under alternative 2. Because alternative 3 includes additional motorized trails, nonmotorized trails, and destinations, and allows dispersed camping in more areas, the geographic extent of the adverse impacts increases relative to alternatives 1 and 2.

In alternative 3, the opening and use of motorized and nonmotorized trails (including realignment of the FNST and addition of new hiking trails), together with the use of existing and proposed destinations, would affect 803 total acres. The opening and use of motorized and nonmotorized trails and increase in destinations would affect 0.11% of habitat suitable for the Florida panther in the preserve, an increase from alternative 2. However, large expanses of suitable habitat would remain available for panthers and their prey populations in the preserve, and the National Park Service would implement adaptive closures if visitor use interfered with known den sites. In recent years, the number of annual ORV permits issued for the preserve has been generally decreasing, indicating the possibility of an overall decrease in backcountry use. This overall trend of decreasing ORV use in the backcountry could reduce the likelihood of visitor-panther encounters in the future. However, the number of permits issued by the preserve increased in 2019 and 2020, and the substantially increased recreational opportunities afforded by this alternative as compared to alternative 2 could possibly result in increased ORV use on primary and secondary ORV trails. Still, even if the increased number of trails and destinations under this alternative were to result in an increased number of ORV permits being issued, the number of available permits is capped at 2,000 (650 of which could be used in the addition), a number designed to protect panther populations (NPS 2000a, 2010).



Alternative 3 would adversely affect 3.21 acres of red-cockaded woodpecker habitat in the preserve, the same as in alternative 2. Indirect impacts would be somewhat greater under this alternative than alternative 2 because this alternative allows dispersed camping. However, adverse effect would be limited given that no cavity trees would be removed or trimmed as part of trail opening or maintenance and 200-foot protection buffers would be in place for ORV and nonmotorized trail use and associated camping activities.

The motorized trails, nonmotorized trails, and destinations that occur in habitat suitable for the Eastern indigo snake under alternative 3 would affect 277 acres, a larger area than alternative 2 (194 acres). The expanded trail footprint represents 0.3% of the estimated amount of total suitable habitat in the preserve; however, the likelihood of injury or mortality continues to be low given the cryptic nature of the species, overall decreasing trend in ORV use in the preserve, and presence of more than 95,000 acres of suitable habitats that are undisturbed.

In alternative 3, there would be an increase in the impacted acreage of habitat suitable for the Eastern black rail, resulting in adverse effect to 136 acres. This expanded footprint represents 0.11% of the total amount of suitable habitat in the preserve. Similar to alternatives 1 and 2, the likelihood of injury or mortality is low given the secretive nature of the bird and presence of more than 126,000 acres of suitable habitat that would remain undisturbed.

Most of the impacts on special status wildlife would occur for a short duration (less than five minutes) but may reoccur throughout the day (for example, as ORVs continue to pass along a trail), and in some instances could be longer, as when groups of ORVs pass by or ORV users pause in occupied habitat. While these disturbances can be expected to occur, they would not be expected to adversely affect the red-cockaded woodpecker, Eastern indigo snake, or Eastern black rail because of the relatively low number of permits issued by the preserve and the low likelihood of encountering occupied habitat for these species. For the Florida panther, opening trails and areas to ORV and visitor use, including camping, can result in changes to a panther's daily movement and dispersal patterns, a temporary adverse impact. However, the nocturnal behavior of panthers, reduces the overall likelihood of panther disturbance.

Removal of the 60-day closure under this alternative would result in increased impacts to special status species (in particular, the red-cockaded woodpecker and Florida panther) as compared to alternatives 1 and 2. However, given low visitor use rates during the hot summer months, the amount of additional exposure of special status species to ORVs is expected to be low and would be limited to short term disturbance of individuals.

The dispersed camping allowed in this alternative would cover more areas, particularly in the Bear Island Unit, compared to the no-action alternative. This would increase the geographic extent of adverse impacts relative to alternatives 1 and 2.

The proposed wilderness designation in alternative 3 would include 147,910 acres (25%) of the original preserve and Western Addition. This designation would limit development and the use motorized equipment and mechanized transport in wilderness areas, thereby reducing the potential for disturbance and providing special status species with extensive lands for refuge, a permanent beneficial impact. Beneficial impacts would be at a smaller scale than alternative 2.

**Conclusion.** Under alternative 3, the types of adverse impacts on special status species would be similar to those described under alternatives 1 and 2; however, the scale of these impacts would be slightly larger. Because of an increase in trail mileage and number of destinations, alternative 3 would increase the amount of suitable habitat disturbed to 803 total acres for the Florida panther (up from 515 acres in alternative 2). The total amount of suitable habitat disturbed for the Eastern indigo snake would be 277 acres (up from 194 acres in alternative 2). The total amount of suitable habitat disturbed for the red-cockaded woodpecker would be 3.21 acres (the same as in alternative 2). The total amount of suitable

habitat disturbed for the eastern black rail would be 136 acres (up from 76 acres in alternative 2). For all four species, this is a small area of disturbance, amounting to less than 1% of the total amount of suitable habitat for these species in the preserve. More than 99% of the suitable habitats for these special status species would not be affected by this alternative.

Most of the impacts on special status wildlife would occur for a short duration (less than five minutes as an ORV or visitor on foot passes by) but may reoccur throughout the day. Some disturbances would be of longer duration.

Walk-in dispersed camping would be allowed in a larger geographic area than alternative 1 due to the inclusion of the Bear Island Unit. (No dispersed camping would be allowed in alternative 2.) This dispersed camping would increase the potential area where adverse impacts could occur, relative to alternative 1.

The proposed wilderness designation in alternative 3 would cover 147,910 acres, (25%) of the original preserve and Western Addition). This designation would provide special status species with extensive lands for refuge, a permanent beneficial impact. Beneficial impacts would be at a smaller scale than alternative 2.

Based on the above factors, the closures and adaptive measures addressed in section 2.6.7 above, the mitigation measures addressed in this section and section 2.9.5 above, and the 200-foot red-cockaded woodpecker protection buffers, the National Park Service has determined that the project would result in an Endangered Species Act determination of *may affect, not likely to adversely affect* for the Florida panther, red-cockaded woodpecker, Eastern indigo snake, and Eastern black rail.

#### **4.7.5 Cumulative Impacts**

The preserve's GMP (NPS 1991), ORV Management Plan (NPS 2000a), and Addition GMP (NPS 2010) collectively addressed the management of ORV travel in the preserve. Before the ORV Management Plan, dispersed ORV use prevailed throughout the preserve and resulted in vegetation removal and soil disturbance. Implementation of the ORV Management Plan minimizes impacts on special status species and their habitats and restricts ORV use to designated primary trails. The Addition GMP provided this same framework for primary trails in the Addition. The implementation of these plans to control ORV travel in the preserve has contributed to beneficial impacts on special status species.

Ongoing activities in the preserve that may affect special status species are fire management, invasive species and their management, and hunting. Many of these impacts are beneficial to special status species. The one reasonably foreseeable future action that has a detectable effect on special status species is oil and gas exploration similar to that recently conducted by Burnett Oil Company. The performance of seismic surveys in the Bear Island, Northeast Addition, and Turner River Units could have adverse impacts on special status species due to habitat removal and degradation and disturbance that may interfere with breeding, foraging, and dispersal/migration associated with heavy equipment and the construction of roads and pads. However, the required mitigation measures reduce the impact of activities to these resources, and habitats for special status species are expected to recover after operations cease. Mineral surveys eventually will come to an end when all likely areas have been explored. Exploration for minerals could be followed by actual development, which would have independent impacts on special status species. These impacts would be mitigated via the permitting process.

The effect of the projects discussed above would likely result in the disturbance of special status species and the addition of a small amount of loss of habitats capable of supporting such species, an adverse impact. Under all alternatives in this Supplemental Draft Plan/EIS, special status species populations would be maintained with minimal disturbance of individuals, and the overwhelming majority (greater than 99%) of special status species habitats would remain largely undisturbed. The range of actions

contained in the various alternatives would contribute incrementally to the overall cumulative impact. Alternatives 1 and 2 would contribute a smaller overall footprint of impacts, whereas alternative 3 would result in a larger overall footprint of impacts due to increases in miles of primary and nonmotorized trails.

When the likely effects of implementing the alternatives are added to the effects of other past, present, and reasonably foreseeable actions, there would be a small adverse cumulative impact on special status species in the preserve. Alternatives 1 and 2 would contribute the smallest adverse increment (disturbance to less than 0.1% of suitable habitat for the Florida panther), whereas alternative 3 would contribute the largest disturbance (0.24% of suitable habitat for the red-cockaded woodpecker, 0.29% of suitable habitat for the Eastern indigo snake, and 0.11% of suitable habitat for the Eastern black rail) because of increases in trail mileage and backcountry destinations. Despite this habitat disturbance, large expanses (99%) of suitable habitat in the preserve remain intact and undisturbed. The actions contained in the various alternatives would not likely result in injury, mortality, extirpation, or loss of designated critical habitat important to special status species in the preserve.

## **4.8 WILDERNESS CHARACTER**

This section addresses the potential consequences of the no-action and action alternatives on wilderness character and analyzes how impacts to wilderness character would change with implementation of the proposed alternatives.

### **4.8.1 Basis of Analysis**

There is currently no congressionally designated wilderness in the preserve. However, substantial parts of the original preserve and the Addition have been identified as eligible for wilderness designation. NPS policy directs that lands identified as eligible for wilderness designation be managed to preserve their wilderness character and values in the same manner as designated wilderness until Congress has acted on a wilderness recommendation from the president (NPS 2011a).

Total eligible wilderness in the preserve as a whole is approximately 257,762 acres, or about 43% of the entire preserve. Of this total, the National Park Service has previously proposed that Congress designate approximately 47,182 acres of the Addition as wilderness (NPS 2010). (This acreage lies south of I-75 in the Northeast Addition.) Furthermore, varying amounts of eligible wilderness in the original preserve are proposed for designation in the action alternatives of this Supplemental Draft Plan/EIS.

The impact analyses below consider a variety of factors that could affect wilderness character. The analyses assume that changes in development and use of the preserve could lead to impacts on wilderness character in both proposed and eligible wilderness. In general, the effects of the alternatives on wilderness character were analyzed based on impacts resulting from visitor use levels and patterns and management activities associated with each alternative.

For all but the no-action alternative, this impact assessment assumes that lands eligible or proposed for designated wilderness could ultimately be designated as such by Congress. For the no-action alternative, this assessment assumes continuation of the current management direction—that is, the preserve continues to manage eligible areas to maintain their existing wilderness character until Congress decides whether or not to designate these areas as wilderness.

Identifying impacts on wilderness character as a whole entails analyzing the effects of the alternatives on each of the five constituent “qualities” of wilderness character. These qualities are: (1) the untrammeled quality, (2) the natural quality, (3) the undeveloped quality, (4) the quality of solitude or a primitive and unconfined type of recreation, and (5) other features of value. Full definitions of each quality are in chapter 3. Note that no “other features of value” have yet been formally identified at the preserve and thus no impact analysis for this quality is included in this section.

Under each of the alternatives, including the no-action alternative, the preserve would continue to manage the preserve's natural resources from an ecosystem perspective (e.g., nonnative/invasive species management and fire management). Across both of the action alternatives, ongoing NPS resource management activities in proposed wilderness areas would be consistent with the minimum requirement concept. This concept is a documented process to determine if administrative actions, projects, or programs undertaken by the preserve and affecting wilderness character, resources, or visitor experiences are necessary, and if so, how to minimize impacts to wilderness character (NPS 2006a). NPS land management practices, along with the natural ecological processes, would be directed toward improving wilderness character over the long term.

Note that as used in the analysis below, the term “wilderness” refers to both proposed and eligible wilderness in the preserve.

## 4.8.2 Impacts of Alternative 1

**Direct and Indirect Impacts.** Under the no-action alternative, there would be no change from current preserve management activities. No new lands would be proposed for designation as wilderness. The part of the Addition previously proposed for wilderness designation would continue to be managed to preserve its wilderness character, as would all areas in the preserve identified as eligible wilderness. See section 6.3.1 of *NPS Management Policies 2006* (NPS 2006a).

*Untrammeled* — Under the no-action alternative, there would be few impacts to the untrammeled quality of wilderness character apart from those described below in section 4.8.5 (“Cumulative Impacts”). Visitors would continue to gain access to wilderness by walking in from primary ORV trails, by hiking on- or off-trail in wilderness, or by using nonmotorized boats on wilderness waterways. Likewise, primitive camping would continue to occur in wilderness via permit. While some of these activities, together with occasional maintenance and rerouting of trails, could result in some minor land disturbance, none would impact the untrammeled quality of wilderness to any material degree because none are intended to intentionally control or manipulate components or processes of ecological systems. Therefore, this alternative would have little, if any, noticeable impact on the untrammeled quality.

*Natural* — Under the no-action alternative, impacts to the natural quality of wilderness character would be limited. Continued backcountry use could result in some limited impacts to the natural quality, mostly in the form of disturbance to soil and vegetation along wilderness hiking trails and at wilderness campsites. Some minor increase in nonnative plants could also occur as a result of seeds inadvertently brought into wilderness by hikers or moved from one site to another on clothes or shoes. Otherwise, impacts to air quality, water quality, special status species, and natural systems generally would be quite limited. Most backcountry destinations in the preserve would continue to be located outside of wilderness and would be reached via ORV trails outside of wilderness. As a result, this alternative would have limited impacts on the natural quality of wilderness character. The wilderness at the preserve would continue to maintain ecological systems that are substantially free from the effects of modern civilization.

*Undeveloped* — NPS policy provides that no permanent structures are allowed in wilderness unless necessary for the administration of the area as wilderness and authorized by a minimum requirements analysis document signed by the superintendent. Under the terms of this alternative, no such structures are contemplated for administrative use in wilderness. (Note that impacts from recreational developments are addressed below under the “Opportunity for Solitude” quality.) Furthermore, per NPS policy, any unused, nonhistoric structures in wilderness would be removed as funding became available. Together, these measures would help ensure that impacts to the undeveloped quality of wilderness character are minimized. Impacts to the undeveloped quality would remain in the form of structures located on inholdings, installations associated with scientific research, and evidence of authorized NPS administrative activities in wilderness (e.g., tire tracks from vehicles used for authorized nonnative

vegetation removal activities). However, the actions authorized under this alternative related to backcountry access would have minimal adverse impacts to the undeveloped quality.

*Opportunity for Solitude or Primitive and Unconfined Recreation* — Under this alternative, no additional hiking trails or backcountry campsites would be constructed in wilderness. This lack of new development would preserve opportunities for solitude by limiting evidence of human activity in wilderness to its current levels and by maintaining present opportunities for self-reliant recreation. At the same time, the lack of new trails and campsites could restrict opportunities for those visitors unwilling or unable to strike out into the parts of the wilderness not currently served by trails. Regarding the hiking trails that already exist in wilderness, the presence of the trails themselves, as well as associated bridging, signs, and campsites, serves to degrade opportunities for solitude and unconfined recreation by reducing challenge and focusing use into developed areas. The primary adverse impact on opportunities for solitude or primitive and unconfined recreation under this alternative would come from the sights and sounds of ORVs in adjacent nonwilderness areas. These sights and sounds would continue to be an adverse impact on opportunities for solitude or primitive and unconfined recreation in 22% of the preserve, as identified in section 4.10, “Natural Soundscapes.” The ability of users to disperse camp throughout most of the preserve would be beneficial to this wilderness quality because visitors would not be confined to predetermined areas that are used by others regularly. As a result, visitors would have extensive opportunities for adventure, self-reliant recreation, and discovery throughout the preserve.

**Conclusion.** Considering the impacts to wilderness character identified above, continuing current opportunities for ORV, hiking, and other visitor use would result in little change to wilderness character as described in chapter 3. Impacts to the untrammeled, natural, and undeveloped qualities of wilderness character would be limited, as current recreational activity in wilderness does not affect these qualities to any appreciable extent. Impacts to the solitude and opportunity for unconfined recreation quality would be somewhat more noticeable given that the current level of recreational infrastructure in wilderness would be maintained into the future. Adverse impacts would be minimal due to the size of the wilderness and the plentiful opportunities for self-reliance and challenge in a demanding landscape. Additional impacts to the solitude quality would come from noise originating outside of wilderness, principally from ORV use and associated camps. ORV use would continue to impact natural soundscapes in 22% of the preserve and constrain opportunities for solitude.

### 4.8.3 Impacts of Alternative 2

**Direct and Indirect Impacts.** Alternative 2 increases the footprint of ORVs by establishing secondary trails and additional destinations; all are located outside wilderness. In wilderness, the mileage of hiking and canoe trails would not change, and no new campsites would be added. This alternative includes proposed wilderness in portions of the Deep Lake, Turner River, Corn Dance, Loop, and Stairsteps management units. Under this alternative, approximately 190,528 acres in the original preserve and Western Addition (32% of the original preserve and Western Addition) would be proposed for wilderness designation. In accordance with NPS policy, all areas of proposed and eligible wilderness would be managed to preserve their wilderness character until such time as Congress makes a determination regarding the amount of wilderness, if any, to be designated at the preserve.

Alternative 2 proposes to designate the greatest amount of wilderness and proposes the least amount of additional ORV trails and destinations outside of wilderness. The latter can have adverse impacts to soils, vegetation, and water quality. The protection afforded to wilderness in the preserve under the Wilderness Act would preserve the wilderness resources and values of these lands in perpetuity.

*Untrammeled* — For this quality of wilderness character, alternative 2 is the same as the no-action alternative. Like the no-action alternative, alternative 2 would have no material impact on the untrammeled quality of wilderness because nothing in the alternative itself is intended to control or

manipulate components or processes of ecological systems. Therefore, this alternative would have little, if any, additional impact on the untrammeled quality as compared to alternative 1.

*Natural* — Under this alternative, 32% of the original preserve would be identified as proposed wilderness where natural ecological processes are allowed to occur, resulting in beneficial impacts for the natural quality of wilderness character. As under the no-action alternative, continued backcountry use could result in some limited adverse impacts to the natural quality, mostly in the form of disturbance to soil and vegetation along hiking trails and introduction of nonnative invasive plants. Overall, however, the wilderness at the preserve would continue to maintain ecological systems that are substantially free from the effects of modern civilization. Wilderness would be managed over the long term to preserve and enhance the functioning of natural systems, thereby protecting the natural quality.

*Undeveloped* — Under this alternative, as under the no-action alternative, no permanent structures are contemplated for administrative use in eligible or proposed wilderness. Impacts to the undeveloped quality would remain in the form of structures located on inholdings, installations associated with scientific research, and evidence of authorized NPS administrative activities in wilderness (e.g., tire tracks from vehicles used for authorized nonnative vegetation removal activities). However, authorized actions related to backcountry access would have minimal adverse impacts to the undeveloped quality.

*Opportunity for Solitude or Primitive and Unconfined Recreation* —No additional primary ORV trails would be constructed under this alternative, but a small system of secondary trails would be established away from or on the outer periphery of eligible and proposed wilderness. In contrast, almost 12 miles of nonmotorized trails would occur in what is proposed wilderness under this alternative. Given the size of the wilderness polygons, the sights and sounds associated with external motorized and nonmotorized use on this scale are essentially imperceptible from within the proposed wilderness. Therefore, impacts to the solitude and opportunities for unconfined recreation quality would be virtually the same under this alternative as under alternative 1. Visitors would have extensive opportunities for adventure, self-reliant recreation, and discovery throughout the preserve.

**Conclusion.** Adverse impacts to wilderness character from the elements of alternative 2 would be quite limited and would come primarily in the form of impacts to solitude or primitive and unconfined recreation. The latter impacts would result from the sights and sounds of ORVs and other recreational activities in adjacent nonwilderness areas. These sights and sounds would be more extensive than under the no-action alternative because of the development under this alternative of a small secondary ORV trail system and associated backcountry destinations. At the same time, the almost 12 miles of nonmotorized trails would provide opportunities for those visitors unwilling or unable to hike into the parts of the wilderness not currently served by trails. The small impacts to wilderness character would be offset by the long-term protection of wilderness character in the 190,528 acres of proposed wilderness in this alternative.

#### **4.8.4 Impacts of Alternative 3 (Proposed Action/Preferred Alternative)**

**Direct and Indirect Impacts.** Under this alternative, the effects on wilderness character would be somewhat greater than those described under alternative 2. In alternative 3 the mileage of hiking trails in the preserve would almost triple as compared to the no-action alternative. Hiking trail mileage would go from 63 miles to 185 miles, with about 20 total miles being in proposed wilderness. Alternative 3 differs from the other action alternative in that it adds more motorized trails outside wilderness than alternative 2. It also proposes less land in the original preserve and Western Addition for wilderness designation than alternative 2 (i.e., 147,910 acres, or 25% of the original preserve and Western Addition).

*Untrammeled* — The impacts to this quality would be the same as under alternative 2.

*Natural* — The impacts to this quality would be similar to those under alternative 2. Some additional minor impacts to soils and vegetation would occur due to the use of 20 total miles of hiking trails in proposed wilderness. Given the size of the areas of proposed wilderness at the preserve, the addition of these trail miles would have minimal impacts on the natural quality of wilderness character and the wilderness would continue to maintain ecological systems that are substantially free from the effects of modern civilization.

*Undeveloped* — The impacts to this quality would be the same as under alternative 2.

*Opportunity for Solitude or Primitive and Unconfined Recreation* — The impacts to this quality would stem in large part from the sights and sounds of ORVs and other recreational activities in adjacent nonwilderness areas. Under alternative 3, there would be greater impacts to this quality than under alternative 2 due to more miles of primary and secondary ORV trails outside of wilderness (384 miles in alternative 3 as opposed to 293 miles in alternative 2). Overall impacts to the “Opportunity for Solitude” or “Primitive and Unconfined Recreation” quality would be small in alternative 3 because of the large size of the areas of proposed wilderness, the width of the nonwilderness ORV trail corridors, and the limited number of permits issued for ORV use. The small impacts to wilderness character would be offset by the long-term protection of wilderness character in the 147,910 acres of proposed wilderness in this alternative.

**Conclusion.** As under the no-action alternative and alternative 2, adverse impacts to wilderness character would be quite limited under alternative 3 and would come primarily in the form of impacts to solitude or primitive and unconfined recreation. The latter impacts would result from the sights and sounds of ORVs in adjacent nonwilderness areas. These sights and sounds would be greater than under alternative 2 because of the larger number of primary and secondary ORV trail miles and the greater number of backcountry destinations. Overall impacts to wilderness character would still be small and would be offset by the long-term protection of wilderness character in the 147,910 acres of proposed wilderness in the alternative. The 20 miles of nonmotorized trails in proposed wilderness would provide opportunities for solitude to those visitors unwilling or unable to hike into the parts of the wilderness not currently served by trails. The benefits of wilderness protection would be potentially less than under alternative 2 because of the smaller amount of wilderness proposed.

#### 4.8.5 Cumulative Impacts

It is important to note that a national preserve allows a broader range of activities than a national park. While the primary mission of the preserve is conservation, the preserve allows for activities such as oil and gas operations, hunting, ORV use, and cultural use that are typically prohibited in a national park. Actions that could have a cumulative effect in conjunction with the proposals outlined in this Supplemental Draft Plan/EIS were identified in section 4.3, “Cumulative Impacts Analysis.” Cumulative impacts on wilderness character would be similar under both action alternatives and are discussed here.

Various ongoing management actions affect the qualities of wilderness character. In particular, as part of day-to-day management, and quite apart from the actions described in this Supplemental Draft Plan/EIS, the National Park Service would continue to engage in some trammeling actions in wilderness preserve-wide. That is, the National Park Service would continue to intentionally control or manipulate certain components or processes of ecological systems in wilderness to enhance the natural quality of wilderness. These activities would principally consist of killing/removing nonnative invasive vegetation, setting prescribed fires to help restore some approximation of the natural fire regime of the area, and capturing and monitoring (via collars and otherwise) wildlife to assist with ongoing protection efforts. It is anticipated that, at some point in the future, the National Park Service may also manipulate parts of the landscape to restore a more naturally functioning hydrologic regime. Other actions that may affect wilderness character include short-term projects related to trail rehabilitation and maintenance. These

actions are, and would continue to be, administered under a minimum requirement analysis process that determines whether an individual action is necessary in wilderness, and if so, what tools and techniques are to be used to minimize impacts on wilderness character.

Implementation of the 2000 Recreational ORV Management Plan (NPS 2000a) has minimized the effects of ORVs on wilderness character in the original preserve by eliminating recreational dispersed use of motorized vehicles across the wetland landscape. ORVs are now required to travel on designated trails outside of wilderness, minimizing further fragmentation of habitats and reducing the opportunity to spread the seeds of nonnative plants via tire treads and the like. Implementation of the 2000 Recreational ORV Management Plan has improved the natural quality of wilderness character, as well as opportunities for solitude (including challenge and natural sights and sounds), and will continue to do so.

Regional growth and development are expected to continue. Regionally, an increase in urbanization and development could lead to habitat fragmentation; the loss of natural areas; and the degradation of natural resources, ecosystem function, and natural soundscapes in the region. These changes would serve to reduce the amount of wildland in the region and further isolate wilderness at the preserve.

Collectively, beneficial impacts on wilderness character would accrue from implementing an ORV management plan and from ecosystem restoration projects. Adverse impacts would be expected from future oil and gas operations, trail rehabilitation and maintenance, and regional growth and development.

When the likely effects of implementing the present alternatives are added to the effects of other past, present, and reasonably foreseeable actions, this Supplemental Draft Plan/EIS would contribute only a small increment to cumulative adverse impacts to wilderness character in the preserve. This increment would take the form of the percentage range of the natural soundscape affected (22%–30%) by ORV use in the preserve outside of wilderness. These adverse impacts would be offset to an extent by the proposal to designate wilderness in the original preserve. If Congress ultimately designated these lands as wilderness, they would be subject to the maximum amount of resource protection available under federal law.

## **4.9 VISITOR USE AND EXPERIENCE**

This section analyzes the potential effects of the no-action and action alternatives on visitor use and experience in the preserve.

### **4.9.1 Basis of Analysis**

Visitor activities have been grouped into three categories for this analysis: motorized use, nonmotorized use, and camping. Direct and indirect impacts to each of these activity categories are discussed under each alternative.

“Motorized use” refers to ORV travel, including street-legal 4 × 4, all-terrain vehicle, utility task vehicle, swamp buggy, and airboat use. “Nonmotorized use” refers to hiking, bicycling, canoeing, horseback riding, and other noncamping terrestrial recreational activities that do not involve use of a motorized vehicle. Much of the nonmotorized use in the backcountry centers on the FNST, which receives about 2,850 hikers per year (University of Florida 2011).

In the discussion here, “camping” refers specifically to backcountry camping. Table 4-8 shows the number of backcountry camping permits issued per year in the preserve. Overall, backcountry camping has increased between 2016 and 2020. The number of campers was highest in 2020, when 4,821 permits were issued. The average for this period is 3,572 permits per year.



Hunting is not analyzed here in detail as a visitor activity, as no changes are being proposed that would affect hunting management in the preserve. However, hunters that camp in the backcountry during hunting season have the potential to be affected by this Supplemental Draft Plan/EIS; therefore, camping during hunting season is discussed in this section. Motorboat use is not analyzed in this chapter, as there are no alternatives that would change the current management of motorboat use in the preserve.

**Table 4-8. Number of Backcountry Camping Permits Issued by Year**

Year	Number of Permits
2020	4,821
2019	4,026
2018	3,196
2017	2,532
2016	3,287
5-year average	3,572

Source: Big Cypress National Preserve

## 4.9.2 Impacts of Alternative 1

**Motorized Use.** The no-action alternative would maintain the current management of the preserve. The current 278-mile primary trail network would continue to serve as access for motorized vehicles into the backcountry. Under the no-action alternative, there would be no additional motorized access provided. ORV users would continue to be limited to the existing primary trails network. ORV users would not have opportunities for more solitude and privacy on secondary trails. Although motorized user groups include airboats, no additional airboat trails would be proposed under this alternative. Airboat users would continue to enjoy access to Stairsteps Unit Zone 4.

ORV permit sales in the preserve have been in decline over recent years, from a high of 2,000 permits sold in 2010 to 1,359 in 2020, a 30% decrease over 10 years. (The smallest number of permits sold (1,021) was in 2018.) From 2015 to 2020 (the most recent years for which data are available), the average number of ORV permits sold annually is 1,113. This reduction in ORV use is a beneficial impact on ORV and nonmotorized visitors as long as it continues, because it reduces competition for sites in the backcountry and the potential for user conflicts. This trend may continue, or may stabilize at the current lower levels, due to an overall decrease in the demand for hunting opportunities in the preserve.

Under this alternative, the current 60-day annual ORV closure would remain in place, which would continue to limit ORV recreation during the closure. This annual 60-day closure occurs during the hot and humid south Florida summer, which corresponds to the preserve's lowest visitation levels. Therefore, the continuance of the annual 60-day closure period would continue to have a slight adverse impact on visitor access to and enjoyment of the preserve.

**Nonmotorized Use.** Under the no-action alternative, visitors would continue to have access to several nonmotorized trails and could also hike off-trail. Long distance hiking opportunities would continue to be available on 36 miles of the FNST and on primary ORV trails. In many areas, the FNST overlaps with primary ORV trails and nonmotorized users would likely encounter ORVs, resulting in a small adverse impact on those hikers seeking immersion in nature. This impact would typically last less than five minutes. Motorized and nonmotorized trail overlaps also present a small safety concern, because there is a potential for human and vehicle collision and injury, an adverse impact on visitor experience. The chance of a collision is small; there have been no documented instances of ORV and pedestrian collisions.

Bicycles and e-bikes would be allowed on primary ORV trails to the extent authorized by the superintendent's compendium. There is a small safety concern with motorized ORVs and bicycles/e-bikes

using the same trails. The potential for collision and injury constitutes an adverse impact on visitor experience. However, due to low travel speeds, the chance of a collision is small; there have been no documented instances of ORV and bicycle/e-bike collisions at the preserve.

Short-distance hiking trails would continue to be available in the preserve, including the 6.5-mile Loop Trail and five short frontcountry trails (Bass Lake, Deep Lake, Fire Prairie, Gator Hook, and Tree Snail Hammock). These trails are designated hiking trails and do not overlap with designated ORV trails, a beneficial impact on ORV and nonmotorized users.

Visitors would continue to access a total of 15 miles of designated canoe trails, including Turner River, Halfway Creek, Halfway Creek Loop, and Lefthand Turner River. Together, these canoe trails result in a beneficial impact on visitor experience.

**Camping.** The no-action alternative would not change the current camping management strategies of the preserve. Stay limits would continue as 14 days, not to exceed the maximum number of days per year specified in the superintendent's compendium. Free backcountry camping permits are available from any visitor center or trailhead; campers fill out the permits and drop them in the box on the honor system. An average of 3,572 backcountry camping permits were issued annually between 2016 and 2020. Over the preserve's whole 727,235 acres, this averages around 204 acres available per camper, providing many opportunities for solitude in the backcountry, a beneficial impact to 3,572 backcountry users (based on 2016–2020 average number of permits). The existing system also enhances the user's sense of freedom and choice, which is a beneficial impact.

Under the no-action alternative, dispersed backcountry camping would continue to be allowed throughout most of the preserve, except for the Bear Island Unit and Stairsteps Unit Zone 4 (airboat users in Zone 4 would continue to be required to camp at designated sites). There would continue to be no group size limits for dispersed camping. Dispersed camping increases the visitor's range of camping options, sense of freedom, and opportunities for solitude, all of which are beneficial impacts to visitor experience. Visitors would also have the option of camping at designated sites (two backcountry campgrounds, two primitive group camping areas along the FNST, and 25 designated campsites), and this is a beneficial impact on those seeking more convenience.

There is currently no reservation system in place for reserving backcountry campsites, which are only available on a first come, first served basis. There may be competition to use some popular campsites, and some users may have to travel to other areas. Uncertainty regarding use of a campsite is an adverse impact on visitors with inflexible schedules or desires for a specific campsite.

This alternative would continue to allow 10-day to 14-day consecutive stay limits for backcountry campers, with an ultimate limit not to exceed the maximum number of days per year specified in the superintendent's compendium. Further, camping equipment could be left in place for the duration of hunting season. This practice would continue to result in a small adverse impact on hunters during hunting season when competition for campsites is highest. Allowing hunters to leave equipment in place for the duration of hunting season is a beneficial impact on hunters who arrive first at popular campsites because of the added convenience. However, this practice poses an adverse impact on all other visitors because one hunter can "hold" a site and deny others use of it for the duration of hunting season.

**Conclusion.** Under the no-action alternative, the recreational access for all users would continue as it currently exists; 1,113 ORV (2015–2020 average) users would have access to a system of primary trails, but not secondary trails. Restricting motorized use to primary trails would be a small adverse impact on motorized users. Nonmotorized users would continue to have access to a system of short hiking trails, but those seeking longer hiking experiences on maintained routes would need to share primary trails with motorized users, a small adverse impact on all trail users. About 3,572 visitors (average number of backcountry camping permits for 2016–2020) would also continue to have opportunities for dispersed

camping and camping in designated sites, both of which are beneficial impacts on the visitor experience. Designated sites would continue to be available on a first come, first served basis, which creates some uncertainty for the visitor, a small adverse impact. There may be limited instances where visitors cannot camp in the exact site they wanted, and this would be a small adverse impact.

### 4.9.3 Impacts of Alternative 2

**Motorized Use.** The primary trail network would be the same as in the no-action alternative; however, alternative 2 establishes a system of 15 miles of secondary ORV trails. The increase in trail mileage would improve the overall experience of 1,113 ORV users compared to the no-action alternative by giving ORV users access to a larger geographic area, providing more opportunities for solitude, and improving their sense of freedom and self-reliance.

Under alternative 2, the annual 60-day closure would be the same as described under alternative 1 (no-action alternative) and would continue to have a slight adverse impact on access for the 1,113 ORV users.

**Nonmotorized Use.** Under alternative 2, the FNST would be realigned to a new route 44 miles long that minimizes overlap with motorized trails. The new alignment would provide a better long-distance hiking opportunity in the preserve, improve the experience of about 2,853 long-distance hikers (annually) and ORV users by mostly separating the two user groups, and reduce the potential for conflict and accidents between them. This would be a beneficial impact on nonmotorized and motorized users. Bicycles and e-bikes would have access to the expanded ORV trail system, a beneficial impact on these user groups, although use of the reopened secondary trails is expected to be minimal because of the difficulty of the terrain.

**Camping.** Under alternative 2, a total of 24 new backcountry destinations would be designated, doubling the number of campsites otherwise available. These 24 sites would expand choices for campers, a beneficial impact, and would also allow preserve staff to monitor sites for trash and safety hazards, also a beneficial impact on visitors. A reservation system for campsites would also be implemented. This system would provide more certainty for visitors, but would require advanced planning (for example, visitors would need to go to a visitor center or website to reserve a campsite). Dispersed camping would be eliminated. This would reduce freedom of choice, sense of adventure, and opportunities for solitude for campers. When combined, these factors would result in an adverse impact on the visitor experience because 3,572 annual backcountry users would have to compete for 48 designated sites and space in four backcountry campgrounds.

Without dispersed camping opportunities, crowding and competition for designated sites would increase, especially during hunting season when backcountry camping is most popular in the preserve. For example, during the 2019–2020 hunting season, there were 6,041 days of hunting pressure (total number of days of hunting for all hunters) in the preserve. Increased competition for sites would cause an adverse impact on backcountry campers.

In this alternative, stay limits would be established to help increase destination turnover rate. Camping or occupancy at a destination or backcountry campground would be limited to no more than 14 consecutive days in a 30-day period, and no more than 120 days in a calendar year. This 14-day stay limit would also apply to camping equipment. This approach would increase destination turnover rate and prevent hunters from holding campsites for the entire hunting season, resulting in a small beneficial impact on campers in general, especially during hunting season.

A total of 190,528 acres (32 %) of the original preserve and Western Addition) would be proposed as wilderness in portions of the Deep Lake, Turner River, Corn Dance, Loop, and Stairsteps Units. Designating these areas as wilderness would provide extensive opportunities for solitude, self-reliance,

and unconfined recreation, resulting in a large beneficial impact on visitors seeking a wilderness experience.

**Conclusion.** The opening of 15 miles of secondary trails would improve the experience of 1,113 ORV users in the preserve, relative to the no-action alternative. The realignment of the FNST would also improve the experience for about 2,853 visitors seeking long-distance hiking opportunities (by reducing their encounters with ORVs), compared to the no-action alternative. Regarding camping, there would be 48 total designated sites, an increase from the no-action alternative. These sites would be managed through a reservation system, which would reduce uncertainty for visitors. However, the elimination of the dispersed camping would increase competition for designated sites, especially during hunting season, and some visitors may not be able to camp in the areas they desire or find an available campsite at all. This would result in an adverse impact on campers. Alternative 2 would provide opportunities for a wilderness experience over 32% of the original preserve and Western Addition.

#### 4.9.4 Impacts of Alternative 3 (Proposed Action/Preferred Alternative)

**Motorized Use.** Alternative 3 would offer an additional 54 miles of designated primary ORV trails as compared to existing conditions (a 19% increase) and 52 miles of secondary ORV trails, almost 3.5 times as many miles of secondary trails as in alternative 2. These additional trails would result in the same types of beneficial effects as described in alternative 2, but the impacts would be further enhanced because 1,113 ORV users would be able to access a larger geographic area. Greater dispersion would reduce the likelihood of competition for sites and would provide a greater sense of freedom and self-reliance and more opportunities for solitude.

Under this alternative, the annual 60-day closure to ORV use would be removed. Instead, targeted closures would be implemented when warranted by conditions. Visitors would be able to use ORVs during June and July. This would have a slight beneficial impact on visitor experience by providing year-round access. However, it is unlikely to substantially increase the number of users given that June and July are some of the hottest months of the year and, traditionally, backcountry use is lowest during those months.

**Nonmotorized Use.** Under alternative 3, there would be a substantial expansion in the number of hiking trails. This includes an additional 114 miles of hiking trails as compared to alternatives 1 and 2, for a total of 141 miles (not including the 44-mile rerouted FNST). The realignment of the FNST would be the same as discussed under alternative 2, resulting in the same beneficial impacts.

In terms of specific hiking trails, alternative 3 includes the 41-mile Cross Preserve Trail, various new long hikes in Bear Island and the Northeast Addition, three moderate (approximately 3 miles) hikes, and two additional short (approximately 1 mile) trails. Together, these new hiking trails would result in a beneficial impact on nonmotorized users by increasing their choices in route, environment, and range of experiences, and by creating greater dispersion among hikers (thus reducing the potential for user conflict). These beneficial impacts for nonmotorized users would be more substantial than the beneficial impacts described in alternatives 1 and 2.

**Camping.** Under alternative 3, an additional 83 backcountry campsites would be designated, as compared to existing conditions—over three times the number of new destinations (24) proposed in alternative 2. Almost all newly designated camping opportunities (99%) would be available in Turner River and Corn Dance Units—two of the larger management units in the preserve. Existing primitive backcountry campsites (24) would continue to be available to users of the FNST and Stairsteps Unit Zone 4, as would two primitive group camping areas along the FNST. In addition, a new backcountry campground would be opened in the Bear Island Unit on an old petroleum well pad from which the fill has not been removed.

On balance, this alternative provides a substantial beneficial impact on 3,572 backcountry campers by largely expanding their choices in designated sites.

To provide additional camping opportunities beyond designated backcountry destinations and campgrounds, dispersed camping via foot or nonmotorized vessel would be permitted throughout the preserve, including Bear Island. Dispersed camping would be permitted at least 0.25 mile from any designated backcountry campsite or campground or 0.5 mile off any developed area or road. Camping would also be allowed along primary ORV trails. (Airboat users in Zone 4 of the Stairsteps Unit would still be required to camp at designated campsites.) The allowance of dispersed camping, in conjunction with additional designated sites, would create a beneficial impact on 3,572 backcountry campers (average for 2016–2020) because they would have a broader range of camping choices, and competition for individual sites would be greatly reduced.

No reservation system for destinations and backcountry campgrounds would be implemented, and visitors would continue to draw camping permits as described in the no-action alternative. In alternative 3, it is unlikely that a reservation system would have any beneficial impact on visitor experience because of the increase in camping choices.

Camping stay limits would be the same as alternative 2. The impacts would also be the same.

Under alternative 3, a total of 147,910 acres would be proposed as wilderness. The proposed wilderness would result in the same types of benefits for visitors described under alternative 2. The benefits would occur over a geographic area smaller than alternative 2.

**Conclusion.** The opening of 54 miles of new primary trail and 52 miles of secondary trails would improve the experience of 1,113 ORV users in the preserve, relative to alternatives 1 and 2, by further expanding their geographic access, sense of freedom, and opportunities for solitude. In addition, a new backcountry campground would be opened in the Bear Island Unit. ORV users would also have year-round access with the lifting of the annual 60-day ORV closure, a small beneficial impact compared to current conditions.

The realignment of the FNST would also improve the experience of 2,853 visitors seeking long-distance hiking opportunities (by reducing their encounters with ORVs), compared to the no-action alternative. Additional hiking trails would further enhance the nonmotorized experience compared to alternative 2 by offering visitors a greater range in trail experiences and choices and further reducing the potential for user conflict. The overall result of alternative 3 would be a beneficial impact on nonmotorized users compared to current conditions.

Alternative 3 would provide opportunities for a wilderness experience over 25% of the original preserve and Western Addition.

#### **4.9.5 Cumulative Impacts**

The previous plans identified in section 1.5 collectively addressed the management of ORV and nonmotorized use in the preserve (in the original preserve and in the Addition). With implementation of these plans, the most substantial changes have been for ORV users, who were once allowed to travel off-trail in the preserve. Today, there are more restrictions on ORV users than there were 30 years ago, and their choices in routes and access are more limited.

When the likely effects of implementing the two action alternatives are added to the effects of other past, present, and reasonably foreseeable actions, the result would be an incremental beneficial cumulative impact on preserve visitors. The benefits of alternatives 2 and 3 would be greatest for ORV users, who would have a more robust primary and secondary trail system than what currently exists (alternative 2 represents the smallest expansion of the system, while alternative 3 represents the largest expansion of the

system). Access and experiences for nonmotorized users would be most improved under alternative 3, which proposes realignments to the FNST, as well as many miles of additional hiking trails. Access and experiences for campers would be most improved under alternative 3, which allows dispersed camping and expands the number of destinations to 83.

When the likely effects of implementing the action alternatives are added to the effects of other past, present, and reasonably foreseeable actions, the result would be an incremental beneficial cumulative impact because ORV and nonmotorized opportunities would be improved and expanded from current conditions.

## **4.10 NATURAL SOUNDSCAPES**

This section discusses the direct, indirect, and cumulative impacts on natural soundscapes.

### **4.10.1 Basis of Analysis**

The primary sources of human-caused noise in the preserve are: ORV noise; airboat travel; and vehicular traffic along US 41, I-75, and other roadways. There are no changes proposed by any of the alternatives that would alter the natural soundscapes near US 41 or I-75. Vehicular traffic would continue to affect the soundscape adjacent to these roadways. Airboat noise can travel for a longer distance than ORV noise but would be contained in the Stairsteps Unit Zone 4 (alternative 2) or in Zones 3 and 4 (alternative 3), where there are sustained water levels for airboat use. The proposed action alternatives would primarily affect natural soundscapes by allowing additional motorized vehicle access on primary and secondary ORV trails and allowing additional airboat access on airboat trails.

Impact from ORV use on the natural soundscape is best described using the *audibility* criterion—the sound level at which an ORV can be discerned from the background by the listener or the minimum level at which it is detectable. The *audibility distance* for ORV noise is generally 0.5 to 2 miles depending on background noise levels, vegetation cover, and type of ORV used (NPS 2010).

To ensure that ORV impacts to existing noise levels are kept to a minimum, the National Park Service requires ORV users to abide by certain vehicle specifications, as well as permitting and operational policies. Pursuant to the specifications of the ORV Management Plan (NPS 2000a), motorized vehicles (i.e., swamp buggies, ORVs, all-terrain vehicles, street-legal 4 × 4s, and utility task vehicles) in the preserve must be equipped with a muffler that is in “good working condition” to minimize noise and they must not exceed 60 dBA at 50 feet unless specially authorized by a permit.

Sound pressure levels generally attenuate at a rate of 6 dBA for every doubling of the distance. For example, a motorized vehicle that measures 60 dBA at 50 feet would measure 54 dBA at 100 feet. The impact analysis below uses the permitted noise requirements, the rate of sound pressure level attenuation, and the ambient sound level found in the preserve (24–40 dBA; average of 32 dBA). Depending on a variety of factors such as background levels, topography, vegetation, and type of ORV used, sound levels generally attenuate to 30 dBA approximately 1,600 feet (0.3 mile) from motorized vehicles. Therefore, a 1,600-foot buffer was applied to the various alternatives to quantify the acreage of natural soundscapes potentially affected by motorized vehicle use (table 4-9).

**Table 4-9. Acreage of Natural Soundscape Impacted within 1,600 Feet of the Motorized Trail Network**

Trail System	Alt. 1	Alt. 2	Alt. 3
Acreage of Natural Soundscape Impacted by Primary and Secondary ORV Trails <sup>1</sup>	77,518	86,645	111,335

Note:

<sup>1</sup> Calculations in the columns are additive. Overlapping buffers around primary and secondary trails have been dissolved to provide an accurate accounting of the impacts.

Airboat noise can vary depending on a variety of factors (e.g., propeller type, engine type, atmospheric conditions), but airboats consistently generate substantial noise at close distances. As per the ORV Management Plan, airboats must not exceed 82 decibels at a distance of 82 feet (NPS 2000a). The true noise level for an idling airboat is approximately 75 dBA at 6 feet and 98 dBA at 6 feet for a passing airboat, according to the Big Cypress Baseline Noise Assessment (NPS 2021). For this analysis, the noise level for a passing airboat is used to assess the impact conservatively, with the understanding that airboats pass by quickly resulting in a short-term impact on the soundscape before returning to idling. The sound level of a passing airboat generally attenuates to 30 dBA approximately 15,000 ft (2.8 mi) from airboats. Therefore, a 15,000-foot buffer was applied to various alternatives to quantify the acreage of natural soundscapes potentially affected by airboat use (table 4-10).

**Table 4-10. Acreage of Natural Soundscape Impacted within 15,000 Feet of the Airboats Trail Network**

Trail System	Alt. 1	Alt. 2	Alt. 3
Mileage of airboat trails	57	57	96
Total Acreage <sup>1</sup>	82,775	82,775	110,096

Note:

<sup>1</sup> Calculations in the columns are additive. Overlapping buffers around primary and secondary trails have been dissolved to provide an accurate accounting of the impacts.

To provide spatial perspective and understanding of how the soundscape may change relative to the entire preserve (727,235 acres), the percentages of cover of the calculated natural soundscape impacts are in table 4-11. The table shows that effects to the natural soundscape generally increase from alternative 1 to alternative 3, which corresponds with increased miles of primary and secondary ORV trails and increased miles of airboat trails. Overall, alternatives 2 and 3 would affect the greatest amount of the preserve's natural soundscape, at 23% and 30%, respectively.

**Table 4-11. Percentage of Natural Soundscape Affected in the Preserve**

Trail System	Alt. 1	Alt. 2	Alt. 3
Percentage of Primary and Secondary ORV Trails	11%	12 %	15 %
Airboat Trails	11%	11%	15%
Total Natural Soundscapes Impacted <sup>1</sup>	22%	23%	30%
Increase Relative to Alternative 1 <sup>2</sup>	—	1%	8%

Notes:

<sup>1</sup> Calculations in the columns are additive. Overlapping buffers around airboat trails and primary and secondary ORV trails have been dissolved to provide an accurate accounting of the impacts.

<sup>2</sup> Calculated by subtracting the amount under the no-action alternative (alternative 1) from the amounts for alternatives 2 and 3.

Noise would occur because of ORV use on the proposed primary and secondary trail system. However, the frequency and duration of the alteration are taken into account, and user differences in perception relative to the alteration of the soundscape are considered. Generally, noise generated from motorized vehicles is viewed as undesirable among nonmotorized users that enjoy hiking, bike riding, camping, or

bird watching. Noise may be audible over great distances but may not always directly affect the user. In general, noise produced by motorized vehicles would be temporary. For example, for a terrestrial ORV traveling along a designated trail at the posted speed limit of 15 miles per hour, sound pressure levels would attenuate to 30 dBA in three minutes. Furthermore, based on the 1,359 ORV permits issued in 2020, ORV use is not expected to be ongoing or continuous throughout the areas identified in table 4.10, but instead reflects the total area of natural soundscapes that would be affected regardless of the location of the user. The frequency is not expected to be high because in the unlikely event that all 1,359 permitted ORV users would be present on any given day, they would, at most, affect the natural soundscape of 30% of the preserve under alternative 3. Natural soundscapes would generally continue to be affected more often, and on a wider scale, during the hunting season and on weekends when visitor use is the highest.

Users enjoying nonmotorized recreational activities would have a high likelihood of encountering potentially unwelcome noise from ORVs, airboats, and roadway noise throughout the preserve, unless traveling on the designated trails or in the backcountry more than 1,600 feet (0.3 mile) from primary or secondary ORV trails. While there is a high likelihood of experiencing unwanted noise, these noises are largely contained within the designated areas of the preserve (an ORV trail, an airboat trail, or a road), are short in duration (less than three minutes required for a terrestrial vehicle to pass through the area) and are not widespread or constant.

Table 4-12 provides the extent of natural soundscapes on nonmotorized trails that occur within 1,600 feet (0.3 mile) of primary and/or secondary trails, and within 15,000 feet (2.8 miles) of airboat trails. This calculation provides an analysis of potential natural soundscape effects experienced by users on nonmotorized trails.

**Table 4-12. Summary of Nonmotorized Trails within 1,600 Feet of Primary and/or Secondary ORV Trails and within 15,000 Feet of Airboat Trails**

Natural Soundscapes Affected	Alt. 1	Alt. 2	Alt. 3
Total length of nonmotorized trails (miles) (affected and not affected)	63	68	185
Nonmotorized trail affected (miles)	22	25	80.5
Percentage of nonmotorized trails affected	35%	37%	43.5%
Percentage increase relative to alternative 1 <sup>1</sup>	—	2%	8.5%

Notes:

<sup>1</sup> Calculated by subtracting the percentage of nonmotorized trails affected under the no-action alternative (alternative 1) from the percentages for alternatives 2 and 3.

#### 4.10.2 Impacts of Alternative 1

**Direct and Indirect Impacts.** Under the no-action alternative, the current condition of natural soundscapes would continue. Opportunities to enjoy natural soundscapes would remain along hiking trails; however, the 36-mile FNST would continue to be aligned closely with the primary ORV trails and users would continue to experience unwanted sounds. Users on 63 miles of the existing nonmotorized trail network would continue to experience unwanted soundscapes generated from nearby motorized trails. Nonmotorized users would continue to encounter motor vehicle and airboat noise on 35% of nonmotorized trails.

As a whole, the current 278 miles of primary ORV trails would continue to affect natural soundscapes intermittently in up to 77,518 acres (or roughly 11% of the preserve). Airboats would continue on airboat trails within zones 3 and 4 and would intermittently affect natural soundscapes in up to 82,775 acres (roughly 11% of the preserve). Commercial airboat operations would continue to run seven days per week, whereas private airboat use is more common on weekends. Park staff also use airboats for maintenance, research, law enforcement, and fire/vegetation management. The total intermittent impact



on natural soundscapes from primary ORV trails and airboat trails would affect up to 160,293 acres, roughly 22% of the preserve.

Dispersed camping would continue to provide users with opportunities to enjoy natural soundscapes in a primitive soundscape, assuming users camp more than 1,600 feet from primary ORV trails and more than 15,000 feet from airboat trails. The existing two backcountry campgrounds, two primitive group camping areas along the FNST, and 25 backcountry campsites/destinations would continue to provide visitors opportunities to enjoy the natural soundscape.

**Conclusion.** Under alternative 1, impacts to natural soundscapes would remain the same and would continue to affect users along the FNST. For those visitors seeking solitude and natural soundscapes, other hiking and canoe trails, as well as dispersed camping, would continue to be available. An estimated maximum of 77,518 acres of natural soundscapes would continue to be affected by intermittent ORV use/noise, and a maximum of 82,775 acres of natural soundscape would continue to be affected by airboat use. This noise would be a small adverse impact on animals and visitors that is short in duration (i.e., a passing vehicle can be heard for only a few minutes from a given point on the ground). The total intermittent impact on natural soundscapes from primary ORV trails and airboat trails would affect up to 160,293 acres, roughly 22% of the preserve.

#### 4.10.3 Impacts of Alternative 2

**Direct and Indirect Impacts.** Under alternative 2, the FNST would be realigned, creating distance between the primary ORV trail and nonmotorized users, which would increase the ability for visitors to experience desirable natural soundscapes. The FNST would also increase by 8 miles to a total of 44 miles, increasing opportunities for nonmotorized users to experience natural soundscapes away from ORV use. All other hiking and canoeing opportunities would be the same as in alternative 1. Nonmotorized users would intermittently encounter motor vehicle and airboat noise on 37% of nonmotorized trails, a 1% increase from alternative 1.

Intermittent soundscape disturbances resulting from the primary ORV trails (including airboats) would be the same as with alternative 1. The reopening of 15 miles of secondary trails, and the resulting ORV and visitor use, would increase the area of disturbed natural soundscapes by 9,127 acres, resulting in a small adverse impact on visitors and animals. The total intermittent impact on natural soundscapes from primary ORV trails, airboat trails, and secondary ORV trails would affect roughly 23% of the preserve. Along some popular primary and secondary trails, the frequency of soundscape disturbance might be higher due to more traffic. In most cases, ORV noise would last no more than three minutes (the time a terrestrial vehicle is audible from a given point on the ground). Relative to the no-action alternative, this represents a 1% increase over existing conditions.

Dispersed camping would be discontinued under alternative 2. Two existing backcountry campgrounds and two new backcountry campgrounds (upgrades to the existing primitive group camping areas along the FNST) would provide users with opportunities to enjoy natural soundscapes in a primitive soundscape. In addition, 24 new backcountry campsites/ destinations would be proposed. These new camping opportunities would be located at the ends of secondary trails, would avoid sensitive resources, and would augment 24 existing backcountry campsites across the preserve. Stay limits, group size limits, and required permit reservations would help minimize impacts to the natural soundscape under alternative 2.

Assuming motorized and nonmotorized visitor usage remains the same, the additional miles of motorized and nonmotorized trails would likely lead to increased dispersion among visitors, and a decrease in the frequency of unwanted soundscapes for nonmotorized users. The duration of these unwanted sounds would continue to be less than three minutes (the time a terrestrial vehicle is audible from a given point on the ground).

Under alternative 2, a total of 190,528 acres would be proposed as wilderness, accounting for 32% of the original preserve and Western Addition). This proposed wilderness would be managed for wilderness character and preservation of resources. Designating these areas as wilderness would prevent motorized and mechanized use unless authorized by a wilderness minimum requirements analysis, resulting in enhanced natural soundscapes and a large beneficial impact on visitors and animals.

**Conclusion.** Under alternative 2, the realignment of the FNST would separate nonmotorized and motorized trail users in most areas. This separation would decrease the frequency and intensity of motor vehicle noise encountered by 2,853 hikers on the FNST, a small beneficial impact. Nonmotorized users would encounter intermittent motor vehicle and airboat noise on 37% of nonmotorized trails, a 1% increase from alternative 1. Impacts to natural soundscapes would remain the same for primary ORV trails and airboat trails. The addition of 15 miles of secondary ORV trails would result in up to an additional 9,127 acres of impact on natural soundscapes. The total intermittent impact on natural soundscapes from primary and secondary ORV trails and airboat trails would affect up to 169,419 acres, roughly 23% of the preserve, a 1% increase from alternative 1 (22%). Intermittent noise from ORV trails and airboat trails would be a small adverse impact on animals and visitors that is short in duration (i.e., a passing vehicle can be heard for only a few minutes from a given point on the ground), a small adverse impact. The elimination of dispersed camping would decrease opportunities for primitive camping with natural soundscapes. The development of additional camping opportunities would be closer to ORV trails than the eliminated dispersed campsites, resulting in a small adverse impact on the natural soundscape. This impact would be felt primarily by campers. The addition of secondary ORV trail mileage would help disperse users, a small beneficial impact on campers. Stay limits, group size limits, and required permit reservations would help minimize impacts to the natural soundscape. In addition, proposed wilderness would prevent most motorized recreational use in 32% of the original preserve and Western Addition, resulting in enhanced natural soundscapes in those areas, a moderate beneficial impact on visitors and animals.

#### **4.10.4 Impacts of Alternative 3 (Proposed Action/Preferred Alternative)**

**Direct and Indirect Impacts.** Under alternative 3, the long-distance FNST would be realigned as described in alternative 2, going from 36 miles to 44 miles. An additional 114 miles of hiking trails would be added to the existing 27 miles of shorter hiking trails, vastly increasing opportunities away from nonmotorized trails. Nonmotorized users would encounter intermittent motor vehicle and airboat noise on 43.5% of nonmotorized trails, an 8.5% increase from alternative 1 and a 6.5% increase from alternative 2.

Under alternative 3, the proposed 54 miles of additional primary ORV trails and 52 miles of secondary ORV trails would increase the area of intermittently disturbed natural soundscapes by up to 33,817 acres when compared to alternative 1. The proposed 39 miles of additional airboat trails would increase the area of intermittent disturbed soundscapes by 27,321 acres when compared to alternative 1. The total intermittent impact on natural soundscapes from primary ORV trails, airboat trails, and secondary ORV trails would affect roughly 30% of the preserve. In most cases, ORV noise would last no more than three minutes (the time a terrestrial vehicle is audible from a given point on the ground). Relative to the no-action alternative, this represents an 8% increase over existing conditions.

Dispersed backcountry camping via foot or non-motorized vessel would be permitted throughout the preserve, including Bear Island. This would provide users with increased opportunities to experience natural soundscapes, a greater beneficial impact relative to alternatives 1 and 2. Dispersed campers would also have to leave their ORVs next to trails, which would limit any soundscape disturbance for animals. Two existing backcountry campgrounds and three proposed backcountry campgrounds would provide users with opportunities to enjoy natural soundscapes in a primitive soundscape. In addition, 83 new backcountry campsites/ destinations would be proposed. These new camping opportunities would avoid

sensitive resources and augment 24 existing backcountry campsites across the preserve. Stay limits, group size limits, and required permits would help minimize impacts to the natural soundscape.

Assuming motorized and nonmotorized visitor usage remains the same, the additional miles of motorized and nonmotorized trails would likely lead to increased dispersion among visitors, and a decrease in the frequency of unwanted soundscapes for non-motorized users. The duration of these unwanted sounds would continue to be less than three minutes (the time a terrestrial vehicle is audible from a given point on the ground).

Under alternative 3, a total of 147,910 acres would be proposed as wilderness, accounting for 25% of the original preserve and Western Addition. The proposed wilderness would result in the same types of benefits for animals and visitors described under alternative 2, but the benefits would occur over a smaller geographic area.

**Conclusion.** Under alternative 3, the realignment of the FNST (to a total distance of 44 miles) and the resulting benefits would be the same as described in alternative 2. An additional 114 miles of hiking trails would be added to the existing 27 miles of shorter hiking trails, vastly increasing opportunities away from nonmotorized trails compared to alternatives 1 and 2. Nonmotorized users would encounter intermittent motor vehicle and airboat noise on 43.5% of nonmotorized trails, an 8.5% increase from alternative 1 and 6.5% increase from alternative 2. The addition of 54 miles of primary ORV trails, 52 miles of secondary ORV trails, and 39 miles of airboat trails would result in a total intermittent impact on a maximum of 221,431 acres, roughly 30% of the preserve, a 7% increase from alternative 2 and 8% increase from alternative 1. In most cases, ORV noise would last no more than three minutes (the time a terrestrial vehicle is audible from a given point on the ground). Relative to alternative 2, this alternative would provide more opportunities for experiencing natural soundscapes by allowing walk-in dispersed camping throughout the preserve, including the Bear Island Unit. The development of additional camping opportunities would allow for campers to distribute more across the preserve when compared to alternatives 1 and 2. Stay limits, group size limits, and required permit reservations would help minimize impacts to the natural soundscape, same as alternative 2. In addition, proposed wilderness would prevent most motorized recreational use in 25% of the original preserve and Western Addition, resulting in enhanced natural soundscapes in those areas, a moderate beneficial impact on visitors and animals. This benefit is greater than that of alternative 1, and smaller than that of alternative 2.

#### 4.10.5 Cumulative Impacts

The ORV Management Plan (NPS 2000a) addressed the management of ORV travel in the preserve. Currently, when dispersed throughout the preserve, ORV use is contained in the primary trail network. As a result, visitors seeking natural soundscapes can travel a short distance (0.3 mile or more) on foot to areas away from the primary network of trails to experience a soundscape free of unwanted noise from vehicles, airboats, or ORVs. Before the ORV Management Plan was implemented, there was dispersed ORV use throughout the preserve and opportunities to experience natural soundscapes were more limited. Users seeking natural soundscapes before implementation of that plan could not reliably travel away from unwanted noise because motor noise could be encountered anywhere. The overall effect of the ORV Management Plan has been an improvement in the preserve's natural soundscape.

Development of trailheads, access points, and recreational facilities under the Addition GMP (NPS 2010) may result in trail construction at additional sites in the future. This trail construction would negatively impact the natural soundscape of the park but would be temporary and intermittent in nature. Similarly, the python management activities associated with the Florida Fish and Wildlife Conservation Commission may result in the use of excavators, mowers, and other related equipment needed to complete the work. This trail work would negatively impact the natural soundscape of the park but would be temporary and intermittent in nature. The overall effect of these two projects would be minor impacts to natural soundscapes. These impacts would be mitigated by adhering to best management practices.

When the likely effects of implementing the alternatives are added to the effects of other past, present, and reasonably foreseeable actions, there would be an incremental adverse cumulative impact on soundscape resources in the preserve. Under all alternatives, natural soundscapes would be preserved on a majority (70%–78%) of the preserve. The range of actions contained in the various alternatives would contribute to a 1%–8% increase to the overall cumulative impact. In the preserve, alternatives 2 would result in a 1% adverse increment, whereas alternative 3 would result in an increment of 8% due to increases in ORV and airboat trail mileage. Alternatives 2 and 3 also include expansion of the nonmotorized trails where visitors can enjoy natural soundscapes and reduces the incremental adverse impacts. In addition, there would continue to be very large expanses of the preserve that contain natural soundscapes, and adverse impacts would be reduced, but not entirely, by the beneficial impacts of designating 25% (under alternative 3) to 32% (under alternative 2) of the original preserve and Western Addition as wilderness.

## **4.11 ETHNOGRAPHIC AND ARCHEOLOGICAL RESOURCES**

This section addresses the potential impacts on cultural resources, including archeological and ethnographic resources from actions proposed in each alternative.

### **4.11.1 Basis of Analysis**

The impacts on cultural resources are described in terms of the potential to diminish or protect a resource's ability to yield information important in prehistory or history. The impacts on ethnographic resources are described in terms of the potential to diminish or protect the integrity of and access to resources and places having particular importance and value to traditionally associated tribes and groups (e.g., Native American ceremonial sites). This impact analysis was conducted using GIS data layers identifying the known locations of archeological resources and Native American ceremonial sites (i.e., Indian Trust Resources) in the preserve in addition to the best professional judgment of NPS resource specialists and tribal consultants and studies of similar actions and impacts, as applicable.

Continued visitor use in the preserve presents a potential for adverse impacts to cultural resources (both archeological and ethnographic resources) as a result of ground disturbance and trampling, which in turn can result from off-trail ORV use, dispersed camping, and vandalism/looting. The intensity of impacts on cultural resources would depend on the potential of the resource to yield important information or provide importance to an ongoing cultural tradition, as well as the extent of the physical disturbance, damage, or degradation.

Although known archeological and Native American ceremonial sites were avoided when siting the proposed trail and destination locations, it remains possible that unidentified sites could be encountered and subsequently impacted unintentionally. Unauthorized off-trail ORV use could result in erosion and displacement of soils in an archeological resource area. Nonmotorized uses such as hiking and canoeing are not expected to impact cultural resources. However, archeological sites such as middens would be especially attractive to users due to their higher, raised nature. Generally, such cultural resources are more commonly found in dry hammocks, which are typically located at higher elevations than other habitat types in the preserve.

Some culturally significant sites contain visible structures that may be recognizable to visitors. These sites would be the most vulnerable to visitor impacts. Impacts with the potential to occur would include looting, trampling, or vandalism because of visitor use. Unauthorized off-trail ORV travel could result in impacts from soil erosion and displacement in an archeological resource area. These types of impacts would have the potential to be permanent. Continued ranger law enforcement patrol and emphasis on visitor education would minimize the potential for impacts.

As noted in the Resource Management Plan (NPS 2001), a perceptible threat to the integrity of many archeological sites in the preserve is the stratification of subsurface resources due to rooting of nonnative vegetation, including Brazilian pepper and Australian pine. These nonnatives are currently being managed by the preserve's invasive species management program, which provides ongoing beneficial impacts to cultural resources that are expected to last in perpetuity.

Given that most cultural resources are nonrenewable, impacts to cultural resources would persist. Only natural elements of cultural landscapes, such as vegetation, are renewable and would be expected to recover to predisturbance conditions naturally due to south Florida's year-round growing season.

In all the alternatives, the opening and maintenance of primary trails, secondary trails, and destinations would involve minimal ground disturbance. Apart from the proposed new primary trails, parts of which would likely require stabilization, there would be no "trail construction" per se because the trails shown in all the alternatives are already disturbed from previous use. Actions required to open and maintain trails (and destinations) would mainly include vegetation trimming, removing obstacles like fallen trees, and emplacing trail signs and markers. Some existing primary trails may require stabilization from time to time to be made passable. An archeological survey and Section 106 consultation would be conducted before any ground disturbance and work would be adjusted to avoid or mitigate impacts to any identified sensitive resources. If post-survey construction work were to reveal previously unidentified archeological resources, work would be stopped immediately, and state and tribal authorities would be contacted to develop a coordinated response. See section 2.9.7 above.

#### 4.11.2 Impacts of Alternative 1

**Direct and Indirect Impacts.** Under the no-action alternative, ORV use along primary trails would continue to provide users access to 0.06% of the preserve's backcountry. Although under the 2000 ORV Plan the goal was to entirely avoid cultural resources there are several locations where current primary trails may be impacting previously recorded sites. The preserve will plan an updated archaeological assessment of the existing ORV trail network, and any trail maintenance will require additional compliance under Section 106 of the NHPA.

The currently designated 25 backcountry destinations would continue to be available for camping. Many backcountry campers prefer to disperse camp in nondesignated areas during hunting season. This choice is based on several factors, including family preferences, competition, and the need to camp away from areas that are likely to receive foot traffic. Dispersed camping is currently allowed throughout the preserve (except for the Bear Island Unit and Zone 4 of the Stairsteps unit, where airboat users must use designated campsites). This practice has the potential to be detrimental to cultural resources because dispersed campers seek high, dry hardwood hammocks that tend to stay dry throughout the year. These areas also often contain unmarked cultural resources. Recreational use would continue to result in potential soil erosion, ground disturbance, vegetation trampling, and potentially, direct damage to archeological resources. The preserve will implement an updated schedule for assessing the conditions of previously recorded sites for damage from trails and camping. No wilderness would be proposed for designation under the no-action alternative. Therefore, cultural resources in the preserve would not be afforded an additional layer of protection and indirect benefits associated with wilderness designation.

**Conclusion.** Under the no-action alternative, ORV use and other recreational activities would continue to occur on the preserve's trail system, creating the possibility of damage or destruction to cultural resources, including archeological and ceremonial sites not presently known to preserve staff. Continued dispersed camping would increase the potential for adverse direct impacts to cultural resources across a larger geographic footprint. Without designated wilderness, cultural resources would not be afforded additional protection from adverse impacts. Wilderness designation prevents motorized and mechanized use, which in turn would decrease the probability of adverse impacts to cultural resources.

*Section 106 Summary* — After applying the Advisory Council on Historic Preservation’s criteria of adverse effects (36 CFR Part 800.5, *Assessment of Adverse Effects*), the National Park Service concludes that implementation of this alternative would result in a finding of *no adverse effect* on cultural resources.

### 4.11.3 Impacts of Alternative 2

**Direct and Indirect Impacts.** The types of adverse impacts to cultural resources would be similar under this alternative to those described in the no-action alternative; however, reopening secondary trails and realigning the FNST would increase access to the preserve backcountry, increasing the potential for visitors to encounter and potentially affect cultural resources.

Alternative 2 would nearly double the number of backcountry campsites over the no-action alternative (from 25 to 48), thereby directing campers to locations that would reduce the potential to encounter and affect cultural resources. However, alternative 2 would also close one of the existing backcountry campsites in Stairsteps Unit to protect resources. Under this alternative, dispersed camping would be prohibited, decreasing the risk of inadvertent damage to cultural resources from visitor use.

Under this alternative, 32% of the original preserve and Western Addition would be designated as wilderness, which would beneficially affect cultural resources by limiting use of motorized and mechanized equipment and ground-disturbing activities, thereby reducing the potential for unanticipated damage to cultural resources.

**Conclusion.** Under alternative 2, the potential for direct and indirect adverse impacts on cultural resources would be greater than under alternative 1 due to the reopening of 15 miles of secondary trail, the realignment of the FNST, and the opening of additional backcountry destinations. However, these potential impacts would be minimized to the extent possible by siting newly designated trails and destinations in such a way as to avoid known cultural resources, including archeological sites and ceremonial sites. In addition, this alternative would prohibit dispersed camping, thereby decreasing the risk of inadvertent damage to cultural resources from visitor use throughout the preserve. The proposed wilderness area would cover 32% of the original preserve and Western Addition, which in turn would decrease the probability of adverse impacts to cultural resources.

*Section 106 Summary* — The NPS has determined that effects cannot be fully determined before the approval of the environmental impact statement, and under 36 CFR 800 Subpart C 800.14(b)(1)(ii), “when effects on historic properties cannot be fully determined before approval of an undertaking, the agency may enter a programmatic agreement to address how section 106 of the National Historic Preservation Act will be completed for the undertaking.” Therefore, the NPS would develop a Programmatic Agreement pursuant to 36 CFR 800.14(b)(3) to adopt an alternative, phased approach to compliance with Section 106 of the National Historic Preservation Act (NHPA). This Agreement would be administered as part of planning for and before any undertakings authorized under the Backcountry Access Plan EIS Record of Decision.

### 4.11.4 Impacts of Alternative 3 (Proposed Action/Preferred Alternative)

**Direct and Indirect Impacts.** The types of adverse impacts to cultural resources would be similar under this alternative to those described in the no-action alternative; however, there would be a substantial increase in the number of primary and secondary trails compared to alternatives 1 and 2 and the number of nonmotorized trail miles would nearly triple. This increase in motorized and nonmotorized trails would increase the potential for visitors to encounter and adversely affect cultural resources along trails.

Alternative 3 would more than double the number of backcountry destinations compared to alternative 2 and would have more than four times the number of destinations that currently exist. Providing these destinations to visitors would decrease the risk of inadvertent damage to cultural resources because these

destinations were specifically sited to avoid them. Like alternative 2, this alternative would also close one of the existing backcountry campsites in the Stairsteps Unit to protect resources.

In this alternative, walk-in visitors and paddlers would be able to camp at dispersed locations, including the Bear Island Unit. This practice has the potential to adversely affect cultural resources because dispersed campers seek high, dry hardwood hammocks that tend to stay dry throughout the year. These areas can contain unmarked cultural resources. Recreational use of these sites would result in potential soil erosion, ground disturbance, vegetation trampling, and potentially, direct damage to archeological items.

Under this alternative, 25% of the original preserve and Western Addition would be proposed as wilderness, a smaller area than proposed under alternative 2. Wilderness would beneficially affect cultural resources by limiting use of motorized and mechanized equipment and ground-disturbing activities, thereby reducing the potential for unanticipated damage to cultural resources.

**Conclusion.** Under alternative 3, the potential for direct adverse impacts on cultural resources would be substantially higher than alternative 2, due largely to the allowance of dispersed camping in more areas and the large increase in motorized and nonmotorized trails. Eighty-three destinations would be provided for backcountry camping, and these destinations would be sited to avoid adverse impacts on cultural resources, thus decreasing the risk of adverse impacts to cultural resources. Proposed wilderness would cover 25% of the original preserve and Western Addition, which in turn would decrease the probability of adverse impacts on cultural resources.

*Section 106 Summary* — The National Park Service has determined that effects cannot be fully determined before the approval of the EIS, and under 36 CFR 800 Subpart C 800.14(b)(1)(ii), “when effects on historic properties cannot be fully determined before approval of an undertaking, the agency may enter a programmatic agreement to address how section 106 of the National Historic Preservation Act will be completed for the undertaking.” Therefore, the National Park Service would develop a Programmatic Agreement pursuant to 36 CFR 800.14(b)(3) to adopt an alternative, phased approach to compliance with Section 106 of the National Historic Preservation Act (NHPA). This Agreement would be administered as part of planning for and before any undertakings authorized under the Backcountry Access Plan EIS Record of Decision.

#### 4.11.5 Cumulative Impacts

Projects in the vicinity of the proposed action that have the potential to affect cultural resources (including archeological and ethnographic resources) include those identified in the Resource Management Plan (NPS 2001), the 2000 Recreational ORV Management Plan (NPS 2000a), and the Addition GMP (NPS 2010). The Burnett Oil Company seismic survey (NPS 2016a) has been completed; associated mitigation and environmental restoration activities will commence in the near future, which will entail ground disturbance. Future oil and gas activities would likely result in mitigation measures similar to or more stringent than those required previously to reduce the potential for adverse impacts to cultural resources. Actions that could have a cumulative effect in conjunction with measures that would be implemented in this Supplemental Draft Plan/EIS were identified in section 4.3, “Cumulative Impacts Analysis.”

The NPS Resource Management Plan (NPS 2001) would have longer lasting beneficial impacts because it includes management actions that would protect cultural resources from degradation, including increased education opportunities, eradication of nonnative species, inclusion of eligible sites in the National Register of Historic Places, and additional training for law enforcement staff in cultural resource management laws. The recognition of challenges facing protection of resources (e.g., vandalism, nonnative species, and animal burrows), and implementation of the framework to alleviate those

challenges would have an ongoing beneficial effect on the protection of cultural resources in the preserve and would be expected to persist.

The 2000 Recreational ORV Management Plan (NPS 2000a) established criteria for developing the designated ORV trail system and access points, including criteria for resource protection. The criteria sought to “protect important environmental and cultural areas, restore heavily impacted and environmentally sensitive areas, and direct use to areas of suitable substrate.” These criteria were designed to entirely avoid archeological sites (NPS 2000a). This plan also resulted in the discontinuation of dispersed ORV use in the preserve, directing ORV use away from sensitive cultural resources and onto designated trails where users would be much less likely to cause an impact through tire rutting, trampling, or vandalism of a cultural resource, either intentionally or unintentionally. Maintaining ORV use in the designated trail network of the preserve has resulted in beneficial impacts to cultural resources in the preserve that have lasted since the ORV Management Plan was first implemented in 2000, more than 20 years ago.

The Addition GMP (NPS 2010) provided for the implementation of visitor use amenities in the Addition, including parking areas, bathrooms, trailheads, and trails. This plan provided for the archeological survey of areas sited for construction before the commencement of ground-disturbing activities. Mitigation and management measures were established for ranger monitoring of visitor use areas and for visitor education in an effort to reduce the potential for visitor use related impacts to cultural resources. The plan also evaluated possible areas for wilderness designation in the Northeast Addition, ultimately proposing more than 47,000 acres of wilderness in the Mullet Slough area, immediately north of the Mullet Slough lands proposed for wilderness designation in this Supplemental Draft Plan/EIS.

When the likely effects of implementing the alternatives are added to the effects of other past, present, and reasonably foreseeable actions, there would be an incremental adverse cumulative impact on cultural resources in the preserve. Alternative 1 has some potential for adverse impacts due to dispersed camping throughout the preserve. Alternative 2 would eliminate dispersed camping, allowing camping only in destinations; hence, this alternative minimizes the potential for adverse impacts. Alternative 3 has higher chances of causing adverse impacts because of the expansion of the motorized and nonmotorized trail systems and the expanded authorization of dispersed camping.

The two action alternatives propose a motorized trail network that spans anywhere from 0.17% to 0.25% of the preserve’s 727,235 acres. There are very large expanses of the preserve (more than 99% of the entire preserve) that essentially remain undisturbed by visitors.



# Chapter 5

## Consultation, Coordination, and Public Participation



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## CHAPTER 5: CONSULTATION, COORDINATION, AND PUBLIC PARTICIPATION

This chapter summarizes the process undertaken by the National Park Service to contact individuals, agencies, and organizations for information that assisted in identifying important issues or analyzing impacts, or that would review and comment on the Supplemental Draft Plan/EIS. Throughout the planning process, the NPS staff encouraged other federal agencies; state, tribal, and local governments; culturally associated Native American tribes and groups; organizations; and individuals who may be interested or affected to participate in this planning effort, as summarized below.

### 5.1 THE SCOPING PROCESS

Scoping is an “early and open process for determining the scope of issues to be addressed and for identifying significant issues related to the proposed action” (40 CFR 1501.7). The scoping process determines the scope (extent and nature) of issues and alternatives that should be considered during a NEPA review. It includes both internal and external (other agency and public) elements; NPS subject matter experts; and consultation with all interested parties, agencies, and the public. Director’s Order 12 requires the National Park Service to make “diligent” efforts to involve, analyze, and consider the interested and affected public in the NEPA process. The public scoping process helps ensure that people have been given an opportunity to comment and contribute early in the decision-making process.

#### 5.1.1 Public Scoping

**Public Scoping Newsletter.** The National Park Service first initiated public scoping for this planning effort in fall 2013 through press releases issued to several media outlets, posts on the preserve’s website, and an announcement on the NPS Planning, Environment, and Public Comment (PEPC) website. The preserve also released a Public Scoping Newsletter that invited the public, agencies, and stakeholders to submit comments, engage in the planning process, and generate input relevant to the preparation of this environmental impact statement. The Public Scoping Newsletter was mailed to interested parties, including local, state, and federal government agencies; special interest groups; academic institutions; businesses; and individuals. In addition, the scoping letter was mailed to three affiliated Native American tribes. The public input was gathered via the NPS PEPC website, <http://parkplanning.nps.gov/bicy>. The public scoping comment period opened on November 19, 2013.

As directed by NEPA, public scoping for an environmental impact statement typically takes place over a 30-day period. Because of overlap with the holiday season and requests from the public to extend the initial scoping period, the preserve chose to receive public comments for 102 days following the initial press releases in fall 2013 (November 18, 2013, to February 28, 2014). On March 11, 2014, a notice of intent was published in the Federal Register (79 Federal Register 13670). This formally initiated the scoping period.

**Public Scoping Open House Events.** The National Park Service held public scoping open house events in spring 2014 (April 7 and 8, 2014) to receive input and to inform the public on the development of draft alternatives. These meetings provided information on the planning process and an opportunity to interact with staff, ask questions, and submit comments and suggestions. These open house events served to outline the objectives of the plan and assist in the preparation of the initial draft of the alternatives that were later presented to the public.

Approximately 70 people attended two public open house events held on April 7 and April 8, 2014, in Weston, Florida, and at the Big Cypress Swamp Welcome Center in Ochopee, Florida, respectively. The dates and locations of the public scoping meetings were sent to an extensive e-mail list that included

several local and regional publications. To inform the public of the scoping process, the Public Scoping Newsletter was available in hardcopy at the public open house events. This newsletter provided a general overview of the planning schedule, background on issues anticipated to be addressed in the plan, overview maps of the preserve's trail network, and a description of the foundational elements that would guide planning and management.

**Public Scoping Comments.** During the open house events, approximately 57 comments on maps and 6 comment cards were received. Comment cards were transcribed and entered into PEPC, and map markup comments were entered into the project GIS.

Overall, during the public scoping period, a total of 232 individual correspondences were received. Of these, 123 were submitted directly to the PEPC website. The remainder included comments e-mailed to staff at the preserve, mailed letters, trail request forms submitted to the preserve, or map markups from the public scoping open house. These correspondences were entered into PEPC.

The National Park Service collected public comments during this scoping phase of the planning process to understand the public's perspectives on key issues and management options related to the preserve's backcountry. During the public scoping period, the National Park Service received letters from official representatives of the following agencies and organizations: Big Cypress Sportsmen's Alliance, Center for Biological Diversity, The Everglades Coordinating Council, Florida Division of Historic Resources and State Historic Preservation Officer, Florida Trail Association, Florida Wildlife Federation, National Parks Conservation Association, Sierra Club, South Florida Wildlands Association, WildEarth Guardians, and US Forest Service.

Members of the following organizations also submitted comments: Alligator Amblers Chapter of Florida Trail Association; Broward County Airboat, Halftrack and Conservation Club; Caloosa Jeepers of Southwest Florida, Inc.; Collier Sportsmen's and Conservation Club; Florida Trail Happy Hoofers; Off-Road Vehicle Advisory Committee; Onita M. Larkins Family Trust; and Recreational Aviation Foundation.

After public scoping ended, the National Park Service analyzed ideas, comments, and concerns submitted by the public, federally recognized tribes, traditionally associated groups, and affected agencies as topics to be addressed in the plan. Public scoping comments as well as input received from other sources (i.e., agency and internal scoping) were used to help develop alternatives that were evaluated further in this Environmental Impact Statement.

**Agency Scoping.** As part of the scoping process, the preserve invited the participation of federal, state, and local agencies to identify issues of concern early in the process. In October 2013, the preserve sent scoping letters to the US Fish and Wildlife Service, Florida Department of Environmental Protection, Florida SHPO, the Miccosukee Tribe of Indians, Seminole Nation of Oklahoma, and the Seminole Tribe of Florida. The agencies that provided feedback are summarized below.

- As administrators of the FNST, the US Forest Service, National Forests in Florida, provided a letter to the preserve on February 28, 2014, that included recommendations regarding the FNST.
- The Florida Department of State, Division of Historical Resources, provided a letter to the preserve on May 1, 2014, encouraging coordination with the SHPO pursuant to 36 CFR Part 800.8 and section 106 of the National Historic Preservation Act.
- The US Fish and Wildlife Service provided comments to the preserve on August 8, 2014, regarding the impact of secondary trails on the endangered Florida panther, as well as any amenities associated with the backcountry access plan.

### **5.1.2 Internal Scoping**

Internal scoping involved discussions among NPS personnel regarding the purpose of and need for management actions, issues, management alternatives, mitigation measures, the analysis boundary, appropriate level of documentation, available references and guidance, and other related topics. Internal scoping was conducted with an interdisciplinary team of environmental resources, visitor use, and trail maintenance specialists from the preserve. The interdisciplinary team members met on March 9 and 10, 2015, for a Foundation Workshop to discuss the values and significance of the preserve and what types of planning needs should be addressed in the backcountry access plan. The purpose of the workshop was to develop a Foundation Document that serves as the underlying guidance for preserve planning and management. The Foundation Document describes the preserve's core mission by identifying its purpose, significance, fundamental and other important resources and values, and interpretive themes. It also assesses planning and data needs, identifies the preserve's special mandates and administrative commitments, and notes the unit's setting in a regional context. The preserve's Foundation Document was finalized in December 2016. Additionally, some interdisciplinary team members conducted site visits to the proposed project area before the internal scoping meeting.

## **5.2 PRELIMINARY ALTERNATIVE DEVELOPMENT**

### **5.2.1 Public Preliminary Alternative Development Workshops**

After the internal and public scoping meetings, suggestions and ideas for alternatives for backcountry access were gathered and compiled into an extensive list of preliminary alternative elements. To inform the public about the proposed action alternatives and upcoming open house events, a Preliminary Alternatives Newsletter describing the plan was finalized in January 2016; it was posted to the PEPC website and made available in hardcopy at the public workshop events. This newsletter provided an overview of the project's purpose, need, and objectives and described each of the five preliminary alternatives in table summary and map form. In addition, it provided the methodology used to establish the trails in each alternative, draft management objectives, desired future conditions, and an overview of the wilderness study. The newsletter concluded with an overview of the next steps in the planning process and a schedule.

Feedback was solicited on the preliminary alternatives and wilderness study from January 11 to March 11, 2016, to gather information from the public and gain support for the plan. Because of a planned outage of the NPS PEPC website planned for March 11 and 12, 2016, the comment period was extended until midnight March 13, 2016. Therefore, the public had 62 days to provide comments on the preliminary alternatives.

Open house events were held on Wednesday, February 10, 2016, at Tree Tops Park in Davie, Florida, and on Thursday, February 11, 2016, at the Big Cypress Swamp Welcome Center in Ochopee, Florida. There were 40 attendees at the meeting in Davie and 66 people attended the meeting at the preserve. The purpose of the workshop was to present the draft alternatives and solicit public feedback on draft management objectives, desired future conditions, and the preliminary alternatives. During the comment period, 190 individual correspondences were received.

The National Park Service received letters from official representatives of the following agencies and organizations:

- Broward Airboat Club
- Center for Biological Diversity, Sierra Club, South Florida Wildlands Association, Friends of the Everglades, and Matthew Schwartz (individual) (via Meyer Glitzenstein & Eubanks LLP)
- Coalition to Protect America's National Parks



- Collier County Sportsman and Conservation Club
- Council of the Original Miccosukee Simanolee Nation, Aboriginal People
- Everglades Coordinating Council
- Florida Fish and Wildlife Conservation Commission
- Florida Trail Association
- Florida Wildlife Federation
- Fulltrack Conservation Club of Dade County
- Jetport Hunt Club
- National Parks Conservation Association
- National Parks Conservation Association (via Arnold & Porter LLP)
- National Rifle Association
- National Wild Turkey Federation
- Broward Airboat Club, Palm Beach Airboat Club, Dade Airboat Club
- Roofer Head “Fennell Camp”
- Safari Club International
- US Department of Agriculture

Members of the following organizations also submitted comments:

- Big Cypress National Preserve Off-Road Vehicle Advisory Committee
- Collier County Sportsman and Conservation Club
- Dade County Full Track Club
- Everglades Conservation and Sportsman Club
- Florida Native Plant Society
- National Rifle Association

After the close of the alternatives newsletter comment period, all public comments were compiled and analyzed to assess the needs and values of the public.

### **5.2.3 Preferred Alternative Workshop**

From June 27 through July 1, 2016, the National Park Service held a Preferred Alternative Workshop at the preserve headquarters at 33100 Tamami Trail East, Ochopee, Florida 34141. The purpose of the workshop was twofold: (a) to develop a recommendation for a preferred alternative for the backcountry access plan, and (b) to refine the wilderness eligibility assessment for the original preserve and develop alternatives (including a preferred alternative) for the wilderness study component of the plan.

To develop a recommendation for a preferred alternative for the plan, participants conducted a detailed review of the trails and destinations, management actions, and indicators and thresholds included in the preliminary alternatives, and considered comments received during the public scoping process, including comments on the preliminary alternatives generated by public open house events held in February 2016. In addition, participants conducted a detailed review of multiple information sources to refine eligibility and define alternatives for the wilderness study. The five-day roundtable review included staff from the preserve, NPS Denver Service Center, the Southeast Regional Office, and preserve partners. In addition to the evaluation of trails and destinations, the interdisciplinary team discussed alternative management strategies for camping, maximum length of stay, and closures. The interdisciplinary team members applied their knowledge of preserve operations, resources, management, maintenance, and user groups and considered public comments to develop an initial recommendation for the NPS preferred alternative.

#### **5.2.4 Release of Draft Plan for Public Review and Comment**

The National Park Service released the original Draft Plan for public review and comment on October 26, 2020. The public comment period extended from October 26 to December 15, 2020. Public meetings were held online on November 10, 12, and 18, 2020. The preferred alternative identified in this Supplemental Draft Plan/EIS represents a substantial refinement of the initial interdisciplinary team recommendation based on public comment on the original Draft Plan and follow-up fieldwork and deliberation by NPS staff.

#### **5.2.5 Ongoing Consultation and Compliance**

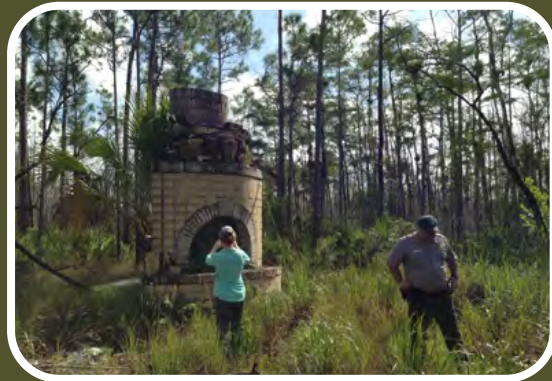
As part of the development of the Supplemental Draft Plan/EIS, the National Park Service has consulted with our tribal and agency partners including US Fish and Wildlife Service, the Florida State Historic Preservation Office, the Seminole Tribe of Florida, the Seminole Nation of Oklahoma, and the Miccosukee Tribe of Indians of Florida. Consultation and compliance with the Endangered Species Act will continue as the National Park Service intends to develop a separate Biological Assessment (BA), based on feedback from USFWS, to address the potential effects to listed species from the proposed action. The BA is in development and is anticipated to be finalized later in 2022. Consultation and compliance with the National Historic Preservation Act will continue through the development of a programmatic agreement (PA) regarding the implementation of the Backcountry Access Plan. Recent tribal consultation has identified feedback that will be essential to development of the PA, which is also in process and will be finalized later in 2022.

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# Appendixes



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## APPENDIX A: ACRONYMS

CAA	Clean Air Act
CWA	Clean Water Act
CFR	Code of Federal Regulations
FE	Federally Endangered
FNST	Florida National Scenic Trail
FR	Federal Register
FT	Federally Threatened
FTE	Full-Time Employee
FWC	Florida Fish and Wildlife Conservation Commission
GIS	Geographic Information System
GMP	General Management Plan
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act of 1969, as amended
NPS	National Park Service
NRHP	National Register of Historic Places
ORV	Off-Road Vehicle
PEPC	Planning, Environment, and Public Comment
PL	Public Law
SHPO	State Historic Preservation Office(r)
ST	State Threatened
USC	United States Code
USFWS	US Fish and Wildlife Service

## **APPENDIX B: IMPACT TOPICS RETAINED FOR AND DISMISSED FROM DETAILED ANALYSIS**

### **RETAINED TOPICS**

#### **Soils**

The soils in the preserve are important for maintaining ecological integrity. The preserve contains more than 205,600 acres of sensitive prairie habitat with soils that could be damaged from off-road vehicle (ORV) and human disturbance. Most of the soils in the preserve are simple geological and biological products that have not had sufficient time or environmental conditions for evolution into true soils. Marl, sand, organic matter, and rock are the four substrate types in the preserve.

Recreational use associated with the designation of backcountry trails and destinations could result in impacts on soils. The extent to which ORV operation affects soils within the preserve was analyzed in detail in the 2000 Recreational ORV Management Plan (NPS 2000a), which reported that impacts on soils resulting from ORV use vary based on soil depth, soil composition, plant cover, and frequency of use. Impacts are easily observable and range from exposed bedrock, rutting and ridging of soils, and water channelization, to lateral expansion of trail network by users as they avoid areas that are excessively muddy or rutted. The actions in the Supplemental Draft Plan/EIS would have varying impacts on soils. Therefore, this Supplemental Environmental Impact Statement provides a detailed analysis of environmental impacts related to soils to make a reasoned choice between alternatives.

#### **Vegetation and Habitat**

Within the preserve, there is a mosaic of habitat types that include (1) cypress domes, strands, and prairies, (2) freshwater forested wetlands, (3) prairies, (4) hardwood hammocks, (5) marshes, (6) mangrove forests, and (7) pine flatwoods. The proposed secondary trail network and backcountry destinations extend throughout the preserve and through these different habitat types, all of which vary in their characteristics, including vegetation and habitat composition and suitability for implementation of trails and destinations.

Given the limited range of elevation in the preserve, minor changes in elevation (i.e., just a few inches) bring about vastly different plant communities. Recreational use associated with the designation of backcountry trails and destinations could potentially result in trampling, removal, or diminished value of the many types of vegetation and habitat present in the preserve. These impacts can be differentiated between the alternatives based on suitability of the vegetation and habitat for ORV use. Therefore, this Supplemental Environmental Impact Statement provides a detailed analysis of environmental impacts related to vegetation and habitat to make a reasoned choice between alternatives.

#### **Wetlands**

The majority of the preserve is classified as wetlands. The preserve includes an extensive amount of wetlands, with each action alternative having the potential to result in different intensities of wetland degradation. Depending on the types of wetland present (i.e., herbaceous or forested), the effects of the alternatives would vary. Trails or destinations in prairies and marsh wetland are most susceptible to adverse effects from ORV use, whereas cypress domes and mixed hardwood forest discourage effects due to the presence of trees and/or depths of water inundation. Some activities, including ORV-related facilities and trail stabilization would require authorization under the Clean Water Act.

Specifically, proposed trails and destinations occur in or near cypress, mixed-hardwood swamp, prairie, marsh, and mangrove habitats. Wetlands are protected by section 4.6.5 of *NPS Management Policies 2006* (NPS 2006a); Executive Order (EO) 11990; Directors Order 77-1; and the Clean Water Act (1972).

Specifically, Directors Order 77-1, the *National Park Service Procedural Manual 77-1: Wetland Protection* (NPS 2016c), provides specific procedures and requirements that must be addressed when an NPS-proposed action will have new adverse impacts on wetlands. The manual requires preparation and publication of a Wetland Statement of Findings as part of the NEPA process and requires wetland “compensation” for wetland degradation or loss at a minimum 1:1 ratio. For this Supplemental Draft Plan/EIS, the National Park Service intends to prepare the Wetland Statement of Findings after receiving comment from the public and after a final preferred alternative is selected. The Wetland Statement of Findings will be prepared and released for public comment when the National Park Service has completed the detailed design of the trail system and has specific trail-siting locations to propose. Therefore, this Supplemental Environmental Impact Statement provides a detailed analysis of environmental impacts related to wetlands to make a reasoned choice between alternatives.

## **Special Status Species**

Rare, threatened, and endangered species in the preserve are governed by several laws and policies, primarily the National Park Service Organic Act and the Endangered Species Act, as well as state law. The purpose of the Endangered Species Act is to conserve “the ecosystem upon which endangered and threatened species depend” and to conserve and recover listed species. This act mandates that federal agencies protect listed species and preserve their habitats. *NPS Management Policies 2006* (NPS 2006a) also provide specific guidance for management of threatened or endangered plants and animals. These policies dictate that the National Park Service survey for, protect, and strive to recover species native to national park system units that are listed under the Endangered Species Act. Additionally, in the state of Florida, laws protecting rare, threatened, and endangered species include the Florida Endangered and Threatened Species Act, the Endangered Species Protection Act, and the Preservation of Native Flora of Florida Act.

Thirty-one animal species that could occur in the preserve receive some level of special protection or are recognized as rare species by the State of Florida or the federal government. Nine of these 31 species are listed as either endangered or threatened under the Endangered Species Act. Two plant taxa and one plant species are likewise listed as either endangered or threatened under the Endangered Species Act. Recreational use associated with the designation of backcountry trails and destinations could potentially result in impacts on listed species present in the preserve. The potential effects on federally listed species would require NPS consultation with the US Fish and Wildlife Service. Activities affecting those species that are listed by the State of Florida or are otherwise identified as special status species may require authorization from regulatory agencies. The nature and degree of potential impacts on special status species are likely to be a major source of controversy among certain members of the public. Therefore, this impact topic is analyzed in detail in this Supplemental Environmental Impact Statement.

## **Wilderness Character**

Wilderness in national park system units is governed by the Wilderness Act and *NPS Management Policies 2006* (NPS 2006a). The *NPS Management Policies 2006* require that wilderness considerations be integrated into planning documents to guide the preservation, management, and use of wilderness areas and ensure that wilderness is unimpaired for future use and enjoyment as such.

There is currently no designated wilderness in the preserve, but lands have been identified as eligible for designation, and some eligible lands in the Addition have been proposed for designation. Lands identified as eligible or proposed for wilderness designation must be managed to preserve their wilderness character and values in the same manner as designated wilderness until Congress has acted on the recommendations (NPS 2011a).

Recreational use associated with the designation of backcountry trails and destinations could potentially result in impacts on the areas eligible or proposed for wilderness designation in the preserve. Therefore, a detailed analysis of environmental impacts related to the wilderness character is necessary to make a

reasoned choice between alternatives and this impact topic is analyzed in detail in this Supplemental Environmental Impact Statement.

## **Visitor Use and Experience**

NPS *Management Policies 2006* (NPS 2006a) address “enjoyment of park resources and values by the people of the United States” as “part of the fundamental purpose of all parks.” The National Park Service is committed to “providing appropriate, high-quality opportunities for visitors to enjoy the parks” by maintaining “an atmosphere that is open, inviting, and accessible” (NPS 2006a).

Decisions involving backcountry camping and the preserve’s trail system are central to the proposed action and of critical importance. The proposed alternatives would have a direct effect on visitor recreation opportunities in the preserve. Therefore, this impact topic is analyzed in detail in this Supplemental Environmental Impact Statement.

## **Natural Soundscapes**

In accordance with NPS *Management Policies 2006* (NPS 2006a) and Director’s Order 47: Sound Preservation and Noise Management (NPS 2000b), an important part of the NPS mission is preservation of natural soundscapes in national park units. Natural soundscapes exist in the absence of human-caused sound.

Intrusive sounds are of concern to the National Park Service and visitors because they can degrade the visitor experience and influence the distribution and behavior of animals. Furthermore, visitor use and experience, including natural soundscapes, are central to the Supplemental Draft Plan/EIS and of critical importance. Noise that is considered excessive and out of place has the potential to be a source of conflict among visitors in national park units. Research shows that noise can also affect an animal’s physiology and behavior and, if it becomes chronic, can injure an animal’s energy budget, reproductive success, and long-term survival (Radle 2007). By definition, noise is human-caused sound that is considered unpleasant and unwanted. Whether a sound is considered unpleasant depends on the individual who hears the sound and the setting and circumstance under which the sound is heard. However, natural sounds throughout the preserve—including flowing water, animals, and rustling leaves—are not considered noise. The opportunity to experience an unimpaired natural soundscape is an important part of the overall visitor experience, especially because it contributes to the solitude and wilderness experience that is integral to much of the preserve.

Recreational use associated with the designation of backcountry trails and destinations could potentially result in impacts to the natural soundscape within the preserve and is central to the Supplemental Draft Plan/EIS. Therefore, this impact topic is analyzed in detail in the Supplemental Environmental Impact Statement.

## **Ethnographic and Archeological Resources**

As defined by the NPS *Management Policies 2006* (NPS 2006a), ethnographic resources are the cultural and natural features of the preserve that are of traditional significance to associated peoples. These peoples are the contemporary preserve neighbors and ethnic or occupational communities that have been associated with the preserve for two or more generations (40 years), and whose interests in the preserve’s resources began before the preserve’s establishment.

The Antiquities Act of 1906 protects historic and prehistoric sites on federal lands and prohibits excavation or destruction of such antiquities unless a permit is obtained. The Archaeological Resources Protection Act of 1979 protects prehistoric and historic archeological data. The Native American Graves Protection and Repatriation Act of 1990 assigns ownership and control of Native American cultural items, human remains, and associated funerary objects to American Indians; it also establishes requirements for

the treatment of Native American human remains and sacred or cultural objects found on federal land. The American Indian Religious Freedom Act of 1978 affirms the right of Native Americans to have access to their sacred places. The Department of the Interior is also legally obligated to ensure that Native American resources and lands are properly managed, protected, and conserved. The Department of the Interior, as trustee for the tribes, has an affirmative duty to protect tribal health and safety, to fulfill all treaty and statutory obligations, and to exercise utmost good faith in all dealings with the tribes. *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (NPS 1995) provides additional standards for preservation of historic properties.

Regarding traditional uses in the preserve by traditionally associated peoples, the enabling legislation (16 USC § 698(j)) states

*... members of the Miccosukee Tribe of Indians of Florida and members of the Seminole Tribe of Florida shall be permitted, subject to reasonable regulations established by the Secretary, to continue their usual and customary use and occupancy of Federal or federally acquired lands and waters within the preserve and the Addition, including hunting, fishing, and trapping on a subsistence basis and traditional tribal ceremonies.*

Recreational use associated with the designation of backcountry trails and destinations could potentially result in impacts to ethnographic and archeological resources. The potential effects to the ethnographic and archeological resources require consultation under section 106 of the National Historic Preservation Act of 1966, as amended. Therefore, this impact topic is analyzed in detail in the Supplemental Environmental Impact Statement.

## **DISMISSED TOPICS**

### **Air Quality**

The legal authority for federal programs regarding air pollution control is based on the 1990 Clean Air Act (CAA) Amendments. These are the latest in a series of amendments made to the CAA. This legislation modified and extended federal legal authority provided by the earlier Clean Air Acts of 1963 and 1970. The Air Pollution Control Act of 1955 was the first federal legislation involving air pollution. This act provided funds for federal research in air pollution. The CAA of 1963 was the first federal legislation regarding air pollution control. The Air Quality Act of 1967 expanded studies of air pollutant emission inventories, ambient monitoring techniques, and control techniques. The preserve has been designated a class II area under the CAA. The preserve is currently within a designated attainment area (i.e., concentrations are below standards) for criteria pollutants.

Upon review of these laws and the proposed alternatives associated with this environmental impact statement, NPS has determined that the contribution of pollutants resulting from implementation of any of the proposed alternatives would be similar to current levels and would not result in exceeding criteria established for pollutants, and the differences between the alternatives would not be noticeable. Exhaust emissions could be produced by an increase in visitor use and subsequent vehicle (including ORV) use in the preserve; however, these activities would not be expected to cause national ambient air quality standards to be exceeded because the increases would be relatively minor. Therefore, this impact topic is not analyzed in detail as a separate topic in this Supplemental Environmental Impact Statement.

### **Floodplains**

The preserve's floodplains are protected under the Organic Act; *NPS Management Policies 2006* (NPS 2006a); Executive Order 11988, "Floodplain Management"; and Director's Order 77-2: *Floodplain Management* (NPS 2003). Floodplains provide a variety of important functions, including flood protection, improved water quality, habitat for wildlife, groundwater recharge, and cycling of nutrients

important for food web and agricultural production. Upon review of these laws and policies and the proposed alternatives associated with this environmental impact statement, NPS has determined that none of the proposed alternatives would have any impacts on the preserve's floodplains. In all of the proposed alternatives analyzed in this environmental impact statement, the National Park Service would continue to protect and conserve the preserve's floodplains as required under the Organic Act, NPS *Management Policies 2006*, Executive Order 11988, and Director's Order 77-2. Therefore, this impact topic is not analyzed in detail as a separate topic in this Supplemental Environmental Impact Statement.

## Hydrology and Water Quality

Both water quality and hydrologic functions are important issues at the preserve. NPS policies require protection of water resources in a manner consistent with the Clean Water Act (CWA) (NPS 2006a). Human waste associated with backcountry use has the potential to affect water quality. However, the preserve encourages all users to practice Leave No Trace principles and distributes educational materials to backcountry campers. Therefore, no impacts to water quality are anticipated.

The watershed within the preserve is largely rain-driven (NPS 2000a); water quantities vary greatly between the wet and dry seasons. During the wet season (typically June through November), the preserve is inundated by water ranging from a few inches to several feet in depth (Klein et al. 1970). In general, during the wet season the water table can be found at the surface. The seasonal high water occurs in late summer. Through the winter and spring months of the dry season (typically December through May), there is typically standing water only in the deepest portions of the wetlands; water levels usually recede to cypress dome areas and soils become dry and firm. During the dry season, the water table is generally only a few feet below the ground surface.

Within the preserve, the land is generally flat and slopes to the south and southeast on average less than 1 foot per mile. Surface flows are influenced by both upstream management practices and internal barriers to water flows. Surface water generally moves through the shallow sloughs, constructed ditches, and channels, as sheet flow is controlled by the surface topography. Under the relatively flat conditions, surface water typically flows through channels rather than into adjacent wetlands (Duever et al. 1981, Pernas et al. 1995). Trails rutting and channelization have the potential to impact hydrology and water quality through their potential for diversion of surface and groundwater water flows. Trail rutting was explored in depth in the 2000 Recreational ORV Management Plan and led to the formation of the primary trail network and proposed secondary trail network expansion.

For the alternatives considered in this Supplemental Environmental Impact Statement, each proposed trail (both ORV trails and nonmotorized trails) and each destination was individually analyzed against several different criteria and preferred conditions, including substrate suitability. Trails evaluated for inclusion within the various alternatives either have been opened previously as part of the secondary ORV trail network, or already exist as a present, stable, linear feature. No new trail construction is being proposed. Limiting the trails to those already in existence precludes the need to create new trails and potentially create a water flow diversion. Destinations were evaluated in terms of providing backcountry, primitive camping opportunities and are generally located within upland hammock areas that also contain stable and suitable substrate. No additional impervious surface area is being proposed as part of this Supplemental Draft Plan/EIS; therefore, no trail or destination included as part of this document would create a barrier to surface water flow or groundwater recharge potential.

To ensure compliance with the CWA, indicators and thresholds were developed to implement an adaptive management strategy should deep rutting and channelization impacts to trails as a result of ORV use become an issue. As discussed, both trail width and rut depth have been identified as indicators and would be monitored by preserve staff throughout the trail network. If either the rut depth or the trail width indicator exceeds the maximum allowable limits, then the trail



would be temporarily closed until conditions have restored to allowable limits. Using this management strategy, the excessive, historical, rut depths described in the 2000 Recreational ORV Management Plan would no longer have an opportunity to occur.

Because ORV traffic would be constrained to the trail network, the trails and destinations would be located generally within suitable substrate, and the indicators and thresholds would be actively managed by preserve staff, the likelihood of impacts to surface water flows and groundwater recharge are greatly reduced to near negligible levels. The preferred alternative does not propose to add any new impervious surface areas within the preserve, and given that the trails and destinations would mostly use the most stable substrates, it is unlikely that hydrology or water quality would be affected. Therefore, this impact topic is not analyzed in detail as a separate topic in this Supplemental Environmental Impact Statement.

## **Other Wildlife and Protected Plant Species**

In addition to special status species (discussed above), other wildlife live in the preserve. However, the nine federally listed species are good indicators for other wildlife species due to the interrelations and inter-dependence of the various flora and fauna in the preserve. Together, the federally listed species adequately reflect overall ecosystem health. Therefore, the effects on other wildlife species are not analyzed in detail as a separate topic in this Supplemental Environmental Impact Statement.

Two federally listed plant taxa and one federally listed plant species are known to occur within the preserve. All alternatives would avoid potential impacts to one of these taxa (Everglades bully (*Sideroxylon reclinatum* ssp. *austrofloridense*) by siting proposed trails and destinations in areas that do not contain this taxa. Accordingly, impacts on this special status plant are not analyzed in detail in this Supplemental Environmental Impact Statement. However, the other two federally listed plants (Florida prairie-clover (*Dalea carthagenensis* var. *floridana*) and Florida pineland crabgrass (*Digitaria pauciflora*)) occur immediately adjacent to primary ORV trails and are subject to adverse impacts. Therefore, these plants are analyzed in this Supplemental Draft Plan/EIS. See section 4.7.1 above.

## **Night Sky/Lightscaapes**

Lighting is not a direct component of any of the proposed alternatives, and no measurable impacts to night sky would occur. Some indirect increases to lighting would occur from increased ORV use and camping, but the increased lighting would not be measurable in the night sky. Therefore, this impact topic is not analyzed in detail as a separate topic in this Supplemental Environmental Impact Statement.

## **Prime or Unique Farmlands**

The Farmland Protection Policy Act (7 USC § 4201 et seq.) and the US Department of the Interior Environmental Statement Memorandum 94-7 – Prime and Unique Agricultural Lands require an evaluation of impacts on prime or unique agricultural lands. Prime farmland is soil that produces general crops such as common foods, forage, fiber, and oil seed; unique farmland produces specialty crops such as fruits, vegetables, and nuts.

No prime or unique farmlands exist in the preserve, according to the US Department of Agriculture Natural Resources Conservation Service. Therefore, this impact topic is not analyzed in detail as a separate topic in this Supplemental Environmental Impact Statement.

## **Environmental Justice**

Any proposed federal project must comply with the provisions of Title VI of the Civil Rights Act of 1964, as amended by Title VIII of the Civil Rights Act of 1968. Title VI of the 1964 Civil Rights Act provides that no person will, on the grounds of race, color, religion, sex, national origin, marital status, disability, or family composition, be excluded from participation in, be denied the benefits of, or be otherwise subject to discrimination under a program of the federal, state, or local government. Title VIII of the 1968 Civil

Rights Act guarantees each person equal opportunity in housing. Additionally, Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects on minority and low-income populations.

Upon review of these laws and the proposed alternatives associated with this Supplemental Environmental Impact Statement, no person would be excluded from or discriminated against in the proposed alternatives considered in this Supplemental Environmental Impact Statement. Additionally, minority or low-income populations would be treated the same way as other groups under the alternatives considered in this Supplemental Draft Plan/EIS and the proposed alternatives would not have a disproportionately high or adverse effect on a minority or low-income population or community. Therefore, this impact topic is not analyzed in detail as a separate topic in this Supplemental Environmental Impact Statement.

### **Energy Resources/Energy Efficiency and Conservation Potential**

The alternatives being considered would not result in the extraction of energy resources from the preserve, and the proposed alternatives would not result in a measurable change in energy consumption compared to current conditions. Additionally, the proposed alternatives would not affect ongoing oil and gas operations in the preserve. Therefore, this impact topic is not analyzed in detail as a separate topic in this Supplemental Environmental Impact Statement.

### **Greenhouse Gas Emissions**

Under the proposed alternatives discussed in this Supplemental Environmental Impact Statement, no construction would occur and no permanent facilities would be established; existing vehicle traffic would continue to occur. The potential for an increase in visitor use and subsequent vehicle use (including the use of ORVs) in the preserve could produce an increase in greenhouse gas emissions. However, the number of available ORV permits would not increase under this plan from the number already authorized and any increase in visitor activities would be de minimis compared to baseline conditions. Thus, any increase in emissions would be barely measurable, if at all. (Data on emissions from ORVs is not presently collected.) Similarly, changing climate is not expected to affect the proposed action. For the foreseeable future, sea level rise is expected only to affect areas where visitors already travel by airboat; trails elsewhere in the preserve are located on higher ground and would still be passable and sustainable under scenarios involving higher rainfall amounts than experienced today. Therefore, this impact topic is not analyzed in detail in this Supplemental Environmental Impact Statement.

### **Land Use/Adjacent Land Uses and Policies**

Land use plans (outside the preserve boundaries) would not be affected by actions proposed under any of the alternatives. In addition, recreational activities described in the proposed alternatives would not induce changes in land use or increase pressure for development within or adjacent to the preserve. Therefore, this impact topic is not analyzed in detail as a separate topic in this Supplemental Environmental Impact Statement.

## APPENDIX C: COMPARISON OF ALTERNATIVES

Component	Alternative 1 (no action)	Alternative 2	Alternative 3 (NPS preferred)
Concept	This alternative represents the continuation of current management practices related to backcountry access within the preserve. No secondary or new primary ORV trails would be opened. No wilderness would be proposed for designation.	This alternative offers visitors slightly increased access to a number of backcountry destinations. It would create a system of designated secondary ORV trails that mostly traverse highly resilient substrate types. Of the two action alternatives, this alternative proposes the largest total area for wilderness designation (190,528 acres in the original preserve and Western Addition).	Alternative 3 would increase ORV access while balancing impacts to resources. ORV users would have the option to access a broader range of areas as compared to alternative 2 via trails traversing mostly resilient and highly resilient substrate types. Approximately 147, 910 acres would be proposed for wilderness designation in the original preserve and Western Addition.
Primary ORV Trails	The primary ORV trail system, 278 miles, would remain unchanged.	The primary ORV trail system, 278 miles, would remain unchanged.	The primary ORV trail system would expand from 278 miles to 332 miles.
Secondary ORV Trails	No secondary trails would be opened.	Fifteen miles of secondary trails would be opened in mostly highly resilient and resilient substrate types.	Fifty-two miles of secondary trails would be opened in mostly highly resilient and resilient substrate types.
Hiking and Canoe Trails	There would be no change to the existing system of 63 total miles of hiking trails and 15 miles of canoe trails. The current 36-mile route of the FNST would remain open. No reroute of the FNST would occur; therefore, sections of the FNST would continue to be closely aligned with the primary ORV trail network.	The FNST would be realigned to a previously used trail, resulting in a new route 44 miles long. The new alignment would improve the backcountry experience of hikers by separating ORV and hiking use and reducing the potential for ORV/hiker conflict and accidents. All other hiking and canoeing opportunities would be the same as in the no-action alternative.	The FNST would be rerouted as described in alternative 2, resulting in a new route 44 miles long. One hundred-fourteen miles of additional hiking trails would be opened in the preserve, including the Cross Preserve Trail. Excluding the FNST, the hiking trail system would total 141 miles.
Camping	Dispersed camping would continue to be allowed in all areas of the preserve except in the Bear Island Unit. There would continue to be no group size limits for dispersed camping. The existing backcountry campgrounds, hike-in campsites and most airboat campsites would continue to remain open. All backcountry	Camping opportunities would be provided at 24 new destinations and 24 existing destinations (one of the 25 currently existing destinations would be closed to protect resources). Camping would also be available at two existing primitive campgrounds along the FNST and at two existing backcountry campgrounds in the Bear Island Unit. Camping permits and	Camping opportunities would be provided at 83 new destinations, 24 existing destinations, and at two existing primitive campgrounds along the FNST. A new backcountry campground would be added in Bear Island to go with the two existing backcountry campgrounds in that unit. Walk-in dispersed camping would be permitted throughout the preserve (including Bear Island) on sites at least 0.25 mile from any destination, designated campsite, or campground, or 0.5 mile from any developed area or

Component	Alternative 1 (no action)	Alternative 2	Alternative 3 (NPS preferred)
	camping would continue to require a free permit.	reservations would be required and limitations on group size would be established.	road. Visitors would be permitted to camp anywhere along primary ORV trails as long as the ORVs remained on the designated trail and did not block travel. Airboat users in Stairsteps Zone 4 would be required to camp at designated sites.
Camping Reservations	There would be no change to the existing system - visitors would continue to obtain permits at established locations before entering the backcountry to camp.	Using an online or in-person reservation system, visitors would be required to reserve a space at destinations, designated backcountry campsites, and backcountry campgrounds. The details of the reservation system would be developed separately from this planning effort, with input from the public.	There would be no reservation system for backcountry camping. Visitors would continue to obtain permits at established locations before entering the backcountry to camp.
Stay Limits	This alternative would continue to allow for 10 to 14 consecutive days stay limits for backcountry camping, with an ultimate limit not to exceed the maximum number of days per year specified in the superintendent's compendium.	Camping or occupancy of a designated backcountry campsite or backcountry campground would be limited to 14 consecutive days. This stay limit would also apply to camping and hunting equipment. Backcountry camping in the preserve by the same person, party, or organization would be limited to no more than 14 days in a 30-day period, and no more than 120 days in a calendar year.	Stay limits would be the same as those described in alternative 2.
60-day closure	The current annual 60-day ORV closure would remain in place.	The current annual 60-day closure would remain in place.	The annual 60-day closure would be removed.
Wilderness	No wilderness would be proposed for designation.	Approximately 190,528 acres would be proposed for wilderness designation in the original preserve and Western Addition.	Approximately 147,910 acres would be proposed for wilderness designation in the original preserve and Western Addition.

## **APPENDIX D: VISITOR CAPACITY DETERMINATION**

### **OVERVIEW**

This appendix provides information about the visitor capacity determination. Capacities for off-road vehicles (ORV) have been identified as part of the preserve's 2000 Recreational ORV Management Plan and 2010 Addition GMP. This Supplemental Draft Plan/EIS does not change those determinations (2,000 annual permits in the original preserve and 650 annual permits in the Addition lands). This Supplemental Draft Plan/EIS also addresses nonmotorized backcountry uses (namely, hiking, camping, and canoeing).

Visitor capacity is the maximum amounts and types of visitor use that an area can accommodate while achieving and maintaining the desired resource conditions and visitor experiences that are consistent with the purposes for which the area was established (Interagency Visitor Use Management Council 2016).

### **PROCESS FOR DETERMINING VISITOR CAPACITIES**

The process for determining visitor capacity consists of four steps: (1) determine the analysis area, (2) review existing direction and knowledge, (3) identify the limiting attribute(s), and (4) identify capacity. Where future research, monitoring, and management experience further inform visitor use management needs, new or additional information may be used to adjust the visitor capacity determination, if necessary.

### **ANALYSIS AREA**

This capacity determination analyzes use types and levels for all preserve backcountry areas, including those in the original preserve and the Addition.

### **EXISTING CONDITIONS**

Prior guidance from the 2000 Recreational ORV Management Plan includes a maximum visitor capacity determination for primary ORV trail use of 2,000 annual permits in the original preserve. This determination was based on a ratio of number of vehicles to the maximum number of primary trail miles envisioned in the original preserve (2,000 permits for up to 400 miles, or 5 permits for every 1 mile of trail). The same ratio was used to determine permits issued in the Addition, up to 650 permits annually.

ORV use is considered the main backcountry use in the preserve; however, additional nonmotorized uses such as horseback riding, camping, hiking, and canoeing also occur. These types of uses are considered to occur at relatively low levels by park managers and have not been observed to result in significant impacts to resources or visitor experiences, except in rare circumstances. See the affected environment discussion in chapter 3 for more details on visitor use and related conditions in the preserve.

#### **Existing Conditions for Analysis Area**

According to park use statistics, backcountry use is highest from September to March, with the number of campers varying from month to month (NPS 2007). Backcountry use tends to peak during hunting season. Backcountry campers are most likely to be hunters and recreationists using primary ORV trails and to a lesser extent nonmotorized recreationists such as equestrians, hikers, and canoeists or kayakers. The current ORV permit levels in the original preserve have helped the National Park Service protect desired conditions, and generally, the preserve's resources are in much better condition today than before the 2000 Recreational ORV Management Plan was implemented.

According to preserve records, an average of 1,113 ORV permits were issued in between 2015 and 2020 for the original preserve, substantially less than the 2,000 permits issued in 2010. This trend, well below the annual cap of 2,000 permits, also shows that demand for ORV use in the preserve has been decreasing – although the demand for permits has increased somewhat since 2019. When the average group size in the preserve (2.5 people) is taken into consideration, this represents approximately 2,783 people a year using the current ORV trail system.

For this capacity determination, the number of ORVs is more pertinent than the number of individual users that may be traveling on one ORV. The ORV itself causes the most serious impacts to resources, regardless of how many people are traveling on it. Based on the preserve's assessment, the current capacity and management program for ORV use has been a success, so it is practical to extend this method to other backcountry users (ratio of 5 trail miles to 1 backcountry user). Using the 5 to 1 ratio with nonmotorized users would help maintain desired conditions for resources and visitor experience in the preserve's backcountry areas.

## **LIMITING ATTRIBUTES**

The most limiting attributes related to levels of visitor use in the preserve are resource impacts caused by ORVs. Many of the indicators and associated thresholds selected as part of this Supplemental Draft Plan/EIS seek to protect and help assess impacts to resources. They include trail braiding, trail depth or rutting, incidents of off-trail travel by motorized vehicles, natural resource impacts at destinations, disturbance of special status species, and observations of disturbances to historic properties. Protecting water quality, wildlife, soils, and vegetation are key to maintaining the ecological integrity of the backcountry.

As noted above, the current approach for managing ORV use levels, with a cap of 2,000 annual permits in the original preserve, has helped the National Park Service protect resource conditions. This cap also provides opportunities for high-quality visitor experiences by limiting competition and conflict among backcountry users, as well as offering users a sense of solitude, self-reliance, and discovery.

## **VISITOR CAPACITY DETERMINATION**

There are currently 278 miles of primary ORV trails in the preserve. The 2000 Recreational ORV Management Plan set a cap of 400 miles of primary trails. One alternative in this Supplemental Draft Plan/EIS proposes an increase in ORV trail miles. However, additional trail mileage for both primary and secondary ORV trails would be managed under the current system of 2,000 annual permits in the original preserve and 650 annual permits in the Addition.

Maintaining the existing ORV permit levels, while expanding the primary and secondary trail network, would better disperse users, expand their choices for destinations, and reduce the intensity of natural resource impacts by dispersing use.

The visitor capacity determinations below first discuss primary and secondary ORV trails under the current permit systems and then discuss nonmotorized trail use. Specific determinations for camping have not been included because the ORV trail users are most frequently also campsite users.

Nonmotorized use in the preserve generally results in fewer adverse resource impacts than motorized use. In addition, nonmotorized use in the preserve backcountry is quite low, given the total acreage available, and tends to center on the FNST. It is therefore anticipated that nonmotorized use levels could grow substantially without any significant impacts to experiences or resources. The visitor capacities for nonmotorized use are expressed below in terms of people per day due to the low impact nature of this use and likely use patterns (half-day hikes or less).

The ratio of five nonmotorized users per mile was included in the determinations below. This approach would be assessed with additional monitoring and research if the preserve sees more than a 10% growth in backcountry nonmotorized use, or when monitoring of indicators and thresholds demonstrates that impacts are occurring specifically from this use type.

## **Alternative 2**

The primary ORV trail system would remain the same as the current conditions described in the no-action alternative, at 278 miles. Under alternative 2, 15 miles of secondary ORV trails would be opened. The visitor capacity for ORV use would remain at 2,000 permits a year in the original preserve and 650 permits in the Addition.

The FNST trail would be rerouted to an alignment totaling 44 miles. This nonmotorized use is combined with existing trails listed in the no-action alternative (27 miles of hiking trails and 15 miles of canoe trails), for a total of 86 miles of nonmotorized trails. Following the 5 to 1 ratio, this results in 430 nonmotorized users per day. When combined, the visitor capacity for backcountry use under alternative 2 would be 2,000 ORV permits a year in the original preserve, 650 ORV permits in the Addition, and 295 nonmotorized users a day in the original preserve and Addition.

## **Alternative 3: NPS Preferred Alternative**

Alternative 3 would expand the current primary ORV trail system by 54 miles, for a total of approximately 332 miles. Under alternative 3, 52 miles of secondary ORV trails would be opened. The visitor capacity for all ORV trails would remain at 2,000 permits a year in the original preserve, 650 of which would also allow access to the Addition.

The FNST trail would be rerouted to an alignment totaling 44 miles and hiking trails would be expanded by 114 miles over what exists at present. This nonmotorized use is combined with existing trails listed in the no-action alternative (27 miles of hiking trails and 15 miles of canoe trails) for a total of 200 miles of non-motorized trails. Following the 5 to 1 ratio, this results in 1,000 nonmotorized users per day. When combined, the visitor capacity for backcountry use under alternative 3 is 2,000 ORV permits a year (of which 650 authorize access to the Addition) and 1,000 nonmotorized users a day in the original preserve and Addition.

## REFERENCES

National Park Service (NPS)

2007 *Big Cypress National Preserve: Monthly Public Use Report*. Available at:  
<https://irma.nps.gov/Stats/Reports/Park/BICY>.

Interagency Visitor Use Management Council

2016 *Visitor Use Management Framework: A guide to providing sustainable outdoor recreation*.  
June 2016. Edition 1. Available at:  
<https://visitorusemanagement.nps.gov/VUM/Framework>.



## APPENDIX E: WILDERNESS ELIGIBILITY ASSESSMENT, 2022

### INTRODUCTION

This document sets forth the findings of the final, revised wilderness eligibility assessment for lands within the original boundary of Big Cypress National Preserve (preserve). It also includes a reassessment of certain lands in the western Big Cypress Addition. These lands adjoin the lands in the original preserve assessed herein. The reassessed lands in the western Big Cypress Addition are referred to below as polygons WA-2, WA-3, and WA-4.

The findings of this final wilderness eligibility assessment adjust the findings of two previous assessments, namely, the initial wilderness eligibility assessment of the original preserve completed in 2015 and the final wilderness eligibility assessment of the Big Cypress Addition completed in 2010. The adjustments described herein are made pursuant to NPS Director's Order 41, which provides that adjustments to previous eligibility determinations can be made as part of a formal wilderness study. Wilderness studies typically entail a more detailed analysis and intensive review of potentially eligible lands than occurs in the initial assessment process.

The National Park Service began a wilderness study of the original preserve and certain adjacent areas in July 2015. See Federal Register Vol. 80, No. 128, p. 38463 (July 6, 2015). This study and a companion wilderness study for the Big Cypress Addition (completed in 2010) were undertaken to comply with applicable law. See enabling legislation for Big Cypress National Preserve, Public Law 93-440 (1974) and enabling legislation for the Big Cypress Addition, Public Law 100-301 (1988).

This revised wilderness eligibility assessment has been made by analyzing the original preserve relative to the wilderness criteria in the Wilderness Act of 1964, Public Law 88-577. Also consulted were the primary eligibility criteria in National Park Service (NPS) *Management Policies 2006*, Section 6.2.1, with consideration for the criteria in Section 6.2.1.2.

This assessment meets the policy mandate that all lands administered by the National Park Service be evaluated for their eligibility for inclusion in the national wilderness preservation system. This assessment does not propose wilderness, potential or otherwise, nor does it recommend wilderness boundaries. The purpose is solely to assess the eligibility of lands pursuant to Section 6.2.1 of NPS *Management Policies 2006* (NPS 2006).

### WILDERNESS CRITERIA

The following criteria were used to evaluate lands in the original preserve and adjacent areas for wilderness eligibility:

- The area is at least 5,000 acres or of sufficient size to make practicable its preservation and use in an unimpaired condition.
- The earth and its community of life are untrammelled by humans, where humans are visitors and do not remain.
- The area is undeveloped and retains its primeval character and influence without permanent improvements or human habitation.
- The area generally appears to have been affected primarily by the forces of nature, with the imprint of humans' work substantially unnoticeable.
- The area is protected and managed to preserve its natural condition.
- The area offers outstanding opportunities for solitude or a primitive and unconfined type of recreation.

## **ASSUMPTIONS**

The following assumptions were used when applying the criteria above to evaluate all lands at the preserve within the original boundary for wilderness eligibility. These assumptions are identical to those developed for the wilderness eligibility assessment of the Addition:

- The participants' definition of what was considered an example of a "substantial imprint of humans' work" included roads, trails, or other areas that were created by man and used repeatedly over time and would require substantial human intervention to restore.
- Whether the imprint of humans' work is unnoticeable or not was reviewed from the perspective of a land manager and not a casual visitor. The past work of humans is, in many cases, substantially noticeable to a land manager, but may not be to the casual visitor.
- If needed long-term restoration techniques would be inconsistent with wilderness eligibility, then the area to be restored would not be wilderness eligible.

### **Width of nonwilderness corridors along roads, trails, and canals:**

The nonwilderness corridor width was established as 0.5 mile (0.25 mile from the centerline of all established roads, trails, and canals; 0.25 mile from either side of the right-of-way for highways 41, 29, and I-75). Established trails include primary trails, recently closed secondary trails, and trails recommended by the Off-Road Vehicle Advisory Committee. For the purposes of this eligibility assessment, it was assumed that evidence of off-road vehicle (ORV) use is substantially noticeable on recently closed secondary trails and off-road vehicle advisory committee recommended trails.

These nonwilderness areas (or corridors) were established to accommodate environmental protection and safety considerations, such as fire management and nonnative/invasive plant and animal control; traditional uses including gathering native materials; and all past disturbances from highway engineering, construction and maintenance, as well as continued motorized use and access for infrastructure maintenance. Additionally, all constructed roads, trails, and canal embankments represent a change in elevation that provide an opportunity for nonnative plant invasion. The road shoulder, even if represented by only inches in elevation change from natural wetland grade, provides space above standing water for seeds to germinate if a source is nearby. Most nonnative invasive plants become established more easily in disturbed areas such as raised road shoulders and other constructed features. Specific management techniques, including mechanical treatment, revegetation, or restoration, are required in these areas to maintain the ecological integrity of the preserve. These corridors are generally not untrammelled by humans, do not retain their primeval character, and do not offer outstanding opportunities for solitude or a primitive and unconfined type of recreation.

With nonwilderness corridors along roads, trails, and canals identified, preserve staff proceeded to analyze all remaining areas, using the criteria described above. The results of this analysis are described below.

## **FINDINGS**

Of the 599,691 acres assessed in the original preserve and adjoining Western Addition, 257,762 acres (43%) were determined to be eligible for wilderness designation. For a detailed presentation of the eligibility analysis and findings, please refer to the map at the end of this appendix.

## **SPECIFIC AREA ANALYSIS**

### **Not Eligible for Wilderness Designation**

#### **Stairsteps Unit – Zone 3, East**

The eastern part of this zone does not offer outstanding opportunities for solitude and primitive and unconfined recreation, primarily because of the existence of airboat trails and other disturbed areas, including Paces Dike.

#### **Stairsteps Unit – Zone 4, West**

The western portion of Zone 4 contains a dense network of airboat trails that are used frequently by visitors, as well as by landowners to access private property. When segmented by airboat trails, the resulting polygons are not of a sufficient size to practicably manage as wilderness. Additionally, frequent use of these trails by airboats results in limited opportunities to experience natural quiet and detracts from the sense of solitude. Accordingly, the western part of Zone 4 does not offer outstanding opportunities for solitude and primitive and unconfined recreation.

#### **Corn Dance Unit – South of Mullet Slough**

Many areas in the Corn Dance Unit are fragmented by both active ORV trails (i.e., primary trails in the preserve's ORV trail system) and inactive former ORV trails. Impacts from the latter are such that the impact of human activity is substantially noticeable throughout these areas. When the 0.25-mile corridor around trails is excluded from eligibility, the resulting polygons that comprise these areas are not large enough to practically manage as wilderness and do not offer outstanding opportunities for solitude and primitive and unconfined recreation.

The large block of roadless land north of Highway 41 and west of the Dade-Collier Training and Transition Airport (jetport) is largely trammled due to persistent and extensive treatment of nonnative, invasive plant species in this area. The undeveloped quality of this polygon is significantly degraded due to evidence of past dispersed ORV use, which was only discontinued in the area in 2011. The proximity of this area to the jetport and flight paths out of the jetport also diminishes opportunities for solitude. The southern half of this area also bears the noticeable imprint of humans' work, including disturbances from past human activity, such as borrow pits, and structures including aviation beacons.

The block of roadless land northeast of the jetport includes areas with substantial signs of past human disturbance due to dispersed ORV use, which was only discontinued in the area in 2011. The area also does not offer outstanding opportunities for solitude and primitive and unconfined recreation due to its proximity to the Dade-Collier Training and Transition Airport and associated facilities.

The western part of the Corn Dance Unit south of Mullet Slough contains high densities of nonnative vegetation that would require persistent and mechanized management intervention to restore the area to more natural conditions. The trails bounding the polygon receive high levels of visitor use as compared to many more remote areas of the preserve because of the proximity to several private properties. This area does not offer outstanding opportunities for solitude and primitive and unconfined recreation and is not untrammled by humans. The area also has substantial signs of past human disturbance due to dispersed ORV use, which was only discontinued in the area in 2011.

#### **Turner River Unit – West of Corn Dance**

A large part of this area is fragmented by both active ORV trails (i.e., primary trails in the preserve's ORV trail system) and inactive former ORV trails. Impacts from the latter are such that the impact of human

activity is substantially noticeable throughout the area. When the 0.25-mile corridor around trails is excluded from eligibility, the resulting polygons are not large enough to practically manage as wilderness and do not offer outstanding opportunities for solitude and primitive and unconfined recreation.

The area northeast of Windmill Prairie is a popular visitor destination and receives heavy ORV use on surrounding primary trails. This area therefore does not offer outstanding opportunities for solitude and primitive and unconfined recreation. The imprint of modern human activity is also substantially noticeable on the landscape, as evidenced by old camps and evidence of past ORV use throughout the area.

The area north of Highway 41 and west of the Corn Dance unit contains the noticeable imprint of modern human activity, mainly due to substantially noticeable disturbances from past agricultural activities and evidence of past and ongoing dispersed ORV use, some of which is associated with continued traditional use. This area also has diminished primeval character because of private parcels of land with dwellings, outbuildings, and access roads.

The western part of the Turner River Unit, north of the preserve headquarters, does not offer outstanding opportunities for solitude, is not untrammeled by humans, does not retain its primeval character, and bears the noticeable imprint of humans' work. This is primarily due to proximity to Highways 41 and 29, as well as the presence of structures, buildings, and access roads. Additionally, frequent use of adjacent areas surrounding Everglades City by commercial airboats results in limited opportunities to experience natural quiet and detracts from the sense of solitude.

### **Bear Island Unit – Northwest, Central, and East**

This area is crossed by both active ORV trails (i.e., primary trails in the preserve's ORV trail system) and inactive former ORV trails. When the 0.25-mile corridor around trails is excluded from eligibility, the resulting polygons are not large enough to practically manage as wilderness and do not offer outstanding opportunities for solitude and primitive and unconfined recreation. The northwest corner of the Bear Island Unit, while relatively large and adjacent to eligible wilderness in the Addition, is not eligible because of substantially noticeable evidence of past agricultural use and the need for continued intensive nonnative plant treatment. This area is not untrammeled by humans and does not retain its primeval character and influence.

### **Jetport Area**

This area is a large plot of public land owned by Miami-Dade County and operated by the Miami-Dade Aviation Department. Because this parcel is public property and not owned by the federal government, it is not being analyzed as part of this assessment.

## **Eligible for Wilderness Designation**

### **Stairsteps Unit – Zone 1, Zone 2, and Western Part of Zone 3 (51,397 acres)**

Natural conditions and processes prevail in these areas. They are undeveloped, largely untrammeled and appear to be primarily affected by the forces of nature. The three zones encompass a variety of vegetation types, including prairie, cypress strand, cypress scrub, and mangrove swamp. The area as a whole is bisected by few former ORV trails. As a result, Zone 1, Zone 2, and the western part of Zone 3 contain large, intact natural areas that would be practical to manage as wilderness and offer outstanding opportunities for solitude. Opportunities for solitude are further enhanced by adjacent designated wilderness in Everglades National Park. The combined area contains eight private parcels; designated private trails in the area would continue to be necessary to provide access to landowners. These trails are not eligible for wilderness designation.

Two areas in the western part of this collective unit were subjected to agricultural use in the past but now have substantially recovered and appear to be primarily affected by the forces of nature. The furrows from past agricultural use, while still visible in some places from satellite imagery are not substantially noticeable on the ground. Native vegetation in these areas has recovered and now dominates the landscape.

#### **Stairsteps Unit – Zone 4, Southeast Corner (26,809 acres)**

This is a large, wild area mostly composed of prairie and hardwood scrub. Natural processes and conditions are predominant here and the imprint of human activities is substantially unnoticeable. The area also harbors important habitat for the Cape Sable seaside sparrow. The area contains outstanding opportunities for solitude because of its remote location, relatively few bisecting former airboat trails, and intact natural soundscape. Its wilderness character is enhanced by the wilderness status and low visitation of the adjacent area of Everglades National Park. The area contains three private camps; private designated trails in the area would continue to be necessary to provide reasonable landowner access and are not eligible for designation as wilderness.

#### **Loop Unit (50,707 acres)**

Natural conditions and processes prevail in this large area, which contains over 50,000 contiguous acres. It is undeveloped, largely untrammelled, and appears to be primarily affected by the forces of nature. This unit has been closed to ORV use since 1977 and shows little evidence of human activity. Much of the western portion of the unit consists of cypress strand and includes the Gator Hook, Sweetwater, Gannet, and Roberts Lakes strands. The central and eastern portions of the unit consist mostly of cypress scrub with scattered pine forest and hardwood hammocks. The Loop Unit is a large, intact natural area that would be practical to manage as wilderness and offers outstanding opportunities for solitude and an unconfined type of recreation.

#### **Corn Dance Unit – Mullet Slough East (18,056)**

This large, wild area south of Interstate 75 is among the most pristine parts of the preserve. The Mullet Slough area encompasses a variety of vegetation types, including pine forest, hardwood hammock, mixed hardwood-cypress strand, cypress strand, cypress scrub, and marsh. The entire area appears to have been primarily affected by the forces of nature, where natural processes and conditions prevail. The area is largely undeveloped and untrammelled. The imprints of man are few and there are outstanding opportunities for solitude and primitive and unconfined recreation. The area is adjacent to areas of proposed wilderness in the Addition, which further enhances its wilderness character.

#### **Turner River and Corn Dance Units – Mullet Slough West (22,822 acres)**

Similar to Mullet Slough East, this part of Mullet Slough is a large, wild area that appears to have been primarily affected by the forces of nature, where natural processes and conditions prevail. The area is largely undeveloped and untrammelled. The imprints of modern human activity are few and there are outstanding opportunities for solitude and primitive and unconfined recreation. The area is adjacent to areas of proposed wilderness in the Addition, which further enhances its wilderness character.

#### **Turner River Unit – Airplane Prairie (19,898 acres)**

Airplane Prairie is an extensive wetland prairie with scattered inclusions of cypress and pine. This area also contains mixed-hardwood-cypress strands. The prairie portions of this area have been closed to ORV use since at least the year 2000. While some unauthorized ORV use has occurred in the closed areas from time to time, the evidence of that use has greatly diminished in recent years and the area as a whole

continues to recover from past dispersed ORV use. This area now appears to have been primarily affected by the forces of nature, where natural processes and conditions prevail. It is largely undeveloped and untrammelled by humans and contains outstanding opportunities for solitude and primitive and unconfined recreation.

#### **Turner River Unit – Windmill Prairie (19,253 acres)**

Vegetation in the Windmill Prairie area is similar to that found in Airplane Prairie. As with Airplane Prairie, much of the Windmill Prairie area has been closed to ORV use since 2000. Unauthorized ORV use has occurred in the closed areas from time to time, but the evidence of that use has greatly diminished in recent years. Today, the Windmill Prairie area as a whole continues to recover from past dispersed ORV use. This area now appears to have been primarily affected by the forces of nature, where natural processes and conditions prevail. It is largely undeveloped and untrammelled by humans and contains outstanding opportunities for solitude and primitive and unconfined recreation.

#### **Deep Lake Unit (25,735 acres)**

The Deep Lake Unit contains large expanses of prairie dissected by cypress–hardwood strands, most notably, the Deep Lake Strand. Also present here are pine forests, hardwood scrub, freshwater marshes, and oak-palm hammocks. Deep Lake, the southernmost sinkhole lake in Florida, is located here. This undeveloped area appears to have been primarily affected by the forces of nature, where natural processes and conditions prevail. The entire area has been closed to ORV use since 1989. While some evidence of past ORV use is visible on the landscape, the area retains its primeval character and affords outstanding opportunities for solitude and a primitive and unconfined type of recreation.

#### **Turner River Unit – Upper Wagon Wheel (4,340 acres)**

Vegetation in this area is similar to that found in the Deep Lake Unit to the north. This area contains outstanding opportunities for solitude and primitive and unconfined recreation. It has been closed to ORV use since 2000 and appears to have been primarily affected by the forces of nature where natural processes and conditions prevail. It is largely undeveloped and untrammelled by humans.

#### **Bear Island Unit – Southwest (8,061 acres)**

This area contains large areas of freshwater marsh, mixed hardwood-cypress swamp, and pine forest. It provides outstanding opportunities for solitude and a primitive and unconfined type of recreation. The area contains some nonnative species but still appears to have been primarily affected by the forces of nature, where natural processes and conditions prevail. It is largely undeveloped and untrammelled by humans.

#### **Western Addition (10,684 acres)**

These lands are contiguous to eligible lands in the Bear Island, Deep Lake, and Stairsteps Zone 1 units. They have the same characteristics as the lands they adjoin and are eligible for wilderness designation for the same reasons.

## SUMMARY

The table below lists the reference areas and the corresponding acreages for the eligible wilderness depicted in the two reference maps.

**Wilderness Assessment Areas and Associated Acreages**

Assessment Area	Acre
Stairsteps Unit – Zone 1 <sup>1</sup>	9,518
Stairsteps Unit – Zone 2 <sup>1</sup>	25,912
Stairsteps Unit – Zone 3 <sup>1</sup>	15,967
Stairsteps Unit – Zone 4 <sup>1</sup>	26,809
Loop Unit	50,707
Corn Dance Unit <sup>2</sup>	18,468
Turner River Unit <sup>2</sup>	65,901
Deep Lake	25,735
Bear Island Unit	8,061
Western Addition	10,684
TOTAL	257,762

Notes:

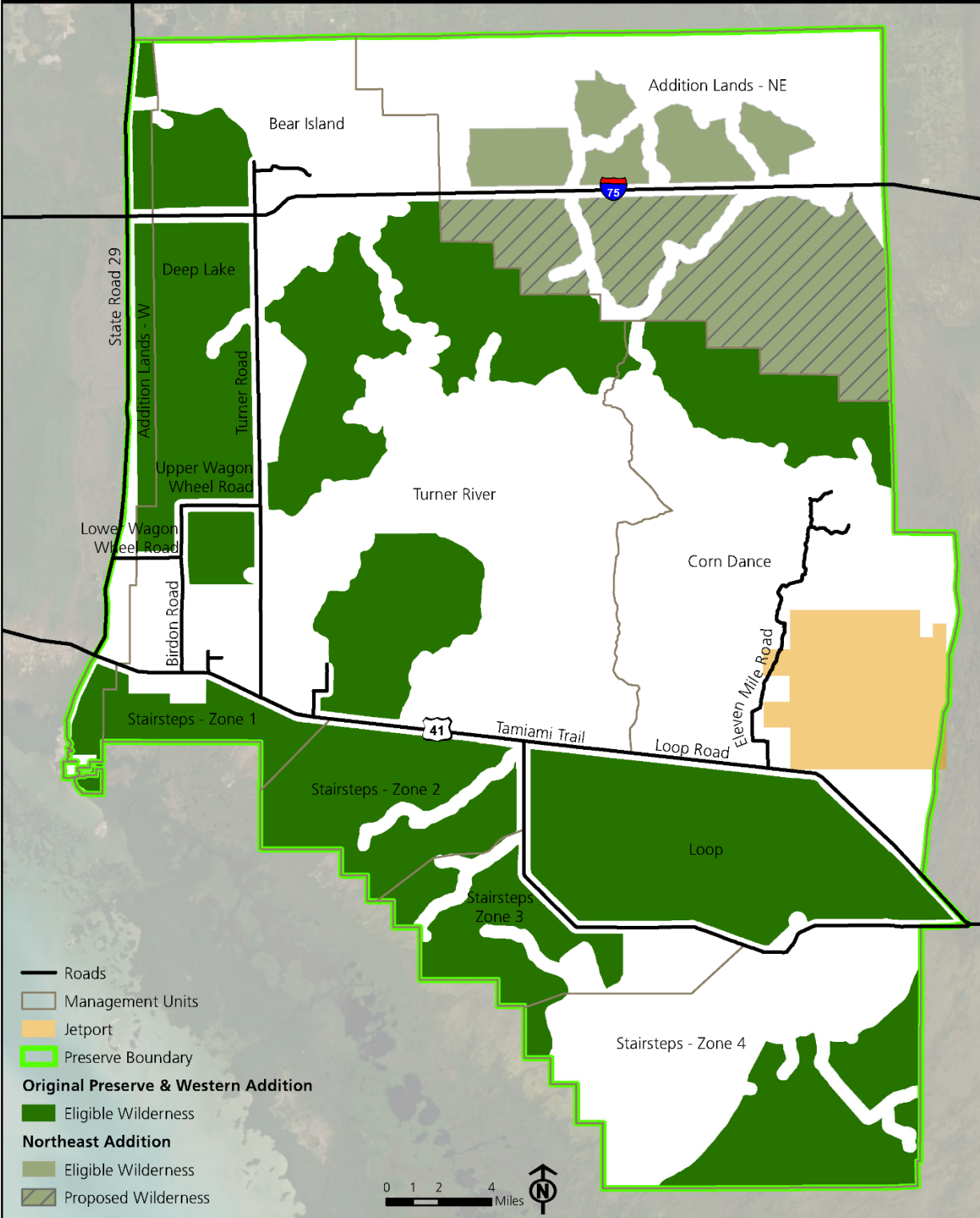
<sup>1</sup> This area is adjacent to a large contiguous block of wilderness in Everglades National Park.

<sup>2</sup> Mullet Slough in the original preserve is adjacent to approximately 47,182 acres of proposed wilderness in the Addition.

# Big Cypress National Preserve

## Eligible Wilderness in the Preserve

National Park Service  
Department of the Interior



WILDERNESS ELIGIBILITY MAP



# **APPENDIX F: BIG CYPRESS NATIONAL PRESERVE TRAIL MONITORING PROTOCOL**

## **INTRODUCTION**

Off-road vehicle (ORV) use within Big Cypress National Preserve is authorized by the Final Recreational Off-Road Vehicle Management Plan Supplemental Environmental Impact Statement (2000), the Addition, Final General Management Plan/Wilderness Study/Off-Road Vehicle Management Plan/Environmental Impact Statement (2010) [and the Backcountry Access Plan (202\_)]. Similarly, nonmotorized trails have been established pursuant to the Final General Management Plan for the original preserve (1991) and [and the Backcountry Access Plan (202\_)].

The foregoing plans are based on the principle of adaptive management. Adaptive Management can be described as a decision-making framework that evaluates impacts and adjusts management actions to meet objectives. The key to this approach is the establishment of a systematic monitoring program that can assess changes in ORV and nonmotorized trail conditions and trends over time. This information is used for visitor use management and resource protection and helps managers prioritize trail maintenance and construction needs.

The Backcountry Access Plan identifies indicators, thresholds, justification for thresholds, and adaptive management actions that are to be taken if thresholds are reached.

## **MONITORING PROTOCOL**

The trail monitoring program will use the problem assessment survey methodology to monitor ORV trails, nonmotorized trails, and destinations. The exact location of a problem area will be recorded as well as the lineal extent of the problem. The collected data can then be used to determine the percentage of the trail segment impacted. The information will be used to determine if the observed impacts exceed the established thresholds.

The goal of the program is to assess periodically all ORV trails (primary, secondary) and nonmotorized trails using Big Cypress National Preserve staff and/or volunteer surveyors. The extent and frequency of assessments will depend on the availability of personnel and other resources. To conduct assessments, surveyors will drive/traverse trails and record problem locations using ESRI's Survey123 App or other field data collection apps on smart phones/tablets. To increase spatial accuracy, the device will be connected to a GPS through a cable or Bluetooth. The GPS must provide at a minimum 20-foot accuracy.

The surveyors will record locations at the beginning and end points of the following attributes:

- Excessive trail braiding/width (>20 foot width)
- Excessive trail rutting (>12 inch rut depth)

The surveyors will record locations of the following attributes:

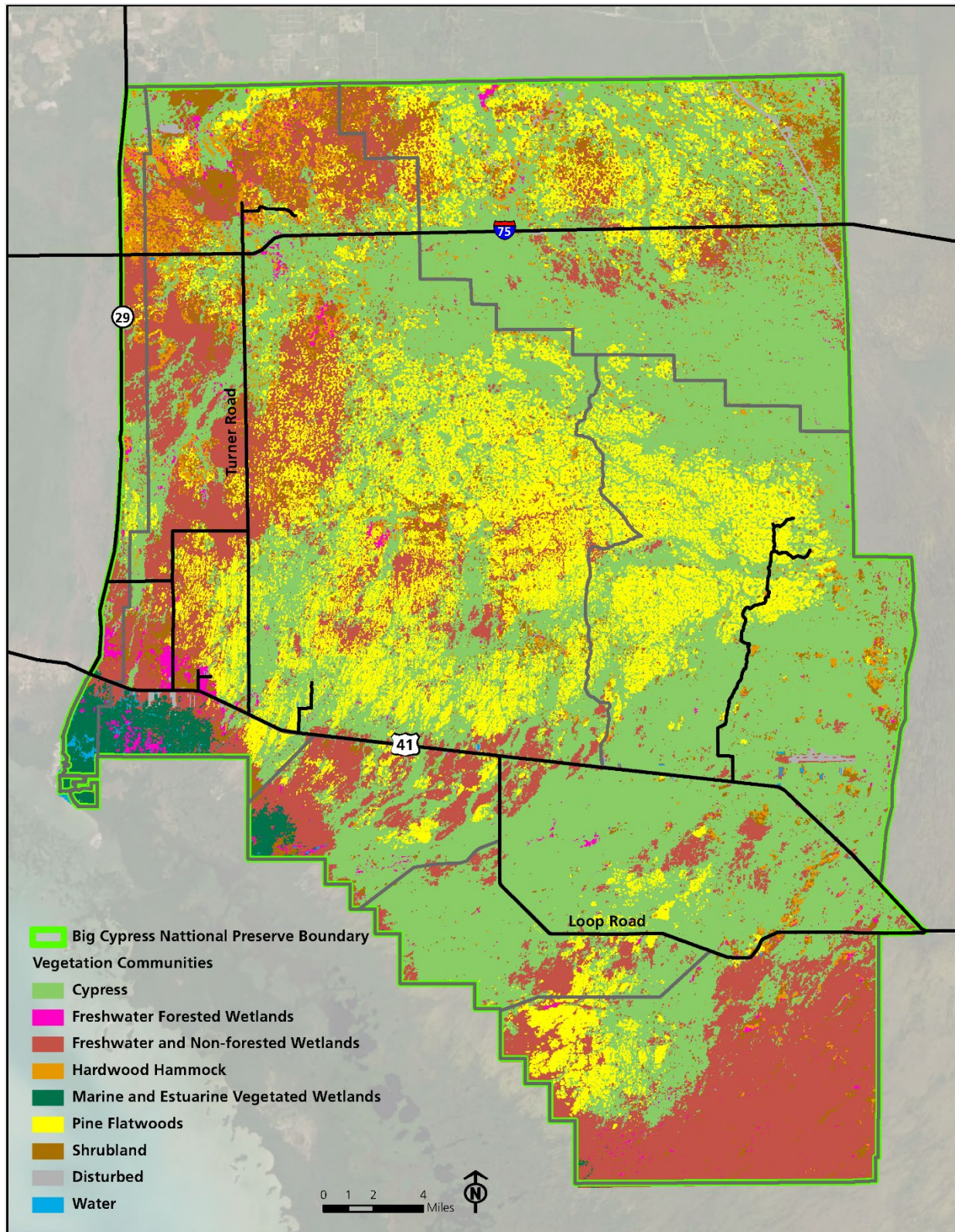
- Instances of off trail travel
- Natural resource impacts
- Invasive Plants
- Disturbance of special status species
- Locations of missing or damaged signs

### ORV Indicators, Thresholds, and Adaptive Management Actions (Backcountry Access Plan)

Indicator	Threshold	Adaptive Management Action
ORV trail braiding	Widening and braiding occurring on no more than 20% of any single trail. Widening and braiding is generally defined as trail widths that exceed 20 feet	<ul style="list-style-type: none"> <li>• Evaluation</li> <li>• Education</li> <li>• Enforcement (fines/cost recovery)</li> <li>• Clearer marking of additional trail/destination markings</li> <li>• Temporary or permanent closure of trail</li> <li>• Reduction in allowable visitor numbers for the trail and corresponding destinations (reservation system)</li> <li>• Closure of trail</li> </ul>
ORV trail depth/rutting	Ruts >12 inches on more than 20% of primary/secondary trail	<ul style="list-style-type: none"> <li>• Evaluation</li> <li>• Education</li> <li>• Enforcement (fines/cost recovery)</li> <li>• Spot trail repairs/recontouring (via hand and mechanical tools if approved by regulatory agencies)</li> <li>• Minor rerouting of trail to more sustainable alignment</li> <li>• Clearer or additional trail/destination markings</li> <li>• Temporary or permanent closure of trail</li> <li>• Restrictions on vehicle clearance to limit depth of soil rutting and increase ability of trails to sustain traffic</li> <li>• Reduction in allowable visitor numbers for the trail and corresponding destinations (reservation system)</li> <li>•</li> </ul>
Hiking trail braiding	Widening and braiding occurring on no more than 20% of any single trail. Widening and braiding is generally defined as trail widths that exceed 8 feet.	<ul style="list-style-type: none"> <li>• Evaluation</li> <li>• Education</li> <li>• Enforcement</li> <li>• Spot trail repairs/recontouring (via hand and mechanical tools if approved by regulatory agencies)</li> <li>• Minor rerouting of trail to more sustainable alignment.</li> <li>• Closure of trail (including not reopening a proposed trail due to excessive unsuitable substrates)</li> <li>• Clearer or additional trail markings</li> <li>• Reduction of allowable visitor numbers for the trail and corresponding destinations (reservation system)</li> </ul>

Indicator	Threshold	Adaptive Management Action
Hiking trail depth/rutting	Ruts 6 inches deep observed on more than 20% of a nonmotorized trail.	<ul style="list-style-type: none"> <li>• Evaluation</li> <li>• Education</li> <li>• Enforcement</li> <li>• Spot trail repairs/recontouring (via hand and mechanical tools if approved by regulatory agencies)</li> <li>• Minor rerouting of trail to more sustainable alignment</li> <li>• Clearer or additional trail/destination markings</li> <li>• Temporary or permanent closure of trail</li> <li>• Reduction in allowable visitor numbers for the trail and corresponding destinations (reservation system)</li> </ul>
Number of instances of off-trail travel by ORVs	Observed noncompliance	<ul style="list-style-type: none"> <li>• Evaluation</li> <li>• Education</li> <li>• Enforcement (fines/cost recovery)</li> <li>• Clearer or additional trail/destination markings</li> <li>• Exclusion/closure of secondary trails, destinations.</li> <li>•</li> </ul>
Natural resource impacts at destinations	Failure to adhere to Leave No Trace principles at backcountry destinations.	<ul style="list-style-type: none"> <li>• Evaluation</li> <li>• Education</li> <li>• Reservation system for use of destinations</li> <li>• Exclusion/closure of secondary trails, destinations</li> <li>• Restoration</li> </ul>
Disturbance of special status species (2010 Addition GMP)	Visual observance or regulatory consultation	<ul style="list-style-type: none"> <li>• Temporal or spatial closure, exclusion of trails and/or destinations</li> </ul>
Invasive Plants (2000 Recreational ORV Management Plan)	Visual observations of any new invasive plants on or adjacent to designated trails and destinations.	<ul style="list-style-type: none"> <li>• Education</li> <li>• Restoration</li> <li>• Area closure</li> </ul>

## APPENDIX G: AFFECTED ENVIRONMENT REFERENCE MAP



VEGETATION COMMUNITIES WITHIN THE PRESERVE

## **APPENDIX H: LIST OF PREPARERS AND CONSULTANTS**

The following individuals contributed to the preparation of this Environmental Impact Statement document.

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## **APPENDIX I: LIST OF RECIPIENTS OF THE SUPPLEMENTAL DRAFT PLAN/ ENVIRONMENTAL IMPACT STATEMENT**

The National Park Service posted the Supplemental Draft Environmental Impact Statement on the PEPC site for public comment. In addition, it was provided to the agencies, elected officials, organizations, and businesses listed below.

### **DEPARTMENT OF AGRICULTURE**

- Forest Service
- Natural Resources Conservation Service

### **DEPARTMENT OF DEFENSE**

- Army Corps of Engineers

### **DEPARTMENT OF THE INTERIOR**

- Bureau of Indian Affairs
- National Park Service
  - Everglades National Park
  - Biscayne National Park
  - Southeastern Archeological Center
- US Fish and Wildlife Service
  - South Florida Ecological Services Office
  - Florida Panther National Wildlife Refuge
- US Geological Survey
  - South Florida Ecosystem Restoration Task Force
- Environmental Protection Agency

### **STATE OF FLORIDA**

- Department of Community Affairs
- Department of Environmental Protection
  - Office of the Secretary
  - South District Office
  - Fakahatchee Strand Preserve State Park
- Department of Transportation
  - District One Office
- Fish and Wildlife Conservation Commission
- Office of the Governor

South Florida Water Management District  
Executive Director  
Lower West Coast Service Center  
Big Cypress Basin  
State Historic Preservation Office

## **COUNTY/LOCAL GOVERNMENT**

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Manager  
Commission  
Sheriff  
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Southwest Florida Regional Planning Council

## **NATIVE AMERICAN TRIBES**

Seminole Tribe of Florida  
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Miccosukee Tribe of Indians of Florida

## **FLORIDA CONGRESSIONAL DELEGATION**

US House of Representatives  
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US Senate  
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## **FLORIDA STATE LEGISLATURE**

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Lauren Melo - District Office – District 80  
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## **ORGANIZATIONS AND BUSINESSES**

Allied Sportsmen's Associations of Florida  
Audubon of Florida and Collier County  
Big Cypress Sportsmen's Alliance  
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Collier Resources Company  
Collier Sportsmen & Conservation Club  
Conservancy of Southwest Florida  
Council of the Original Miccosukee Simanolee Nation, Aboriginal People  
Defenders of Wildlife  
Everglades Coordinating Council  
Florida Biodiversity Project  
Florida Outdoor Alliance  
Florida Trail Association  
Florida Wildlife Federation  
Fort Myers News-Press  
Independent Traditional Seminole Nation of Florida  
Jetport Conservation & Recreation Club  
Miami Herald  
Naples Daily News  
National Audubon Society  
National Parks Conservation Association  
National Wild Turkey Federation – Everglades Longbeards Chapter  
National Wild Turkey Federation – Florida State Chapter  
North American Butterfly Association – Miami Blue Chapter  
Pegasus Foundation  
Public Employees for Environmental Responsibility  
Safari Club International  
Sierra Club  
South Florida Sun-Sentinel  
The Humane Society of the United States  
The Future of Hunting in Florida, Inc.  
The Wilderness Society  
Tropical Audubon Society  
Wildlands CPR

## APPENDIX J: LITERATURE CITATIONS

- Audubon Society  
2016 Crested Caracara. Available at: <http://www.audubon.org/field-guide/bird/crested-caracara>
- Belwood, J. J.  
1992 Florida Mastiff Bat (*Eumops glaucinus floridanus*). In the Rare and Endangered Biota of Florida, S.R. Humphrey (ed.), Vol. I, Mammals, 216-223. Gainesville: University Press of Florida.
- Burch, J. N.  
2011 Vegetative communities in Big Cypress National Preserve report. National Park Service, Big Cypress National Preserve, Ochopee, Florida. 13 pp
- Center for Biological Diversity  
2016 Red-cockaded woodpecker. Available at: [http://www.biologicaldiversity.org/campaigns/esa\\_works/profile\\_pages/Redcockaded Woodpecker.html](http://www.biologicaldiversity.org/campaigns/esa_works/profile_pages/Redcockaded_Woodpecker.html)
- Council on Environmental Quality  
1997 Considering Cumulative Effects under the National Environmental Policy Act
- Duever, M. J., J. E. Carlson, and L. A. Riopelle  
1981 "Off Road Vehicles and Their Impacts in the Big Cypress National Preserve." US Department of the Interior, National Park Service, Big Cypress National Preserve. T-614. National Audubon Society, Ecosystem Research Unit.
- Duever, M. J., J. E. Carlson, J. F. Meeder, L. C. Duever, L. H. Gunderson, L. A. Riopelle, T. R. Alexander, R. L. Myers, and D. P. Spangler  
1986a The Big Cypress National Preserve. US Department of the Interior, National Park Service, Big Cypress National Preserve. Research Report No. 8. National Audubon Society.
- Duever, M. J., L. A. Riopelle, and J.M. McCollom  
1986b "Long Term Recovery of Experimental Off-Road Vehicle Impacts and Abandoned Old Trails in the Big Cypress National Preserve." US Department of the Interior, National Park Service, Big Cypress National Preserve. SFRC-86/09. National Audubon Society, Ecosystem Research Unit.
- Eddleman, William R., R. E. Flores and M. Legare.  
1994 Black Rail (*Laterallus jamaicensis*), version 2.0. In The Birds of North America (P. G. Rodewald, editor). Cornell Lab of Ornithology, Ithaca, New York.
- Ewel, K.  
1990 Swamps. In: *Ecosystems of Florida*, edited by R. L. Myers and J. J. Ewel. University of Central Florida Press, Orlando.
- Federal Register 70282 Volume 81, Number 106  
2016 Available at: <https://www.gpo.gov/fdsys/pkg/FR-2016-10-11/pdf/2016-24140.pdf>
- Federal Register 46691 Volume 82, Number 193

- 2017 Available at: <https://www.federalregister.gov/documents/2017/10/06/2017-21617/endangered-and-threatened-wildlife-and-plants-endangered-species-status-for-dalea-carthagenensis-var>

#### Federal Register

- 2020 Endangered and Threatened Wildlife and Plants; Threatened Species Status for Eastern Black Rail With a Section 4(d) Rule. <https://www.govinfo.gov/content/pkg/FR-2020-10-08/pdf/2020-19661.pdf#page=1> accessed January 2022

Flores, Ronald E., and William R. Eddleman.

- 1995 "California black rail use of habitat in southwestern Arizona." *The Journal of wildlife management* (1995): 357-363.

#### Florida Fish and Wildlife Conservation Commission (FWC)

- 2013 A Species Action plan for Six Imperiled Wading Birds: little blue heron, reddish egret, roseate spoonbill, snowy egret, tricolored heron, and white ibis. Available at: <https://myfwc.com/wildlifehabitats/wildlife/species-action-plans/>
- 2015 Florida Black Bear. Available at: <http://myfwc.com/wildlifehabitats/managed/bear/bmu/>
- 2017 Wildlife Crossings. Available at: <http://myfwc.com/wildlifehabitats/managed/panther/wildlife-crossings/>
- 2018 Species Conservation Measures and Permitting Guidelines for state-threatened wading birds. Available at: <https://myfwc.com/wildlifehabitats/wildlife/species-guidelines/>
- 2019 Florida Black Bear Management Plan. Available at: <https://myfwc.com/media/21923/2019-florida-black-bear-management-plan.pdf>
- 2021 Big Cypress Wildlife Management Area: Regulations Summary and Area Map. July 1, 2021 to June 30, 2022. Available at: <https://ocean.floridamarine.org/HGMSearch/BrochureDetails.aspx?srctype=pfs&title=big%20cypress>

#### Florida Exotic Pest Council

- 2019 Florida Exotic Pest Council's 2019 List of Invasive Plant Species. Available at: [Florida Invasive Species Council](#).

#### Florida Natural Areas Inventory

- 2001 Field Guide to the Rare Animals of Florida. Available at: <https://www.fnai.org/species-communities/species-guides/field-guides-main>
- 1999 Fish and Wildlife Service Source: Multi-Species Recovery Plan for South Florida, Available at: <https://www.nrc.gov/docs/ML1219/ML12193A340.pdf>

Gann, G. D., K. N. Hines, E. V. Grahl, and S. W. Woodmansee

- 2006 Rare plant monitoring and restoration on Long Pine Key, Everglades National Park. Year-end report, year two. Cooperative agreement #H5284-03-0044, submitted to Everglades National Park. The Institute for Regional Conservation, Miami. Available at: [http://regionalconservation.org/ircs/pdf/publications/2006\\_06.pdf](http://regionalconservation.org/ircs/pdf/publications/2006_06.pdf)

- Klein, H., W. J. Scheider, B. F. McPherson, and T. J. Buchanan  
1970 Some hydrologic and biologic aspects of the Big Cypress Swamp drainage area. United States Geological Survey Open File Report 70003.
- Kushlan, J. A.  
1990 Freshwater Marshes. In: Ecosystems of Florida, edited by R. L. Myers and J. J. Ewel. University of Central Florida Press, Orlando.
- Kushlan, J. A., and F. J. Mazzotti  
1989 Historic and Present Distribution of the American crocodile in Florida. *Journal of Herpetology* 23(1):1-7.
- Leung, Y.-F. and J. L. Marion  
1996 "Trail degradation as influenced by environmental factors: A state-of-knowledge review." *Journal of Soil and Water Conservation* 51(2). 130-136.
- Long, Robert W.  
1974 "The Vegetation of Southern Florida." *Florida Science* 37:33-45.
- Mazzotti, F.J  
1983 The Ecology of *Crocodylus acutus* in Florida. PhD dissertation, Pennsylvania State University.
- National Park Service, US Department of the Interior (NPS)  
1991 General Management Plan and Final Environmental Impact Statement: Big Cypress National Preserve. Prepared by the Denver Service Center, Denver, Colorado.  
1995 The Secretary of the Interior's Standards for the Treatment of Historic Properties: With Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings.  
2000a Final Recreational Off-Road Vehicle Management Plan Supplemental Environmental Impact Statement. Prepared by the Denver Service Center, Denver, Colorado.  
2000b Director's Order 47: Soundscape Preservation and Noise Management  
2001 Resource Management Plan: Big Cypress National Preserve. Prepared by Big Cypress National Preserve and Southeast Regional Office.  
2003 Director's Order 77-2, Floodplain Management  
2006a Management Policies. Washington, DC.  
2006b South Florida and Caribbean Parks: Draft Exotic Plant Management Plan and Environmental Impact Statement. Washington, DC.  
2008 Big Cypress National Preserve Geologic Resource Evaluation Report, NPS D-176, February 2008.  
2010 "Big Cypress National Preserve – Addition. Final General Management Plan/Wilderness Study/Off-Road Vehicle Management Plan/Environmental Impact Statement."  
2011a Director's Order 41: *Wilderness Stewardship*  
2011b Understanding Sound. Available at:  
<https://www.nps.gov/subjects/sound/understandingsound.htm>  
2012a Procedural Manual 77-1: Wetland Protection. Available at:  
[https://www.nps.gov/policy/DOrders/Procedural\\_Manual\\_77-1\\_6-21-2016.pdf](https://www.nps.gov/policy/DOrders/Procedural_Manual_77-1_6-21-2016.pdf)

- 2012b “Environmental Assessment. Designated ORV Trail Heads and Turn Lanes. Big Cypress National Preserve, Florida.”
- 2013 NPS Hunting Management Plan/Environmental Assessment
- 2014 “Florida Panther (*Puma concolor coryi*) Research and Monitoring in Big Cypress National Preserve 2012-2013 Annual Report” Submitted to US Fish and Wildlife Service, Endangered Species Permit TE146761-2 February 18, 2014. Available at: <https://www.nps.gov/bicy/learn/nature/upload/2012-13-Big-Cypress-National-Preserve-Florida-Panther-Annual-Report-final-21-Feb-2014-1.pdf>
- 2015a NPS NEPA Handbook.
- 2015b NPS NEPA Handbook Supplemental Guidance: Writing Impact Analysis Section of EA and EISs.
- 2016a Burnett Oil Seismic Monitoring Environmental Assessment
- 2016b Florida Bonneted Bat. Available at: <http://www.nps.gov/ever/learn/nature/flbonnetedbat.htm>
- 2016c National Park Service Procedural Manual #77-1: Wetland Protection. Reissued June 21. Available at: [https://www.nps.gov/policy/DOrders/Procedural\\_Manual\\_77-1\\_6-21-2016.pdf](https://www.nps.gov/policy/DOrders/Procedural_Manual_77-1_6-21-2016.pdf)
- 2021 Big Cypress National Preserve. Baseline Noise Assessment. March 2021.
- Pernas, Tony
- 2016 Personal Communication, Email from Tony Pernas, Big Cypress National Preserve Supervisory Botanist to Kelley Samuels, AECOM, that contained list of plants observed within the Preserve. October 21.
- Pernas, A. J.
- 1999 Personal communication with Resource Management Specialist A.J. Pernas. Ochopee, FL: Big Cypress National Preserve.
- Pernas, A. J., D. Weeks, and C. Bates
- 1995 “Dye trace field study — Ochopee Prairie.” Unpublished data from the Ochopee Prairie Monitoring Program. On file at Big Cypress National Preserve, Ochopee, Florida.
- Prats M., et al.
- 2020 Western Big Cypress National Preserve Vegetation Map. Natural Resource Report. NPS/SFCN/NRR—2020/2170. National Park Service; Fort Collins, Colorado.
- Radle, A. L.
- 2007 Effect of Noise on Wildlife: A Literature Review.
- Ruiz P. L., et al.
- 2019 The Everglades National Park and Big Cypress National Preserve Vegetation Mapping Project: Geodatabase—Eastern Big Cypress (Regions 5 & 6), Big Cypress National Preserve. National Park Service.
- Stevenson, H. M. and B. H. Anderson
- 1994 *The Birdlife of Florida*. University Press of Florida; Gainesville, Florida.
- University of Florida, School of Forest Resources and Conservation

- 2011 Florida National Scenic Trail Visitor Assessment Annual Report 2010-2011. Available at: [https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb5365306.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5365306.pdf)
- US Fish and Wildlife Service (USFWS)
- 1998 Endangered Species Act Section 7 Consultation Handbook. Available at: <https://www.fws.gov/media/endangered-species-consultation-handbook>
- 1999a United States Fish and Wildlife Service Source: Multi-Species Recovery Plan for South Florida. Available at: <https://www.nrc.gov/docs/ML1219/ML12193A340.pdf>
- 1999b Cape Sable seaside sparrow. Available at: <https://ecos.fws.gov/ecp/species/6584>
- 1999c Everglade snail kite. Available at: <https://ecos.fws.gov/ecp/species/7713#:~:text=The%20Everglade%20snail%20kite%20is,square%20tail%2C%20and%20red%20legs>
- 1999d Audubon's Crested Caracara. Available at: <https://ecos.fws.gov/ecp/species/8250>
- 1999e Eastern Indigo Snake. Available at: <https://ecos.fws.gov/ecp/species/646>
- 2010 Cape Sable Seaside Sparrow. 5-Year Review: Summary and Evaluation. Available at: [https://ecos.fws.gov/docs/five\\_year\\_review/doc3272.pdf](https://ecos.fws.gov/docs/five_year_review/doc3272.pdf)
- 2015a Bald Eagle. Available at: <https://ecos.fws.gov/ecp/species/1626>
- 2015b Red-cockaded Woodpecker. Available at: <https://ecos.fws.gov/ecp/species/7614>
- 2016a Florida Panther. Available at: [https://www.fws.gov/refuge/florida\\_panther/wah/panther.html](https://www.fws.gov/refuge/florida_panther/wah/panther.html)
- 2016b Wood Stork. Available at: <https://ecos.fws.gov/ecp/species/B06O>
- 2020 Designation of Critical Habitat for Florida Bat (Proposed Rule). Available at: <https://www.federalregister.gov/documents/2020/06/10/2020-10840/endangered-and-threatened-wildlife-and-plants-designation-of-critical-habitat-for-florida-bonneted>
- Welch, Roy and M. Madden
- 1998 "Off-Road Vehicle Trail Database for Big Cypress National Preserve." Final Research Report, The University of Georgia, Center for Remote Sensing and Mapping Science, Athens, GA.
- Welch, Roy; M. Madden; and R. Doren
- 1999 "Mapping the Everglades." Photogrammetric Engineering and Remote Sensing 65(2): 166-170.
- Yamataki, H.
- 1994 Soil Survey Site Visit to Ochopee Prairie. Memorandum from USDA SCS to the National Park Service.



As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historic places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under US administration.



## Big Cypress National Preserve



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